VALUE ADDED OF CORPORATE VENTURE CAPITAL:
HOW DO CVC UNITS BENEFIT FROM THEIR ORGANIZATIONAL CORE?

CASE STUDIES OF THE RELATIONSHIP BETWEEN
CVC-UNIT AND BUSINESS UNITS

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LIST OF ACRONYMS

AG	Aktien Gesellschaft [corporation]
BU	business unit
CEO	chief executive officer
CIO	chief investment officer
CVC unit	corporate venture capital unit
DCV	DaimlerChrysler Venture
Dipl.-Ing.	Diplom-Ingenieur [Master of Engineering]
Dipl.-Kfm.	Diplom-Kaufmann [Master of Business Administration]
DM	Deutsche Mark
e.g.	for example
E-commerce	electronic commerce
ed.	Edition
Ed.	Editor
GmbH	Gesellschaft mit beschränkter Haftung [limited liability company]
i.e.	that is
Inc.	Incorporated
IPO	initial public offering
IP	intellectual property
IRR	internal rate of return
LAN	local area network
Ltd.	Public limited liability company
M&A	mergers and acquisitions
P&L	profit and loss
R&D	research and development
SVC	Siemens Venture Capital
U.K.	United Kingdom
U.S.	United States
USP	unique selling position
WWW	world wide web

1 Introduction

The title of the study "Value Added of Corporate Venture Capital: How do CVC units benefit from their organizational core?" suggests that there is something special about corporate venture capital; something that sets it apart from both the core business of a corporation and its competitors, the "dedicated" venture capitalists. The focus of the study is "which different mechanisms and methods do CVC units use to facilitate collaboration with business units in a corporation?". This constitutes a preemptive rejoinder to potential questions concerning the importance of corporate venture capital and why we need another study in this field. The justification for choosing collaboration between CVC unit and business units as the research focus for this study is based on the following practical and theoretical basis: the tremendous development of CVC in the past and the lack of attention paid to this phenomenon in the research so far.

Therefore, I will first give an overview of the CVC development in the past. According to a study recently published by Venture Economics, corporate venture capital (CVC) has gained a strong position in the equity business world in the last couple of years.[1] Furthermore, Assets Alternatives (2000) quoted that in 2000 the number of corporations with venture capital programs exceeded 350 companies (after 203 in 1999, and 110 in 1998), with worldwide CVC investments amounting to approximately $30 billion. The share of corporate venture capital in the total (US) VC market increased from 8.2% in 1997 to 18.2% in 2000, and ten of the world's twenty-two largest venture capitalists are now CVC investors. Table 1-1 shows the increasing importance of CVC over the past few years.

[1] Venture Economics (2001) stated that corporate investments exceeded US$ 18 billon in 2000.

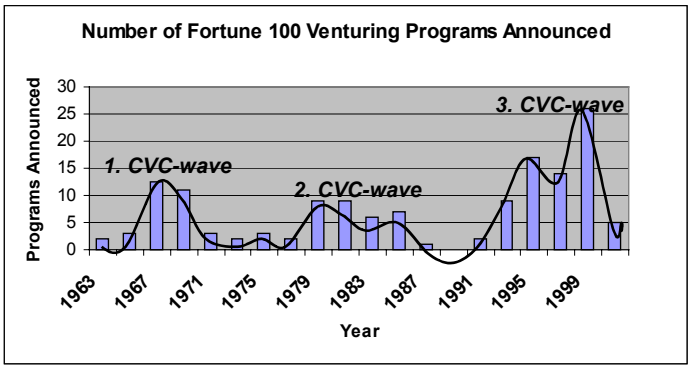
Figure 1-1: The amount of invested capital in CVC programs, the number of CVC companies, and the number of deals and financed companies

Year	Sum inv. ($mil)		Number of CVC programs		Number of financed Companies		Number of CVC deals	
Year	*USA*	*Germany*	*USA*	*Germany*	*USA*	*Germany*	*USA*	*Germany*
1997	840.83	0.90	104	2	290	2	333	2
1998	1954.16	7.14	166	5	567	7	622	7
1999	9929.31	27.84	328	12	1181	12	1352	12
2000	19576.17	353.11	335	22	2097	48	2325	49
2001	5576.07	56.88	228	22	1037	51	1104	53
2002	793.9	0.88	98	4	199	7	199	7

Source: Thomsons Financial, Venture Economics/NVCA, data published at 07/05/2002

After this phase of rapid growth in recent years, the corporate venture capital industry is experiencing a shake-out in 2002. This development of CVC follows the recognized cyclical nature of the venture capitalist industry mirrored by the past three decades. However, the most recent wave of corporate venturing activity is on a considerably larger scale, with greater diversity of companies involved and a more international orientation (Lerner 2001). Figure 1-2 reflects the cyclical nature of CVC by demonstrating the number of CVC programs announced.

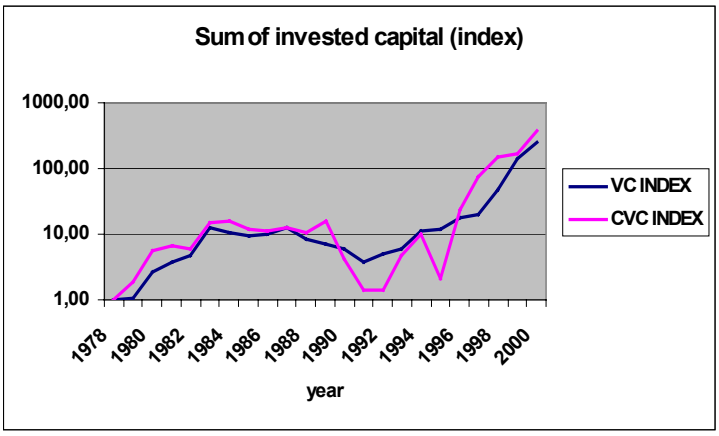
Figure 1-2: The cyclical nature of CVC



Source: Author, based on data of Venture Economics

Looking more closely at the mirrored cyclical evolution of CVC, it becomes obvious that the shifts in both directions have been particularly dramatic compared to the traditional venture capital industry. In this sense, the latest example of such a hasty retreat as part of an historic pattern of advance and retreat shows that the swings in recent years were even wider than before: nearly one third of the companies actively investing corporate venture funds in start-ups in September 2000 had stopped making such investments 12 months later, and over the same period, the amount of corporate money invested in start-ups fell by 80 %.[2] Figure 1-3 points at the more conspicuous development of CVC compared to traditional VC.

Figure 1-3: The cyclical nature of CVC: CVC market follows the development of VC in a "time lag"



Index:
VC (1=400), CVC (1=45)

Source: Author, according to Venture Economics and several editions Venture Capital Journal

However, at the same time there are positive signs in CVC: new CVCs are launched at times when the market is consolidating. Current press releases in private equity trade journals exemplify this:

- Nestle fund opens for business: Inventages Ventures Capital has been appointed to manage the food conglomerate's €150m VC fund.
Source: info@privateequityonline.com, 08.03.2002
Allianz commits €300m to venture investing: The Munich based insurer has unveiled Allianz Venture Partner, a € 300 m early stage investment vehicle, to

[2] According to the research firm Venture Economics, quarterly CVC investments in start-ups rose from $ 468 million at the end of 1998 to $6.2 billion by the beginning of 2000 and then tumbled to $ 848 million in the third quarter of 2001.

complement its existing private equity business.
Source: info@privateequityonline.com, 07.02.2002

- The pharmaceuticals industry looks to internal VC funds for new ideas and profits: In the last six months, two of the largest pharmaceutical companies -- Merck and Eli Lilly -- launched $100 million in corporate venture capital funds.
Source: Red Herring Magazine, 13.04.2001

- Unilever to create venture fund: The consumer products group is talking with private equity firms over the creation of a subsidiary venture capital fund.
Source: info@privateequityonline.com, 30.11.2001

Additionally, since those CVC firms that remain continue to show outstanding growth and profitability (Venture Economics, NVCA, EVCA, 2001), the interesting question awaiting closer analysis is why corporations sometimes devote huge amounts of money to CVC, and sometimes pull out of the market completely and terminate their CVC programs. What makes for the success of CVC?

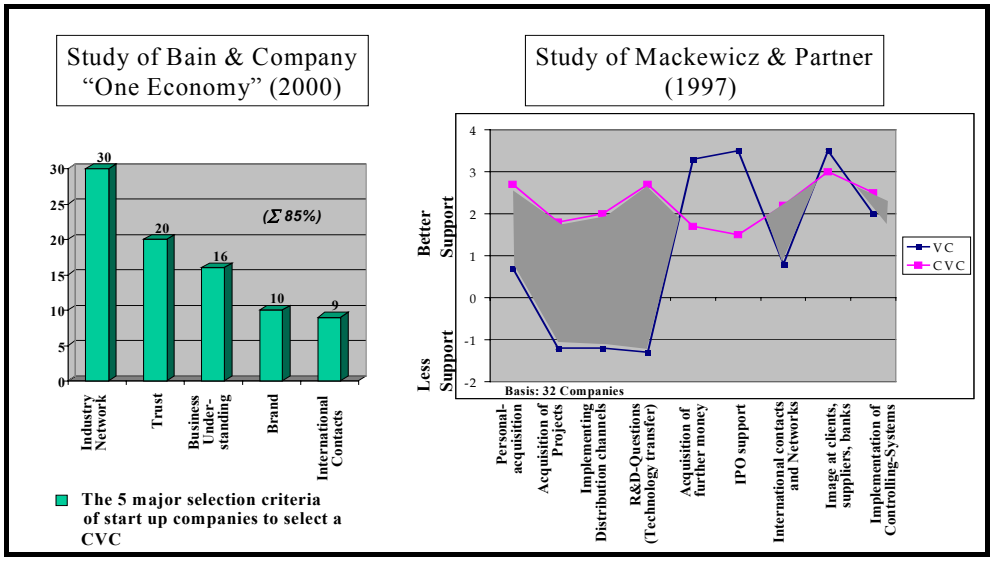
In looking for possible explanations for this "herd behavior" phenomenon (zu Knyphausen-Aufseß and Dowling, 2001), the impact of one unique defining characteristic of CVC has to be analyzed: the embedding of CVC in a corporation. Corporate investors have access on the one hand to non-material technological, market and business knowledge that independent venture funds rarely possess (Maula and Murray, 2000; Hellmann, 2000), and on the other hand to more material corporate facilities such as distribution channels and R&D opportunities. Such resources broaden the range of value-creating services that corporate investors can provide for their portfolio firms. In trying to explain the cyclical nature of CVC, it is necessary to consider two relevant aspects arising from the relationship between a CVC and a corporation and their impact in order to embrace both sides of CVC development.

The positive shifts, showing the tremendous influx of CVC investments reflects the fact that CVC plays an increasingly important role in corporation strategy. Much is known about the motives for starting CVC programs and the general value proposition they offer the parent companies (e.g. Lerner, 1998). According to the literature and managers of corporate venturing programs, the reasons for developing a venture capital vehicle are manifold (Siegel et al., 1988). Principally, it is a combination of both ends of the CVC spectrum, seeking

financial return and strategic knowledge. While the distinct corporate venture capital programs vary by the proportion of these elements, in most cases strategic objectives are favored over the financial ones (Schween 1996, Siegel et al., 1988).[3] CVCs offer their parent companies an opportunity to gain a "window on developing markets" at relatively low levels of invested capital. They may also provide a means for regenerating a sense of entrepreneurial spirit within the company through contact with and possible integration of new, innovative ventures.

On the face of it, the value proposition that CVCs offer to new ventures has several advantages over private venture capital (Chesbrough, 2000): it has a deep understanding of core technologies and access to and relationships with people in the business market itself (Bain & Company, 2000; Mackewicz & Partner, 1997). The following figure shows these characteristics of CVC, which explain the tremendous influx in CVC investments.

Figure 1-4: CVC delivers further "value added" for the start-ups that they notice favorably



[3] A survey by the European Commission on the goals of CVC investors in Europe, based on 150 European corporations, shows that 92% have strategic, 58% financial, 12% social responsibility, and 17% other reasons as their goals (total: 179%; several answers were possible)

However, what explains the enormous decrease and negative swings of the CVC investments? Analyzing the issues of CVC programs that have failed in the past, it can be shown that the realization of the value to the corporation and to portfolio companies often goes awry because of impediments in CVC that do not exist with private venture capital. The issues that arise are non-cyclical in nature but have a significant impact on corporate venture capital activity (Lerner, 2001).

Impediments may include an unclearly defined mission of a CVC program (Fast, 1978; Siegel et al., 1988). Top management often sought to accomplish supposedly incompatible objectives such as supporting the existing strategy and, at the same time, generating attractive financial returns. Furthermore, CVC programs often fail to find the right mix of strategic and financial goals. This leads to the fact that corporate venture capitalists, unlike venture capitalists, hold onto their losing investments longer as there is a greater "strategic" interest involved or more reputation at stake. Similar problems are mentioned regarding the degree of organizational autonomy and independence in order to overcome bureaucratic company decision-making processes and to achieve the best performance. Moreover, the inability to compensate top CVC managers in a manner competitive with private venture capitalists through "carry of interest" provisions (Berry, 2000) results in less experienced investment managers working in CVC units. Corporations fear that they might need to make huge payments if their investments are successful, that it might create a double culture in the company and a lot of disruptive envy between the business units and the CVC unit, or that it may elevate revenue expectations for everyone in the company (Block and Ornati, 1987). Additionally, a lack of incentive to participate and cooperate for business units that have the resources and know-how necessary to develop the portfolio company (Hardymon et al., 1983; Rind 1981; Sykes, 1990) makes it even more difficult for CVC to deliver the value they are supposed to. Finally, the majority of companies in question that do CVC investments are multinational enterprises. The fact that their business units are scattered worldwide makes the collaboration between the CVC unit and the business units even more difficult.

These impediments have some critical implications for CVC. First, when the market does not lead to expected results and CVC becomes financially less

successful, CVC is one of the first activities that is terminated when a corporation is in economic difficulties, as CVC investment does not typically belong to the core businesses of a corporation. This reflects the issue that CVC often does not have the long-term commitment of the corporate headquarters. Second, since corporations' commitment to CVC seems to be very cyclical, the CVC managers are not able to gain wide experience in the investment area. Therefore they tend to be less experienced than traditional venture capitalists. Moreover, due to the inadequate compensation systems used in the CVC industry, the more experienced investment managers try to get employment with a dedicated venture capital company.

All of these circumstances have a negative effect on the relationship between the business units and the corporate venture capital unit, which is expected to create value for the corporation as well as for the portfolio companies. The problem is that they cannot promise their start-up companies the potential "value added", as in realizing these "support services" they depend strongly on the collaboration of the business units in the corporation, which the CVC unit does not directly control.

This background information about the industry supposes that realizing the value for both the corporation and the start-up companies involves some difficulties that are worth analyzing in detail. We will only understand it in depth when we look closely at what corporate venture capitalists do and what problems arise. What limits the full range of corporate possibilities? The question is therefore, how do they succeed in trying to bring added value to the portfolio companies and the corporation? How does the CVC unit get the business units involved in the investment process? As there is a kind of trade-off for the corporation between the costs incurred by corporate venture capital investment and the value that comes back out of these activities, it is crucial to know how this dilemma can be solved as well as possible. Therefore, the purpose of this study will be to focus on how CVC units attempt to make the value present in their corporate connections available to their portfolio companies; I only consider indirectly how CVCs create value for the corporation itself.

I propose to examine how CVCs wrestle with the problems and issues involved in creating and realizing value for portfolio companies. Specifically, a number of

questions should be discussed here: what conflicts arise as CVC units seek to tap the knowledge and potential of operating units? What mechanisms create and facilitate productive interactions between the CVC unit and other business units? What level of autonomy exists in the CVC business unit relations, and how may that level of autonomy be achieved while simultaneously promoting cooperation? Are there certain types of commitment - on the part of both the headquarters and the business unit - that work better? How can decision processes be streamlined to avoid them becoming lengthy and protracted? Besides direct financial rewards, what motivates business units to devote time and effort to interactions with portfolio companies? In short, the focus here is on how CVCs use their internal relationships to deliver on their value proposition vis-à-vis the portfolio companies. My research objective is to understand and describe the intra-organizational collaboration between CVC unit and business unit with the final goal of generating testable propositions regarding CVC business unit relationships.

In the existing literature (e.g. Gompers and Lerner, 1998), little is known about how CVCs create value added for their portfolio companies by using the relationship with a corporation. Yet, despite myriad approaches to the topic of venture capital/corporate venture capital, little material can be found that specifically addresses the value added from the perspective of how it is finally realized and generated through the intrafirm collaboration with a business unit.

This is all the more surprising since the literature does hint that it is precisely the relationship to a corporation which is of special interest. In this sense Gompers and Lerner (1998), for example, come to the conclusion "that corporate venture capital is at least as successful as venture capital if first, there is possible access to technical and market know-how in the company, and second, the access to important resources of the company is established". Similarly, both Roberts and Yates (1991) and Brody and Ehrlich (1998) point out that "... another success factor of corporate venture capital is, that the parent company has to secure access to its resources, contact persons, technology and innovative know-how by the involvement of the corporation". Finally, this statement in the *Financial Post* (1998) underlines the importance of this relationship: "...another success factor of corporate venture capital stems from the nature of the relationships between the

parent company and the CVC unit. One of the challenges is to establish a suitable, internal relationship".

Therefore, there are indications that the relationship of interest in this study – between the CVC unit and the business units - is fundamental for the resulting value of CVC investments for both actors in this relationship. On the one hand the business unit, which is interested in the new technology of a start-up company, benefits more from a more effective collaboration. On the other hand, if the BU help and support a portfolio company their value in the market increases. Therefore, the CVC unit, whose main purpose is to sell an investment afterwards at a financial profit, also benefits more from a better relationship. However, the scope of this study does not include the relationship between the CVC unit and the potential investments, the start-up companies. One reason for this is that there is already a bulk of empirical research presenting analysis of this external relationship.

Since the anecdotal evidence of this intra-organizational relationship to be explored can only offer rather sketchy evidence of individual phenomena, a considerably more detailed approach is called for. A close description of the CVC industry and its development, operating companies, and most successful working patterns is needed if a deeper understanding is to be achieved. Detailed descriptions of 'best practices' are indispensable for eventually gaining rich theoretical insights. This study aims at developing a set of rigorously formed hypotheses that have the potential to extend the theory of intra-organizational collaboration and that themselves lead to subsequent tests.

Hence, the research approach selected for this study is descriptive and holistic. However, it is more than that. This study is also analytical in nature. It not only asks *what* the incentive of a business unit is to cooperate with the CVC unit during the investment process, it also asks *how* and *why* CVCs are performing certain actions. The appropriate research methodology for a study that attempts to extend theory by description and analysis, and that describes in detail the cooperation in the relationship of the CVC unit to other business units, is a comparative case study research methodology (Eisenhardt, 1989). This brief mention of the methodological foundation may suffice for the purposes of the introduction, since the first section of Chapter 2 contains a profound discussion

of the selection and application of the comparative case study methodology. This section also explains the research process itself - the process of how this study builds theory from the cases.

Furthermore, two other topics must be considered before the case analysis. The first is the inevitable topic of terminology and the analysis of the current situation of the market and its competitors. An effort has been made to limit this topic to a brief, yet concise explanation of some key terms. In this section, however, there will be no explanations of what is understood by corporate venture capital, since this will be done in the context of the respective sections concerning the building of corporate venture capital industry context.
The second topic, the research questions of this study, has already been referred to. These questions will be listed at the end of this chapter and will lead to Chapter Two which begins by determining appropriate methodological procedures for answering the research questions.

This study concentrates on direct corporate venture capital investments, which is a sub-field of corporate venturing. This investment mode has been selected due to the growing importance of this segment in recent years. No concentration has been made regarding the investment focus, meaning specific investment stages or investment areas. Therefore it is possible to see the implications of different investment focuses and objectives for the business unit collaboration. The overall objective of this dissertation is to identify the mechanisms that CVCs use in order to facilitate collaboration with the business unit in order to add value to their portfolio companies and to the parent company. This is a particularly good time to interview CVCs because from a practical perspective those CVCs that survive in the more competitive market want broader insights than those gained through their own isolated experience; I hope to provide a framework that is both descriptive and normative, by identifying patterns of problems and barriers in the relationship between CVC and BU. From a theoretical perspective, this study aims at an integrated theory of intra-organizational collaboration.

At this point of the introduction one might typically expect a section entitled ‘Overview of the Literature’ or similar. Is it not best practice to select, summarize, categorize, and discuss at length the body of literature that has been produced in the field of CVC research at the beginning of every new research

endeavor? The answer would certainly be 'yes' in strictly theoretical and most likely in hypothesis-testing and cross-sectional work. Nevertheless, this exploratory study follows the recommendations of leading case study methodologists who advocate an ideal of theory-free research (Eisenhardt, 1989, 1991; Dyer & Wilkins, 1991). However, there is an important difference in how an overview of the literature is given. In order to follow the recommendations of theory-free research as closely as possible, I will give an overview of the earlier research that only focuses on the aim of the extant literature without analyzing in depth the theory used. This is necessary in order to avoid a research project in an area that has already been the focus of previous research. Therefore, in Section 2.2.1 I will present the earlier research on CVC. In Section 2.2.2, I will present the definition of CVC used in this study. Chapter 2.2, which aims at building CVC industry context, will conclude in Section 2.2.3. that gives insights into the value added of CVC. This leads directly to the cases in chapters 2.3 and 2.4. Only after a rich and theoretically unbiased understanding of the intrafirm collaboration in CVC has been gained are the extant theories compared with the case results (Chapter 3). Ideally, this frequently propagated yet rarely practiced procedure of "postponed" literature review will lead to the extension of theory and thus to a theoretical contribution in its own right.

Before the cases can be presented, a set of research questions guiding the entire research process from field work to case description and analysis to theory extension must be specified. The formulation of these questions necessarily took place during the initial phase of this research project, at a point when little was known about the interaction between the business units and CVC units that were to be studied. Therefore, defining the research questions was a critical issue. On the one hand, the researcher may risk becoming overwhelmed by the complexity of the data with questions that are too broad and general in nature. How does one find a pattern if one does not know what kind of pattern one is looking for? On the other hand, with questions that are too focused or specific the issue of bias reappears. How does one gain a genuinely new understanding if one is looking for a pre-specified pattern? Faced with such a dilemma, a carefully compromising solution seems appropriate and, in fact, is proposed by Eisenhardt (1989, 1991) and Yin (1984). The research questions need to serve as 'guiding lights' without overly restricting the necessary degree of freedom of the research process.

The guiding lights selected for this research are partly taken from Picot (1991). The affected intra-organizational relation within the corporation between the CVC unit and business units can be explored by looking at four aspects which have so far been used for the research on inter-organizational relations: (1) structure, (2) processes, (3) actors and (4) context/culture, by which the relationship between CVC unit and related business units is characterized in different corporate venture capital firms.[4]

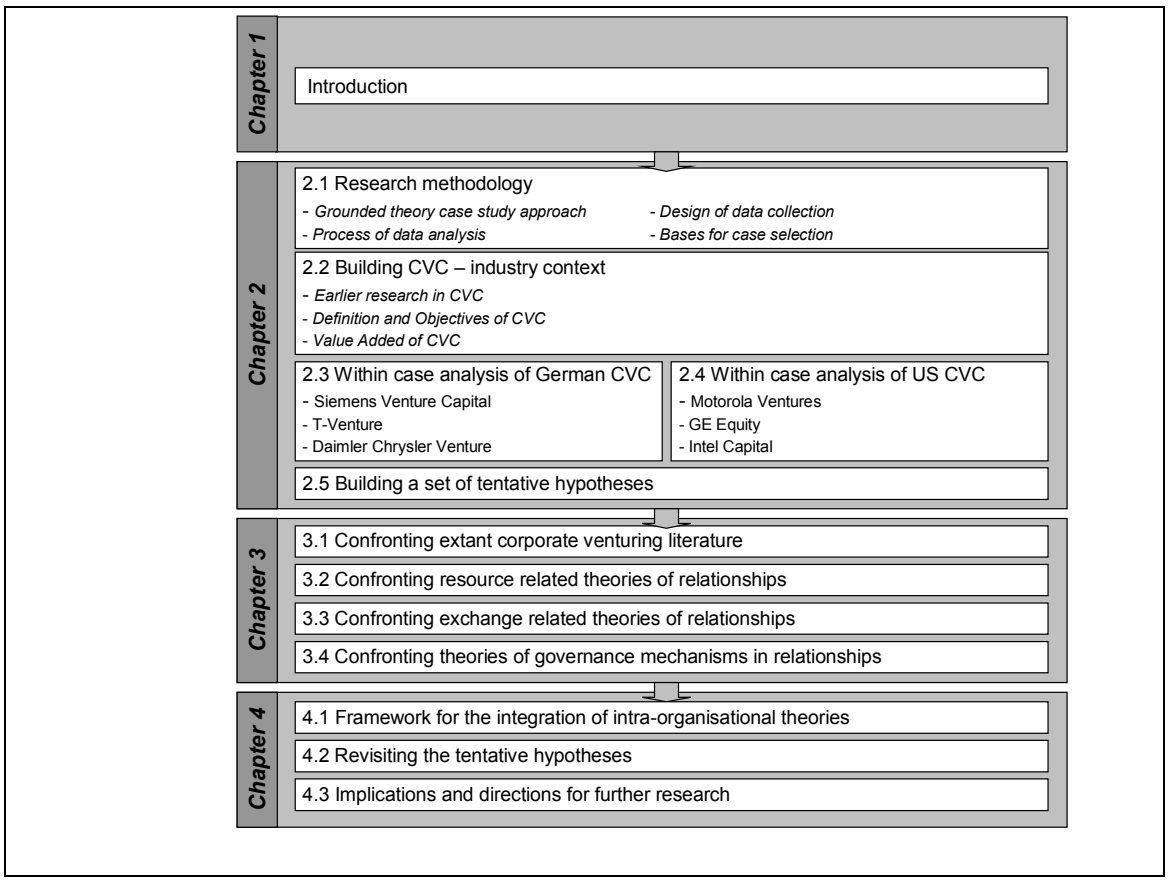
Based on this advice, the detailed research questions that follow the four guiding lights 'structure', 'actors', 'processes' and 'context', include the following:

- How is the firm's executive board integrated into the CVC program?
- How is the CVC unit structurally integrated into the corporation?
- How are business units integrated in the investment process?
- How are the interfaces between CVC and BU managed?
- How does the exchange of resources, know-how and information work?
- What are the incentive systems for the business units?
- What is the role of the investment manager in the collaboration process?

This study investigates these issues by exploring the relationship between CVC unit and involved business units in six firms: three German CVCs and three US CVCs. The study focuses intentionally on this small number of enterprises to allow a detailed analytical description of the complex processes. The following chapter introduces the research methodology and describes the cases. As in all exploratory studies of this kind, the case chapter is not only the longest chapter - it is at the crux of the research.

[4] The justification for this procedure can be found in Picot (1991): "... intra organizational relationships can be analyzed with the same instruments as inter organizational ones: structure, processes, actors and context of a relationship."

Figure 1-5: Structure of Work



2 Case studies of intra-organizational collaboration in corporate venture capital programs

The focus of this chapter is the case studies of six corporate venture capital programs. In each company, interviews were conducted with investment managers of the CVC program itself and of business units involved in CVC activities. The value of this research lies in its capacity to produce a model that provides insights into how corporate venture capital works and to generate hypotheses for further tests through descriptions and analyses of the six corporate venture capital programs. This study attempts to develop a deep and comprehensive understanding of how CVC managers operate. The main unit of analysis in this dissertation is the relationship between CVC unit and business unit.

In Section 2.1 I explain the research methodology which this study is based on. First, in sub-section 2.1.1, I explain my reasons for choosing a grounded theory. This includes an explanation of how I developed the research questions for this study. These questions lead to the selection of the method adhered to in this research. By making a summarized account of the state-of-the-art of case study methodology, it is hoped that this section can be of value to the reader in evaluating the methodological foundation of this study. In sub-section 2.1.2 I explain how and why I selected the particular companies used in the cases. This also includes how and why I selected the person interviewed, what process was followed in collecting the data, and a description of the data sources used in this study: (1) archival data and (2) interviews. Further, the types of questions, their purpose and the content of the interview guidelines that were followed will be presented. Sub-section 2.1.3 explains the procedure by which I designed my data collection. Finally, in the final sub-section (2.1.4) of the research methodology, the process applied to carry out the within-case analysis will be presented. This is followed by an explanation of the cross-case analysis.

Section 2.2 aims at building the corporate venture capital industry context. Therefore, while Section 2.2.1 presents earlier research in corporate venture capital, Section 2.2.2 addresses the definition and objectives of corporate venture capital. Sections 2.3 and 2.4 present the within-case analysis of the selected CVC

programs. These sections contain in-depth analyses of the cases. Furthermore, the final sub-section draws some preliminary within-case conclusions by attempting to pinpoint the critical issues arising from the collaboration of the CVC unit and the BU, and the methods used to overcome these problems.

Cross-case analyses are performed in the final section (2.5) of this chapter. The goal is to find divergent as well as similar patterns of collaboration used by the CVC managers in order to facilitate cooperation with the business units. Based on these analyses together with those in the previous section, tentative hypotheses can be formed. The set of tentative hypotheses represents the actual goal of this chapter's case studies.

2.1 Research methodology

This chapter starts with explaining the grounded theory case study approach in Section 2.1.1. This explanation draws on the writings of several case study research methodologists and demonstrates the actual application of their recommendations in a real-life study. Section 2.1.2 intends to be of assistance to the reader in evaluating the bases for the case selection. While Section 2.1.3 concentrates on the design of data collection, the final section 2.1.4 illustrates the process of data analysis.

2.1.1 Grounded theory case study approach

First, I will explain why I chose a case study methodology and my reasons for using "grounded theory". Therefore, I will describe the purposes of this research and how the grounded theory approach fits these purposes. The main limitations and criticisms of the case methodology are discussed.

This study focuses on how CVC units attempt to make the value of their corporate connections available to their portfolio companies. Based on the idea of the tension arising in the CVCs in pursuit of their daily work, the aim of this study is to generate hypotheses and to extend theory with a focus on the collaboration within corporations doing CVC.

The intermediate level of analysis, the strategic, procedural, personal and cultural aspects of the internal collaboration between CVC unit and business unit, presents a unique challenge regarding the availability of data. For one thing, no publicly available databases track data on corporate venture capital programs at an internal corporate level. An equally important problem is the sensitive nature of strategic and personal aspects, implying that firms may be reluctant to publish any information regarding their internal collaboration problems and their applied mechanisms to overcome them.

Several strict specifications apply to the selection of appropriate research methodology.[5] Yin (1984, Chap. 1) distinguishes between five research strategies: archival analyses, case studies, experiments, history and surveys. Three conditions determine the selection of an appropriate strategy for a study: (1) the type of research question, (2) the control an investigator has over actual behavioral events, and (3) the focus on contemporary as opposed to historical phenomena.

Since I want to know how the CVC unit collaborates with business units and why they collaborate, my research questions deal with operational links among these units within the corporation that need to be traced during the investment process. Considering the second and third condition mentioned by Yin, this study offers no control on the part of the researcher and is concerned with contemporary events. In this situation, according to Yin's recommendations (1984) the appropriate research strategy is the case study methodology. As the purpose of this study is to create theory rather than to test it, no quantitative method is applied.

As (1) the process is not well understood, (2) the number of factors and mechanisms involved in the cooperation are large, (3) the quantification of processes and values is difficult, and (4) the size of the sample in this study is limited, Glaser and Strauss's (1967) strategy for the discovery of "grounded theory" was adopted. In fact, due to the exploratory nature of the study and the objective of generating a descriptive model of phenomena which are as yet

[5] This study draws heavily on the authoritative, methodological writings of Eisenhardt (1990,1991), Pettigrew (1990) and Yin (1984).

incompletely documented, the case study approach appeared best. This strategy requires the researcher "... at first, literally to ignore the literature of theory and fact on the area under study, in order to assure that the emergence of categories will not be contaminated by concepts more suited to different areas" (Glaser and Strauss, 1967:37). Taking this approach allows the researcher to look at more factors than are imaginable before starting the case studies.

Due to the relative lack of previous research on the CVC intra-organizational corporation level, great uncertainty existed as to what conceptual framework would emerge from the data. Many of the variables are not known at the outset, but are expected to emerge during the course of the field work. Qualitative data, though, are most appropriate for generating an initial understanding of the rationale or theory of a process. The results can then be strengthened or tested by quantitative support (Eisenhardt, 1989). However, in a research endeavor that seeks to grasp the hows and whys of collaboration processes in a relationship - as opposed to exclusively the content - "we first need a story that narrates the sequence of events that unfolded" (Van de Ven & Huber, 1990; quoted in zu Knyphausen-Aufseß, 1995). Such narrations, however, need to be given limits, i.e. before initiating the case research, a clear study focus has to be developed. The rationale for the focus on the collaboration process between the CVC unit and the involved business units has been presented in detail in the first chapter.[6]

For many years, case study as a research format has been subject to substantial criticism and debate which often centers around the issue of sample size and limitations to external validity. One of the most frequently asked questions is: 'How can you generalize from just one case study?' This type of criticism is, however, often beside the point. Yin (1984) summarizes why:

> "Case studies, like experiments, are generalizable to theoretical propositions and

[6] This focus or 'a priori construct' should not be overly specified, however. In the words of Eisenhardt (1989) researchers "should avoid thinking about specific relationships and theories as much as possible, especially at the outset of the program" (p. 536). Severe controversy has developed around this issue. On the one hand, proponents of 'theory-free' case studies argue that substantially novel and groundbreaking theory can only be expected from research that evolves without any initial specifications or constructs (Dyer & Wilkins, 1991). On the other hand, proponents of 'construct-led' case studies believe that theory-free research cannot transcend good storytelling. They maintain that theoretical impact can only by achieved by rigorous methods such as clear specification of research questions (Eisenhardt, 1991).

> not to populations or universes. In this sense, the case study, like the experiment, does not represent a 'sample', and the investigator's goal is to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization)." (p. 21)

When confronted with the criticism of using too small a sample, the renowned business strategist and case study researcher Mintzberg (1979) responded during the same lines:

> "Given that we have 100 people each prepared to do a year of research, we should ask ourselves whether we are better off having each study 100 organizations, giving us superficial data on ten thousand, or each study one, giving us in-depth data on 100. The choice obviously depends on what is to be studied. But it should not preclude the small sample, which has often proved superior" (p. 108).

What then, is the ideal number of cases? Apart from pragmatic considerations such as time and money, that often dictate the number of cases, Eisenhardt's (1989) answer is:

> "A number of 4 to 10 usually works well. With fewer than 4 cases, it is often difficult to generate theory with much complexity, and its empirical grounding is likely to be unconvincing." (p. 545)

Based on the discussion of the three features of case study types, the "Multivariate, Non-Quantitative Studies of Multiple Organizations" type (Miller & Friesen, 1982, p. 1019) is selected for this study. It is "probably best suited for generating hypotheses and theories rather than for testing them, especially where the researchers get close to their organizations" (p. 1020). This methodological decision places this study in an increasingly common stream of inductive research that has been largely bypassed by deductive research methodology of the Popper (1968) type. In his/her discussion of the evolution of empirical research in the field of strategic management, zu Knyphausen-Aufseß (1995) calls attention to the recent "renaissance of case study research" (p. 217).

2.1.2 Bases for case selection

Given the difficult trade-off between the time constraints and depth of research, the selection of the firms was one of the most critical elements of the case study

research process. In large-sample quantitative research, random sampling is used to overcome the problem of bias. In case study research the population and the sample are deliberately selected through theoretical sampling by the researcher in a process best characterized by the phrase 'planned opportunism' (Glaser & Strauss, 1967; Pettigrew, 1990). Based on Pettigrew's (1979) recommendations on site selection, Eisenhardt (1989) advises that it "makes sense to choose cases as extreme situations and polar types in which the process of interest is 'transparently observable'" (p. 537).

Hence, the first step was to identify and select the type of CVC programs for a meaningful study of the phenomena of interest. As I began to research CVC and had preliminary interviews with industry experts (e.g. investment managers of CVC programs, strategy consultants of Bain & Company), and BVK officials (*German Venture Capital Association*), two main differences between CVC and traditional venture funds became obvious to me: first, the CVC unit is a part of a big corporation. This leads to a defining characteristic: corporate investors have access to technological, market, and business knowledge. Second, as the CVC unit should give access to a series of BUs that exist, the resulting and related collaboration between the CVC unit and the BU is very important.

In selecting potential companies, access to companies was decisive. First, due to the location of this research, German CVC units appeared to grant the most continuous and feasible access. As a matter of comparison and not to limit this study to German CVC, I chose a further market with the highest volume of CVC investments and longest history overlapping with CVC firm experience, which was without doubt the US market. The longer history of CVC activities could further be useful to clarify potential differences in collaboration between CVC located in Germany and in the USA.

Within this two-country frame, I tried to follow the recommendations of Pettigrew (1990). [7] In order to involve companies with more established

[7] In a detailed account of his/her vast case study research experience Pettigrew (1990) points out the merits of this selection procedure. In addition to the 'polar types' already mentioned in the quote from Eisenhardt (1989), Pettigrew also recommends: "Go for high experience levels of the phenomena under study" and "go for more informed choices of sites and increase the probabilities of negotiating access" (p. 276).

collaboration practices, I focused on the large corporations doing CVC investments. This was carried out according to two criteria: (1) by selecting CVC units that had a multinational parent company, as they proportionally represent the companies doing CVC with the highest investment volume as well as the highest number of investments, and (2) by choosing ones that have been active in Corporate Venture Capital for at least two years, as the boom and attractiveness of doing venture capital in recent years encouraged many young, small, and relatively inexperienced CVC units into the market. The following overview of *Asset Alternatives* (2001) shows that four of the 15 most active corporate investors of 2000 have been chosen. These relatively mature CVCs are most appropriate, since the study is intended to formulate normative recommendations that are based on the experience of established CVC companies.

Figure 2-1: Most Active Corporate Investors in 2000

Name	*Number of Deals*	*January-June*	*July-Dec.*
Intel Corp.	**176**	98	78
General Electric Co.	**95**	63	32
Comdisco Inc.	**57**	26	31
Dell Computer Corp.	**50**	30	20
Cisco Systems Inc.	**40**	17	23
Motorola	**38**	13	25
Reuters plc.	**32**	19	13
Siemens AG	**32**	19	13
Sun Microsystems	**31**	16	16
Hikari Tsushin	**31**	25	6
Compaq Computer	**30**	21	9
Hewlett-Packard Co.	**30**	16	14
PSINet Inc.	**28**	19	9
Microsoft	**27**	19	8
Andersen Consulting	**27**	11	16

Source: Asset Alternatives Inc.: *The Corporate Venturing Report*, Vol. I, Issue 1, 2001

Further, as the technology focus of the core competencies seems to have an impact on a company's CVC activities, I selected widely diverse technology-based companies from different industries. The interviewees were selected to represent the diversity of industry groups found among corporate venture capital: telecom, computing, software, automotive, diversified engineering. All of these industries are threatened by newly emerging markets and technologies. Many firms in this group find themselves in a situation where the survival of their core businesses is severely affected by a new technology and therefore spend a higher

proportion of their budget on research and development (Kann, 2000). Moreover, these companies represent the most important investment partners for new technology-based firms, since there is often potential for value creation in combining complementary resources between technology based new firms and large corporations (Laamanen and Autio, 1996; Rothwell, 1989).[8] The selected industries display strong standards or technology platforms regarding the communications, computing, and software sectors. Finally, it must be said that all selected corporations have an excellent reputation and brand in the market. This seems to appeal strongly to start-ups. The firms represent a variety of program structures and different levels of CVC activity.

These further specifications have been made for two reasons: first, to have cases representing polar types, and second, an effort has been made to identify "observable" categories (Eisenhardt, 1989). These particular companies seemed to give the best insights into how and why they collaborate.

Once the type of selected companies was clear, the number of companies had to be decided upon. Given the time and funding restraints of this Ph.D. thesis, plus my objective to develop contextually rich in-depth cases, I decided to limit my cases to six companies. "Different cases often emphasize complementary aspects of a phenomenon. By piecing together the individual patterns, the researcher can draw a more complete theoretical picture" (Eisenhardt, K.M, 1991).

To generate a pool of potential corporate venture capitalists to fill the pursued frame a rather complicated process was established to scan trade journals for initial leads. All this effort was necessary as a specification cannot be determined *a priori* in CVC due to a lack of official classification systems of CVC's.

Figure 2-2: The selected German companies

CVC Program	Corporation
Siemens Venture Capital	Siemens AG
T-Venture	Deutsche Telekom AG
DaimlerChrysler Venture	DaimlerChrysler AG

[8] In defining new technology-based firms, this dissertation follows the extant literature: companies less than six years old operating in high technology sectors (Robinson and Mc Doughall 2001, Shrader et al. 2000, Zahra et al. 2000).

Figure 2-3: The selected US-companies

CVC Program	Corporation
Motorola Ventures	Motorola
Intel Capital	Intel
GE Equity	General Electric

Figure 2-4 shows that an effort has been made to select long-established, international, most active CVCs from different industries. Furthermore, it shows the industries where the CVC unit invests.

Figure 2-4: Companies selected for the case study: long-established, international, most active CVCs from different industries

CVC *company*	*Location company*	*Legal form of the CVC unit*	*Number of employees*	*Investm. Volume*	*Number of Investments*	*Year of Foundation*	*Industry*	*Level of Diversification*
Siemens Venture Capital	Munich, Santa Clara, Burlington, Tel Aviv	Corporate subsidiary in the form of a limited liability company (GmbH)	Approx. 25, half of them investment managers	€ 200 m.	> 70 direct investm. > 25 investm. in VC funds	1999	Information & Communications, Medical Solutions, Industrial Automation and Power	7 business units, (14 segments)
T-Venture	Bonn, Berlin, Darmstadt, Munich, Redwood City, Boston	Corporate subsidiary in the form of a limited liability company (GmbH)	Approx. 55, 26 investment managers	€ 500 m.	Approx. 55 investments, investments in 9 VC funds	1997	TIMES markets	4 business units
Daimler Chrysler Venture	Stuttgart, Palo Alto	Corporate subsidiary in the form of a limited liability company (GmbH)	13 employees	€ 120 m.	21 portfolio companies	1997, ext. open 2000	electronics, sensors, electro-mechanics, e-business, telematics, m-commerce, mobility services, software development, material technology, fuel cell techn.	2 business units
Motorola Ventures	Chicago, Palo Alto, Boston	Corporate department	N.A.	Approx. $ 150 m. annual fund	Approx. 50 portfolio companies	1999	Strategic areas of Motorola	6 business units
Intel Capital	22 offices worldwide	Corporate Subsidiary	150 employees	Approx. $ 4.8 billion	Approx. 380 portfolio companies	1990	Design and Manufacturing Technology, -Content and Commerce - Network & Communication, -Client Server & Platform Techn.	1 business unit
GE Equity	10 offices worldwide	One of the 24 sub-businesses of GE Capital within the segment specialized finance	130 investment professionals worldwide	Approx. $ 4.5 billion	Approx. 375 portfolio companies	Formally since 1995, but in operation since 1990	Financial Services & Healthcare, Technology, Media & Telecom, Enterprise Services and Buy-outs	12 business units

Source: Author, based on interviews and company information, Venture Economics

2.1.3 Design of data collection

The objective of the data collection phase was to create an accurate portrayal of the question: "What do corporate venture capitalists do in order to create inter-organizational collaboration?" Data collection for the cases applied two instruments: archive documents and semi-structured interviews. Various sources were exploited using these instruments. The most important objective presented by using multiple evidence sources was the development of converging lines of inquiry to enable triangulation of information by building on the specific

strengths of each instrument. In this manner, I also tried to increase the validity of this study. These materials formed the basis for a comparative analysis of the six CVC programs. Given the qualitative nature of most of the data sought, triangulation was one of the most important means of increasing construct validity and substantiating findings and subsequent hypotheses. The archival search relied on existing academic research, independent analysis, published interviews, reports from Venture Economics[9], 'RedHerring' magazines, articles from business and trade press. Internal company documents such as company leaflets and presentations, annual reports, executive speeches, and company press releases available on the websites of the six case study companies are also used. All these documents are presented at the beginning of each case write-up. The advantages of the documented sources include their tendency to be more comprehensive and less subject to memory-based bias. The amount of relevant documents differed by firm. Moreover, in order to get the opinions independent of a case, several expert interviews were performed.[10] Finally, I underwent an internship of 3 months in a CVC unit.[11]

Particular efforts were made to locate and interview individuals closely involved in the collaboration of the CVC unit and the BU unit. The majority of the interviewees were CVC managers, as they play a key role in the collaboration with the business units. Two separate face-to-face interviews were conducted with CVC managers in each company. In order to get a complete picture of the relationship between the corporate venture capital manager and the business unit, I conducted five interviews with people working in a business unit. A total of 20 case study interviews were conducted. The list of interviews and affiliations of interviewees is presented in the appendix.

In most of the companies, two rounds of interviews were conducted. In order to gain a better insight into each program and to build up a personal relationship with the interviewees, the preliminary interviews were unstructured. In the second round, the interviews employed a semi-structured design in order to allow

[9] However, there are no databases that track CVC investments when the corporation is the sole investor in a given investment.

[10] Examples include multiple interviews at Bain & Company, Accenture Technology Ventures, and Deutsche Effekten- und Wechselbank.

[11] This took place from February to April, 2001.

for an appropriate degree of comparability and, at the same time, to allow for ample opportunity of an unobstructed narrative flow. An interview guideline was used to structure and direct otherwise open-ended interviews. This two-part interview guideline – given in the Appendix – was used in the semi-structured interviews: the first section included questions designed to obtain information on the history, context, and goals of each company, as well as on the interviewee, including questions about their job, their typical working day and their professional background.

The second section focused on the aspects structure, processes, actors and culture, which are often used in inter-organizational studies.[12] I used these aspects as a guiding vision for my interviews, as Picot (1991) recommended that intra-organizational research could apply the same instruments as research on inter-organizational questions. Adopting this suggestion, I sought information about the mechanisms CVC use to facilitate collaboration with the business unit. This section embraced questions about the reporting relationship, the mechanisms of coordination, and the reward systems and incentive structures. Data were also obtained on the relationships of the CVC with the rest of the corporation. In particular, the collaboration between the CVC unit and the corresponding company headquarters was studied. Finally, data was also obtained on the role, the characteristics, and the abilities of the corporate venture capital managers, and on the corporate culture.

In addition to the goals that the companies held when they decided to pursue corporate venture capital investments, Table 2-5 shows the CVC managers' evaluation and characterization of the relationship between the CVC unit and the business units.

Figure 2-5: CVC mission statement vs. characterization of the relationship

CVC Program	***Mission statement of CVC program***	**Characterization of the relationship between CVC unit and BU**
T-Venture	*"T-Venture: a 'trendsetter' for CVC activities." "In line with seeking a window on technology, T-Venture invests in the seed and early stages of growth and expansion of a company. In addition to providing the financial impetus necessary to foster entrepreneurial talent, concepts, and developments T-Venture will leverage the technical, management marketing skills of its*	"Basically, the collaboration with the business units is good. Therefore, from the point of view of the parent company into the direction of the portfolio companies, we really can deliver the value-added." "That is possible without any problems since the access and the collaboration of the business units is guaranteed, but also the commitment of the top

[12] See Antlitz (1999), or Häkansson und Snehota (1995), for example.

	investment managers and parent organization and Deutsche Telekom AG, to facilitate and accelerate the transition from start-up to fully fledged successful operations."	management of Deutsche Telekom is established." "Basically, the collaboration is very positive, but it is important to support the business units if necessary regarding required resources."
Daimler Chrysler Venture	*"We invest in your ideas. DC supports companies and employees determined to translate their vision into viable business solutions in the global market economy. We invest in leading edge technologies and business concepts by providing financial resources, expertise and worldwide networks."*	"That really depends on the specific project." "The whole collaboration pillars on networking. There are no formal contracts existent to the business units. A further realization is not reasonable."
Siemens Venture Capital	*"Under the banner of 'Fostering Innovation for Economic Success' Siemens Venture Capital has been set up as a globally active investment vehicle, which provides 'smart money' to innovative businesses in order to create long-term company value."*[13]	"The realization differs from case to case. It depends on the concrete situation: how well do the people work together? What is the current workload? How is the interest of a business unit?" "I would characterize it as good, but with potential for improvement."
Intel Capital	*"We invest with strategic intent, aiming to create and expand new markets for Intel's products. We want to stimulate growth in the internet, computing and communications to grow the total internet infrastructure now and in the future. While financial returns are not our primary goal, we are seeking companies that can succeed and have an impact on their market segment"*	"There is no competitive thinking at all between the business units and Intel Capital. It is clear in the minds of the business unit, that Intel Capital represents an important part of the prosperity, the innovation activity, and the innovation level of Intel. This makes a positive collaboration happen."
GE Equity	*"To be a global equity provider that creates value for its customers by leveraging the GE system. The objective is to combine investee performance with their request/need and our skills and knowledge."*	" It works. There are 2 or 3 businesses within GE where the relation is a little bit difficult. With all other businesses, we work very well on a cooperative basis." "The collaboration is characterized more by cooperative commitment than by competition."
Motorola Ventures	*"The Motorola Ventures objective is to be the catalyst for Corporate, Labs, Business, and Regional accelerated investments. By being the 'connect point' of new technologies, new markets and new people, strategic value, profitable growth, and profitable revenue are obtained."*[14] *"The purpose of this is to grow shareholder value by driving acceleration from outside in."*	"It all depends on the BU, but most of them work with us pretty openly. As we have been here for a while now they like to work together, because they understand that CVC is an additional toll to help them to get what they need on a commercial basis. We deal with it well." "The relationship differs from BU to BU. But most of our BUs definitely like to work with us and work pretty openly with us."

Informants were not given a questionnaire or a survey before the interviews; instead, as a concluding part of the interview, they were asked to summarize where they see the biggest hurdles in the collaboration between CVC unit and BU. And finally, in order to get a better insight into the actors involved (CVC, BU, or both together) I asked who delivered and provided the value-added of the corporation for the start-up companies.

The collection of data included interviews in Germany, the United Kingdom and the United States. Interviews were conducted face-to-face in German or English and usually lasted about two hours, the longest exceeding three hours.

Whilst gathering data I observed several rules of interviewing and qualitative data-handling (Spradley, 1979, Yin, 1984, Bourgeois and Eisenhardt, 1988).

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[13] http://w4.siemens.de/svc/index01.thmly, as of 2001-12-10.

[14] See statement in Motorola Ventures presentation.

First, I audio-taped all interviews and transcribed them verbatim.[15] As the majority of questions were of a "how" and "why" nature and mainly open-ended, transcription in full is imperative for reasons of internal validity and reliability. In their authoritative work on the methods of data collection, Bortz and Döring (1995) state: "If an interview also contains open questions and narrative parts, an audio recording is unavoidable" (p. 230, 231).[16] Second, I took notes and preliminary analysis in accordance with a "24-hour rule" to capitalize on the immediacy of the data. Third, I tried to keep the informants involved during the process of transcribing and first analysis. Follow-up questions were explored through a combination of face-to-face interviews and telephone conversations.

Further, before starting with the case analysis, each respondent confirmed the correct transcription. All transcripts are included as part of the case study database. Similar to the well-established Harvard Business School case research approach, all interviewees were granted personal anonymity, in that all they said was only attributed to the corresponding CVC until and unless they approved of the transcript (Leonard-Barton, 1990).[17]

Within the phase of "entering the field" in performing case studies, Eisenhardt (1989) reminds the researcher that a striking feature of research to build theory from case studies is the frequent overlap of data analysis and data collection. As recommended by Pettigrew (1990), "Overlapping data analysis with data collection not only gives the researcher a head start in analysis but, more importantly, allows researchers to take advantage of flexible and follow-up data collection." Indeed, a key feature of theory-building case research is the freedom to make adjustments during the data collection process. These adjustments can be the addition of cases, or additional adjustment can be made to data collection

[15] Citations from interviews conducted in English were not translated into German, in order to keep the manner and nuance with which informants formulated the point of interest.

[16] In addition to the added rigor and internal validity, one of the main benefits of taping and transcribing interviews is that the interviewer can concentrate on what is being said, rather than being continuously distracted by note-taking.

[17] Interviewees received copies of the transcripts with requests for approval. If they objected to certain parts of the transcripts they were asked to mark the parts to be omitted from the final transcript. Interviewees were also asked to make additions or clarifications that were then integrated into the final transcript version.

instruments, such as the addition of questions to an interview protocol (e.g. Harris & Sutton, 1986).

Therefore, by conducting the preliminary interviews and gaining the first insights into CVC, I used these adjustments in two ways: first, a moderate relationship seemed to arise between the goals of a CVC program and the intraorganizational collaboration. I sought a corporate venture capitalist which was obviously operating like an independent VC: having mainly financial goals, choosing primarily good financial investments, and with low involvement by the business unit. Second, I added specific questions which seemed to be of great importance in the first interviews.

The entire process of data collection (including archival document research and performing the case studies) and analysis lasted from July 1999 to December 2001.

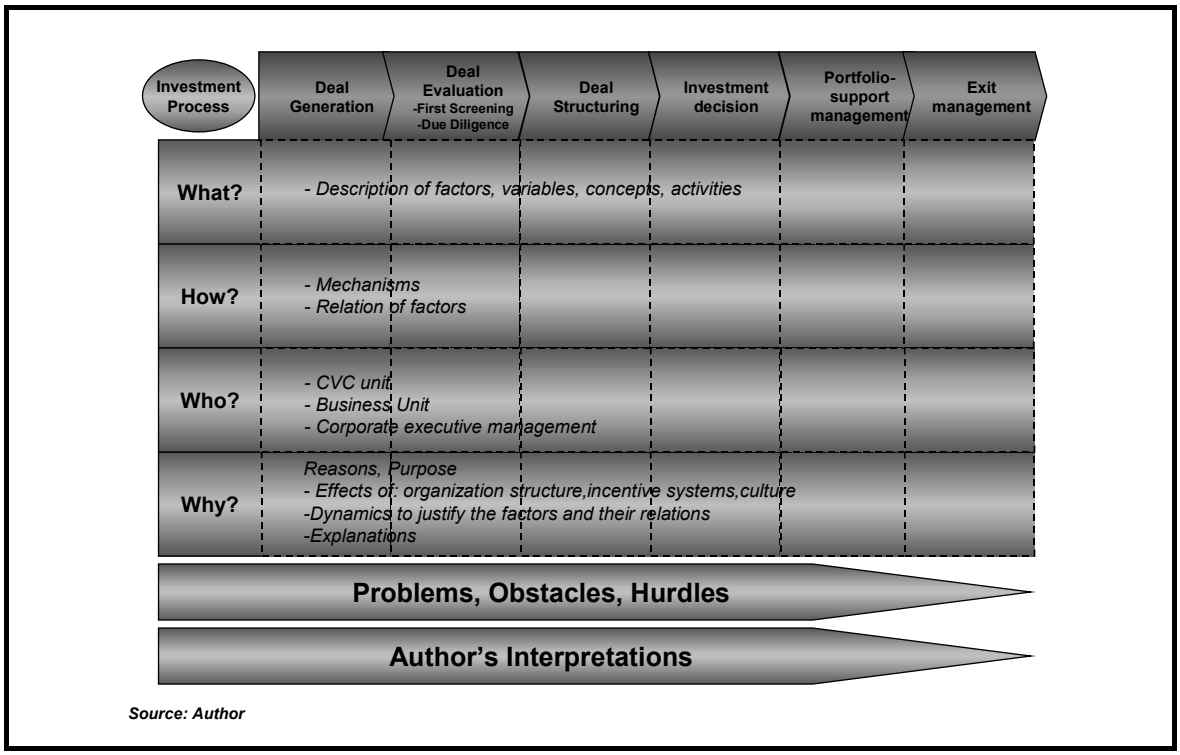
2.1.4 Process of data analysis

The objective of the data analysis is to determine categories, relationships and assumptions which provide information about the respondent's view of the world in general and the topic in particular (McCracken, 1990). Therefore "analyzing data is the heart of building theory, but it is both the most difficult and least codified part of the process" (Eisenhardt, p. 539, 1989). As the final goal of this work is to develop a theory and subsequently to generate hypotheses, I had to answer three questions: (1) which CVC concepts are important, (2) how are these concepts related to each other, and (3) why are they related?

Building on detailed case study write-ups, detailed descriptions of each single case are crucial for gaining important insights. Although there is no typical way to get from the field notes to the final conclusions, there are several key features of analysis that Eisenhardt (1989) identified. One key step is the within-case analysis. The within-case analysis aims at identifying patterns in the collaboration process of each firm.

Following the basic elements and components of theory identification mentioned in Whetten (1989)[18], I organized the within-case analysis of this study by following the investment process typical in venture capital. This was done in order to ensure a complete and in-depth understanding of four questions: (1) what are CVC units doing in order to create inter-organizational collaboration, (2) how they are doing it, (3) with whom they are doing it, and finally (4) why they are doing it? I tried to analyze and answer these questions during the six phases of the CVC investment process. Since the CVC process seems to be similar to the investment process of traditional private venture capitalists[19], I applied the following structure:

Figure 2-6: Data analysis follows the investment process



In order to understand what is indicated in each phase of the investment process, for each case I re-read the transcripts repeatedly. The process by which I conducted my analysis included first a reading of the whole transcript, second a

[18] See Whetten, D., "What constitutes a theoretical contribution", Academy of Management Review, 1989, Vol. 14, No. 4, 490-495. In this article, Whetten specifies the factors that constitute a theory and explains how a researcher gets there.

[19] This assumption was confirmed in several discussions with CVC experts, e.g. in a meeting with Dr. Franzke, Bain&Company

focus on rationales of certain actions, and finally another reading of the entire interview. Besides examining the investment process for each company, I focused on the effects of the organizational structure, incentive systems, actors and culture on the investment process, as these components appeared to me to have important implications for the investment process. I based this assumption on Picot's recommendation (1991:149) that inter-organizational aspects can be explored using the same instruments and methods as organizational aspects within one corporation.

The overall idea was to become intimately familiar with each case as a stand-alone entity. "This process allows the unique pattern of each case to emerge before investigators push to generalize pattern across cases. In addition, it accelerates cross-case comparison" (Eisenhardt, 1989:540). I finished each case by writing a narrative of it, and, as far as possible, I tried to create graphs and figures in order to make the analysis process more transparent. With the higher visualization of figures, I tried to visualize the rationales of the investment process.

The next crucial phase of multiple firm case studies is the cross-case analysis. Eisenhardt (1989) points out that: "Across-case searching tactics enhance the probability that the investigators will capture the novel findings which may exist in the data" (p. 541). In order to overcome the danger of reaching premature or false conclusions as a result of the analysis process, I selected categories and dimensions, and then looked for within-group similarities coupled with inter-group differences. The advantage of a selection of dimensions is that paired comparisons allow for a clear identification of similarities and differences (Eisenhardt, 1989). Overall, the objectives of the cross-case analysis were (1) to go beyond the initial impressions, (2) to improve the likelihood of accurate and reliable theory, (3) to develop a theory with a close fit with the data, and finally (4) to enhance the probability of capturing the novel findings existing in the data.

From the within-case analysis plus cross-case tactics and impressions, tentative themes, concepts and relationships were expected to emerge. The patterns regarding the collaboration process between CVC unit and business units (or even other affected actors within the firms) that gradually emerge from within and cross-cases analyses are then iteratively compared with the evidence from

each case in order to assess how well it fits with case data. A close fit is important as a base for some tentative hypotheses and to build theory.

One step in shaping hypotheses, the refining of definitions of the constructs, was achieved by using a table that summarized and tabulated the mechanisms used to facilitate the operational work of the CVC within the different companies. This represents a brief portrayal of crucial facts, including my interpretations and explanations. The second step in shaping tentative hypotheses, the verification of the emerging relationships between constructs, was taken by confirming or revising the case evidence. The underlying logic is replication with the final goal of enhancing confidence in the validity of the relationships. This was done by confirming or disconfirming tentative hypotheses (Yin, 1984).

The final step in the research process was the comparison of the emergent concepts, theory, or hypotheses with the extant literature. This phase, "enfolding the literature" (Eisenhardt, 1989:544), I started parallel to the cross-case analyses by looking for similarities and contradictions and their reasons. An essential feature of hypothesis formation and theory extension from tentative hypotheses is the comparison of the emerging hypotheses with extant literature (Eisenhardt, 1989). Chapter 3 of this study is devoted to an extensive juxtaposition of the case-based findings of Chapter 2. By confronting the tentative hypotheses with the extant literature, the final hypotheses are developed.

This study uses multiple ways of addressing validity, as most of the criticism of case studies focuses on validity. Triangulation was used to increase construct validity; iterations were conducted during analyses to increase internal validity, and reliability. I addressed repeatability by adhering to strict documentation and transcription standards. I also used multiple companies and comparative findings to increase external validity. This case study does not claim to produce generalized theory; its aim is rather to produce hypotheses and theory extension for subsequent testing to then develop a general theory.

2.2 Building the corporate venture capital industry context

The aim of the next two sections is to generate insights into corporate venture capital. The first section sets out to summarize what is known about corporate venture capital in earlier research into corporate venture capital by providing an overview of the extant literature. Thus, Section 2.2.1 sets the basis for the definition and objectives of corporate venture capital discussed in Section 2.2.2 and also for the explanatory discussion of the value added of corporate venture capital in Section 2.2.3. This sub-chapter represents the contextual stage for the in-depth descriptions of the intra-organizational collaboration in CVC programs.

2.2.1 Earlier research in corporate venture capital

The aim of this chapter is the description of and information about the size, players, and the industry of CVC. Since I only look at the extant literature from a general perspective without specifying reasons or details, it is not my intention to discuss available theory on CVC.

Looking at the CVC industry, there have been tremendous ups and downs in the development of this market. The volume of research on CVC has reflected the economic importance of the sector over time (Block & Mac Millan, 1993; Hardymon et al., 1983; McNally, 1997; Rind, 1981; Siegel et al., 1988; Sykes, 1990; Winters, 1988). Murray and Maula (2000) reported three major surges in CVC activity, the most recent and dramatic of which started around 1998/1999. It is suggested that CVC investments by strategically related investors make a positive impact on the performance of portfolio companies (Gompers and Lerner, Maula and Murray, 2000). Maula and Murray (2000) also noted that most research on CVC dated back to the two previous periods of high activity. Most of the research on CVC has examined the issue from the perspective of the start-up company. Only few studies have been undertaken since 1998, with the exceptions of Hellmann (2000), Kann (2000), Maula and Murray (2000), and Kelley and Spinelli (2001).

While this relationship between CVC unit and portfolio company is explored relatively extensively (e.g. Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998; Yli-Renko et al., 2001), there is no research on the implications of realizing the value within the corporation for the relationship between CVC unit and business units involved. Although it is known that a collaborative relationship between the corporate investor and the investment affects the returns for a portfolio company considerably (Maula and Murray, 2000), the literature provides no answer to the necessary question of how this phenomenon becomes possible due to collaboration between the CVC unit and BU.

To date, Gompers and Lerner (2001) and Maula and Murray (2000) provide the only rigorous quantitative analyses of potential value added. Both studies reported positive performance implications of corporate venture capital for the PF firms. However, these studies were limited to archival data. Thus, these were not able to provide detailed insights into the generation of value within the corporation. Table 2-7 provides an overview of the extant literature, success factors and operationalized parameters.

Figure 2-7: The extant literature, the success factors and the operationalized parameters

Key success factor	Studied parameter	Author(s)
1. Strategy	• Clarity of focus	- Brody, Ehrlich (1998); - Bannock (1999); - Franzke (2001)
	• Long-term and high level commitment to CVC	- Winters, Murfin (1998); - Siegel (1988); - Bannock (1999)
2. Organization	• Autonomous entity with independent funding	- Siegel (1988); - Bannock (1999); - Franzke (2001)
	• Flat organizations and quick decisions	- Brody, Ehrlich (1998)
3. Processes	• Company involvement in investment process	- Heikkilä (2000)
	• Existence of corporate champions	- Souder (1981); - Burgelman (1983)
	• Appropriate portfolio company controlling, e.g. stop-loss decision-making.	- Brody, Ehrlich (1998)
4. Compensation structure	• Incentive systems	- Gompers, Lerner (1998); - Siegel (1988); - Bannock (1999); - Franzke (2001)
5. VC experience, contacts and reputation	• Management by experienced venture capital managers	- Winters, Murfin (1988); - Siegel (1988); - Heikkilä (2000)
	• Partnerships and contacts to top tier VCs	- Heikkilä (2000); - Bannock (1999)
	• Reputation as attractive capital investor	- Brody, Ehrlich (1998)
6. Relationship between CVC unit and portfolio companies	• Entrepreneurial distrust and founding preferences	- - -
	• Different time horizons of CVC unit expectations and venture development	- Heikkilä (2000)
7. Relationships between corporate BUs and portfolio companies	• Strategic conflicts	- Burgelman, (1985); - Gompers and Lerner (1998)
	• Cultural clashes	- - -
	• Too closely networking	- Backholm (2000)

This review of the extant literature on CVC can be summarized as follows. Some researchers have theorized about the success factors of a CVC program from a corporate perspective. These studies include a description of the value added of CVC investments, for the invested companies on the one hand, and for the corporation itself on the other. Other contributors have focused on the relationship between start-up company and corporation.

However, it seems that all studies fail to provide systematic evidence of either a successful or failed collaboration between CVC unit and business unit. I assume that an efficient intra-firm collaboration is a critical prerequisite for achieving the objectives that a CVC program pursues. Thus, this dissertation attempts to fill this research gap by overcoming the challenge of highlighting the relationships between CVC units and BUs. In this work, I seek to address this paucity of research by analyzing data on the intra-organizational perspective within a corporation. Specifically, I address the mechanisms through which CVC units actually collaborate with BUs.

2.2.2 Definition and objectives of corporate venture capital

While a broad array of definitions of venture capital exists (see NVCA, 2001; Lorenz, 1989; Timmons, 1992; Wright and Robbie, 1998; Hellmann, 2000, for example), Gompers and Lerner (1994) are the first to consider in their process definition of venture capital that there is more to venture capital than investing and exiting from investments. They argue that venture capital can be viewed as a cycle that starts with raising a venture fund, and proceeds through investing in, monitoring, and adding value to firms; the cycle continues as the venture capitalist executes successful deals and returns capital to the investor. This definition points to the very important value-adding role of venture capitalists (Hellman and Puri, 2000; Sapienza, 1992).

There are several ways to define and map the concept of CVC. The two main alternative perspectives are viewing CVC (1) as a mode of external corporate venturing from the perspective of the corporation (Henderson and Leleux, 2001; Kann, 2000; Keil, 2000), or (2) as an alternative source of funding from the perspective of an entrepreneurial company (Gompers and Lerner 1998; Maula and Murray, 2000). Since this study examines CVC from the perspective of the corporation with a focus on internal collaboration between CVC unit and business unit, the first perspective is primarily employed.

While zu Knyphausen-Aufseß (2001) defines CVC more broadly regarding its origin,[20] I define corporate venture capital as equity-linked (typically minority) investments of corporate funds directly in start-up companies, executed by an intermediary owned and controlled by a non-financial corporation.[21] This definition excludes investments made through an external fund managed by a third party, even if the investment vehicle is funded by and specifically designed to meet the objectives of a single investing company. It also excludes investments that fall under the more general rubric of corporate venturing[22]. The definition does however include investments made in start-ups that a company has already spun off as independent businesses. In CVC the only limited partner is a corporation. Alternatively, a CVC fund can be a subsidiary of a corporation.

According to this definition, CVC investment is identified as one group of external venturing modes. CVC investments resemble the operations of traditional venture capital firms in regard to programs residing at various levels of corporations where investments are made in independent external companies. In the case of corporations, investments were made directly into ventures or indirectly through dedicated funds or pooled funds managed by external venture capital firms. These modes are fairly well in line with the extant literature (Barry, 2000; Bleicher and Paul, 1987; Kann, 2000; McNally, 1997; Sykes, 1990). Some additional distinctions have been made concerning the organization of investments. McNally (1997) proposed that a distinction should be made between ad hoc investments and more formal funds. Similarly, Winters and Murfin (1988), Sykes (1990), and Mast (1991) recognized varying levels of formality in the organization of corporate venturing activities. An important point to remember from these distinctions is that the present study focuses on the direct investments made by corporations. The focus of this study is highlighted in the following framework.

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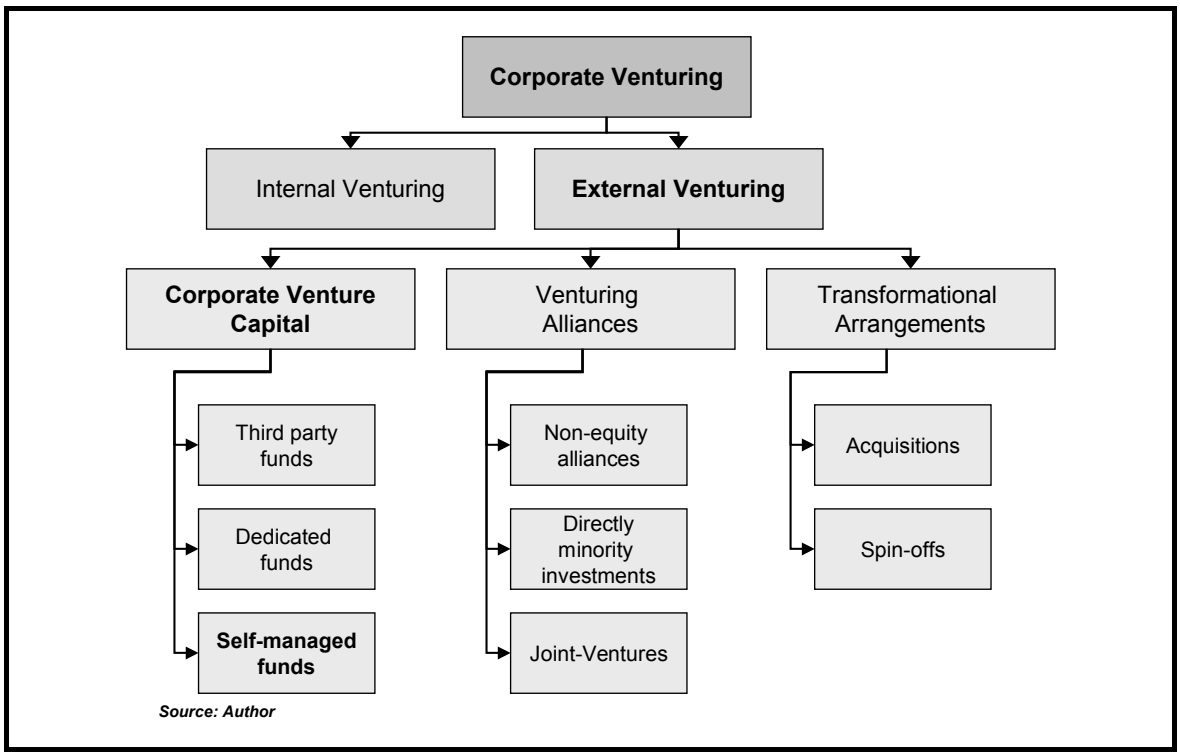
[20] Zu Knyphausen-Aufseß (2001) includes (1) investment banks, (2) established technology corporations, (3) established non-technology corporations, (4) consulting firms, and (5) start up-companies.

[21] Kann (2000) found that the large majority (78%) of CVC investment channels is direct.

[22] For example, the funding of new internal ventures that, while distinct form a company's core business and granted some organizational autonomy, legally remain part of the company.

Figure 2-8: Study focuses on direct investments



Overall it depends on industry and corporate structure, whether corporations are likely to pursue CVC investments. High-tech industries have short innovation cycles. Therefore, CVC is more important in high-tech industries like the IT-industry than in low-tech industries. The corporate strategy has to decide, for example, whether in-house R&D or CVC investments should be made and which objectives should be pursued with CVC.

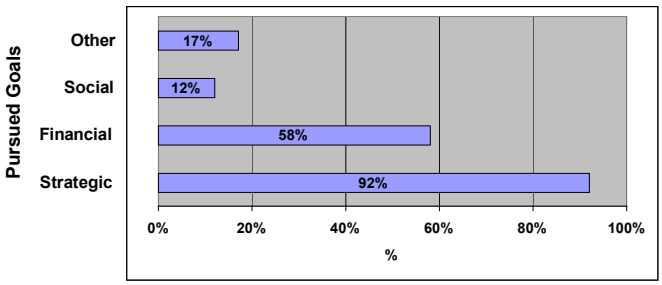
A corporate venture capital investment is defined by two characteristics: its *objective* and the *degree to which the operations of the investing company and the start-up are linked*. Although companies typically have a range of *objectives* for their CVC investments, this type of funding usually advances one of the two fundamental goals. Some investments are strategic. They are made primarily to increase the sales and profits of the corporation's own businesses. A company making a strategic investment seeks to identify and exploit synergies between itself and a new venture. The other investment objective is financial, wherein a company is mainly looking for attractive returns. Here, a corporation seeks to do as well as or better than private VC investors, due to what it sees as its superior knowledge of market and technologies, its strong balance sheet, and its ability to be a patient investor. In addition, a company's brand may signal the quality of the

start-up to other investors and potential customers, ultimately reaping rewards for the original investor. Zu Knyphausen-Aufseß (2001) calls it very appropriately "corporate certification" (p. 5).

Regarding the goals of CVC programs, existing research shows very diversified results over time. Maula (2001), who provides the most extensive and up-to-date review of the goals and objectives of corporate venture capital programs, found that corporations appear to pursue multiple goals and strategies in their CVC activities. Siegel et al. (1988) found that 'return on investment' was the most important goal of corporations, followed by 'exposure to new technologies and markets'. For Sykes (1990), identifying new opportunities and developing business relationships is the key. Silver (1993) highlighted finding acquisition targets, getting exposure to new markets, adding new products to existing distribution channels, externalizing R&D, exposing middle management to entrepreneurship, training managers, and utilizing excess plant space, time and people as the most important objectives.

Bannock Consulting (2000) surveyed the goals of CVC investors in Europe. It is based on 150 corporations engaged in CVC (several answers were possible).[23] The following figure shows that while it is a combination of strategic and financial goals, in most cases strategic objectives are favored over the financials.

Figure 2-9: Strategic objectives dominate



Source: Bannock Consulting, 2000

The most frequent goals were strategic with 92% followed by financial with 58%. Several goals are usually pursued at the same time. Strategic and financial

[23] See Bannock Consulting, Ltd., Corporate Venturing in Europe, London, UK, 1999, p. 14

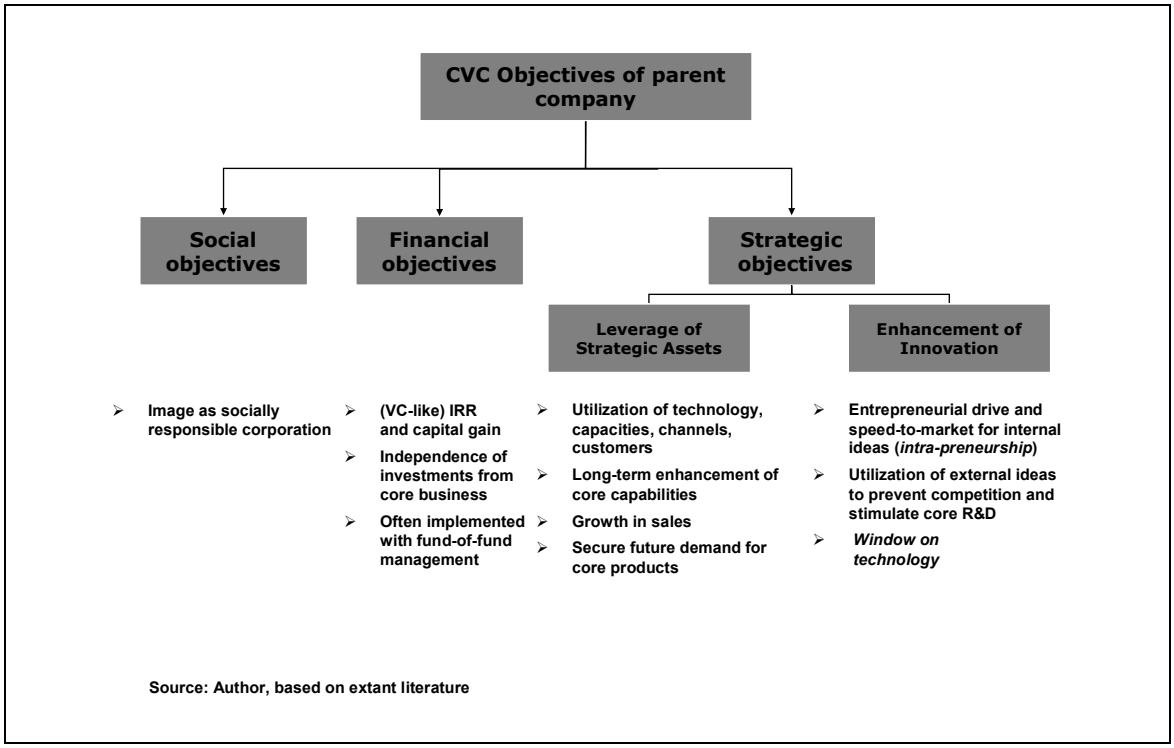
goals especially are often combined. Recent research has shown that strategic and financial objectives are not substitutes; instead, both are very important motivations for corporations (Alter and Buchsbaum, 2000). Keil (2000) concluded that while strategic objectives are often the driver for setting up corporate venture capital programs, investments are often made according to financial criteria.

Following this classification of goals, this thesis classifies the objectives in the same way:

- Strategic objectives
- Financial objectives
- Social objectives

Previous work summarizes one specific dimension under strategic objectives. It includes: diversification (Ansoff, 1965; Rumelt, 1974), growth (Fast, 1977), corporate renewal, and adaptation to the environment (Utterback, 1994), development of new knowledge (Leonard-Barton, 1992, 1995), access to technology and markets (Christensen, 1997), and promotion of innovation and entrepreneurship (Covin, 1991). More recent work provides a more finely-grained classification of goals and objectives in CVC programs that simultaneously summarizes different aspects under strategic objectives. Kann (2000) distinguishes between three classes of strategic objectives: (1) external R&D, (2) accelerated market entry, and (3) demand enhancement. Keil (2000) even identifies four primary strategic objectives: (1) early market warning signals, (2) “learning new markets and new technologies”, (3) option building, and (4) market enactment. Alternatively, Maula (2001) utilizes three main categories: (1) learning, (2) option building, and (3) leveraging. The following figure shows the classification of objectives, with their corresponding sub-objectives in each category that is used in this thesis.

Figure 2-10: Classification of Objectives



In specifying the strategic purposes, Kann (2000) showed that the goals of external R&D to acquire resources (45%) and accelerated market entry (30%) are the most common strategic purposes. The strategic objective enhancement of demand for core products (24%) follows in order to leverage existing resources more effectively.

The second defining characteristic of CVC investments is the *degree to which companies in the investment portfolio are linked to the investing company's current operational capabilities* - that is, its resources and processes. For example a start-up with strong links to the investing company might make use of that company's manufacturing plants, distribution channels, technology, or brand. It might adopt the investing company's business practices to build, sell or serve its products. In this sense, Kanns' study (2000) shows that 80 % of CVC programs can be characterized as providing assistance to the entrepreneurial firm in either managerial or technical matters.

This short illustration of the two defining characteristics of CVC makes a harmonious and highly efficient internal collaboration between CVC unit and business unit indispensable. Sometimes, however, a company's own resources

and processes can become liabilities rather than capabilities, particularly when it faces new markets or disruptive technologies.[24] Therefore, an internal cooperation between these two organizationally independent departments - CVC unit and business unit - is even more important.

2.2.3 Value-added of Corporate Venture Capital

The primary role of corporate venture capitalists is to provide funding for young entrepreneurial firms. However, corporate venture capitalists (as well as venture capitalists) are typically different from passive investors.[25] According to Gorman and Sahlman (1989) venture capitalists spend half of their time on monitoring ventures and on post-investment relationships with them.

Because of their experience with numerous ventures and large exposure to financial, labor, and other resource markets, corporate venture capitalists are in a good position to support their portfolio companies. Corporate venture capitalists have been acknowledged as providing valuable help to their portfolio companies in the form of serving as a sounding board to the entrepreneurial team, for instance, or helping the firms obtain alternative sources of equity financing, or interfacing with the investor group, monitoring financial performance, monitoring operating performance, or helping their portfolio firms attract sources of debt financing (MacMillan et al. 1988). Similar results have been found by Gorman and Sahlman (1989), Sapienza et al. (1996), and Rosenstein et al. (1993).

The special nature of corporate venture capital investments provides a unique opportunity for an additional kind of value-added. Because the parent firm of the corporate venture capital investor is typically a major industrial corporation, the relationship between CVC unit and business unit opens up access to the resources of the parent corporation, such as distribution channels, production facilities,

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[24] For an introduction to disruptive technologies, see Clayton M. Christensen, The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail, Harvard Business School, 1997.

[25] Zu Knyphausen-Aufseß (2001) goes one step further and looks at the potential value-added of different types of corporate venture capitalists.

research and development opportunities, corporate technology, market and technology experts, or pricing benefits of the products and services of the corporation (Alter and Buchsbaum, 2000; Barry, 2000; Christopher 2000; Kelley and Spinelli, 2001; Maula and Murray 2000). Large global corporations also conduct market research that may be valuable for new ventures operating in related fields (Dube, 2000; Maula and Murray, 2000). Due to the benefits mentioned, an investor relationship with a major corporation may provide valuable endorsement for a new technology-based firm (Kelley and Spinelli, 2001; Maula and Murray, 2000). In this study the term "value-added" is used to refer to all non-financial benefits the portfolio companies receive from the corporate venture capital investor as a result of the relationship between the CVC unit and the business units of a corporation. This study is based on the assumption that the better the CVC unit and the business unit collaborate, the more value-added result for the financed start-up companies.

2.3 The Cases of German CVC Programs

In the following three sections the aim is to give a very detailed description of the intra-organizational collaboration of three German CVC programs, *Siemens Venture Capital* (Section 2.3.1), *T-Venture* (Section 2.3.2), and *DaimlerChrylser Venture* (Section 2.3.3).

2.3.1 Siemens Venture Capital

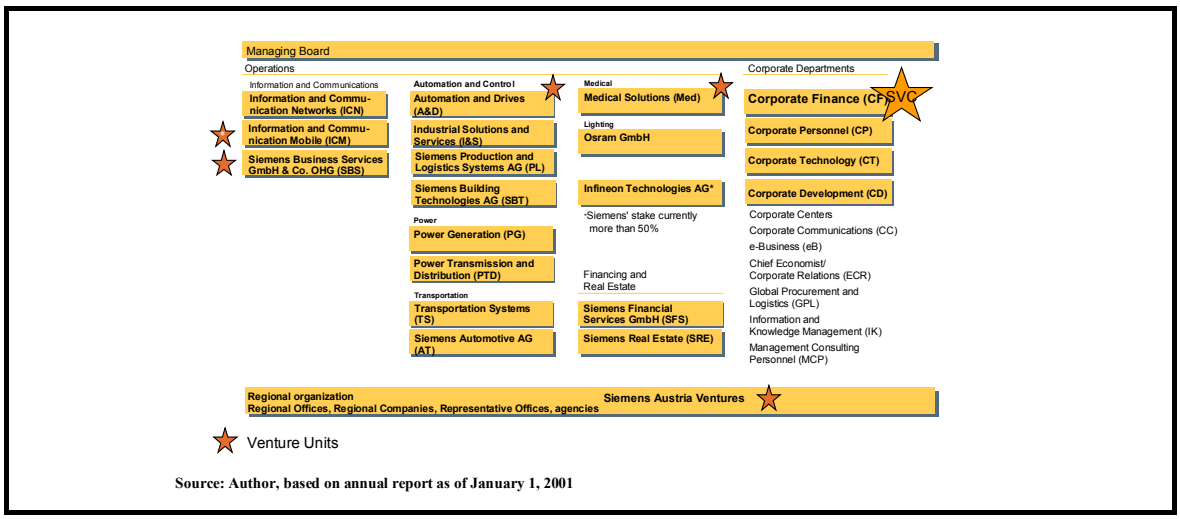
The objective of this case is to describe the intra-organizational collaboration between the business unit and the CVC unit throughout the investment process at *Siemens Venture Capital.* First, a brief general corporate profile of *Siemens* and *Siemens Venture Capital* will be presented. Second, the case will focus on describing the investment process between the CVC unit and business units, and finally, within-case analysis will be carried out.[26]

[26] This case study draws on transcribed interviews with Doris Blasel, Bruno Steis, and conversations with Dr. Hildegard Wiggenhorn. The appendix includes an overview of the

Corporate Profile

Siemens is a global powerhouse in electrical engineering and electronics. With more than 400,000 employees in over 190 countries and sales of over €70 billion, *Siemens* develops and manufactures leading edge products, designs and installs complex systems, and tailors individual services for the benefit of its customers. By utilizing innovative technologies and comprehensive know-how, *Siemens* helps its customers to meet their business and technical needs in business segments of energy, industry transportation, health care, lighting, information and communication. In the fiscal year 2001 *Siemens* earned €2.1 billion in net income including Infineon and special items as well as restructuring charges and asset write-downs. EBITA from Operations (excluding Infineon) was €1.3 billion. Last year, this figure was €2.8 billion. The following figure gives an overview of the corporate structure of *Siemens*.

Figure 2-11: Corporate Structure of *Siemens* AG[27]



Source: Author, based on annual report as of January 1, 2001

Regarding venture capital activities, *Siemens* AG can look back on vast experience. As early as the beginning of the ’80s, as the first waves washed from the US to Europe, *Siemens* founded a venture capital company and became CVC pioneer in Germany. In 1984, together with other investors, *Siemens* founded the *Techno Venture Management group* (*TVM*), which provided venture capital for

affiliations and job titles of all interviewees. This case is also based on annual reports, public speeches, press releases and analysts’ reports.

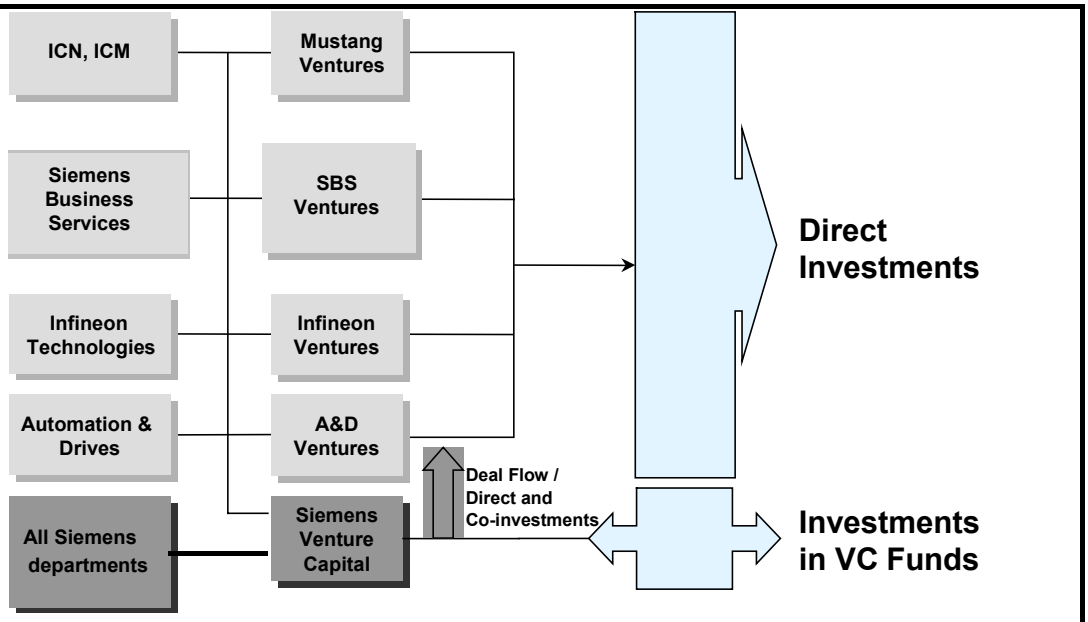
[27] Apart from this, there are several incubator and accelerator units at *Siemens*, e.g. *Siemens Business Accelerator, Siemens Technology, Technology-to-Business Center, ICN nCubator*.

American and European start-up companies. In October 1998, the central managing board of *Siemens* decided on the new alignment of *Siemens* venture activities. In January 1999, *Siemens Venture Capital* group was transformed to *Siemens Corporate Venture Capital* (*SVC*). The subsidiary of *Siemens* AG has the legal form of a limited liability company (GmbH). Under the banner of "*Fostering Innovation for Economic Success*", *SVC* has been set up as a globally active investment vehicle which provides "smart money" to innovative businesses to create long-term company value.

SVC belongs to the *Corporate Finance* department and has about 30 employees, 15 of which are investment managers (as per 2001). The trans-sectoral CVC activities of *SVC* establish access possibilities to all business units at *Siemens* and guarantee the securing of corporate interests regarding CVC activities. Besides this, VC units also developed in other specific business units, i.e. in the groups *Information and Communication Networks (ICN)* and *Information and Communication Mobile (ICM)*,[28] and also in the unit *Medical Solutions* and *Automation and Drives*. The organization structure of the venture capital activities arises from the opinion that the de-central organization structure of *Siemens* should therefore be followed by de-central CVC activities. The following figure illustrates the differences in the diverse CVC activities and shows the umbrella function of *Siemens Venture Capital*.

[28] Both of these venture units are operating under the name *Mustang Ventures*. *Mustang Ventures*, the largest unit, has received $370 million and has more than 45 companies in its portfolio. The amounts managed and deployed by *Siemens Medical Solutions and Automation and Drive* are not known.

Figure 2-12: Organization structure of *Siemens CVC*



Source: Author, based on interviews

However, according to the company, the venture units located in a business unit have been reintegrated as of 01.10.2001 in order to create "one voice to the market". *"We cannot distract our operating groups from focusing on their core businesses, which is not venture capital, but competing with Ciscos, the Nortels, the Ericsons, and the Nokias of the world,"* says Naveed Kahn.[29] The reorganization also aims at making the use of available resources more effective.[30]

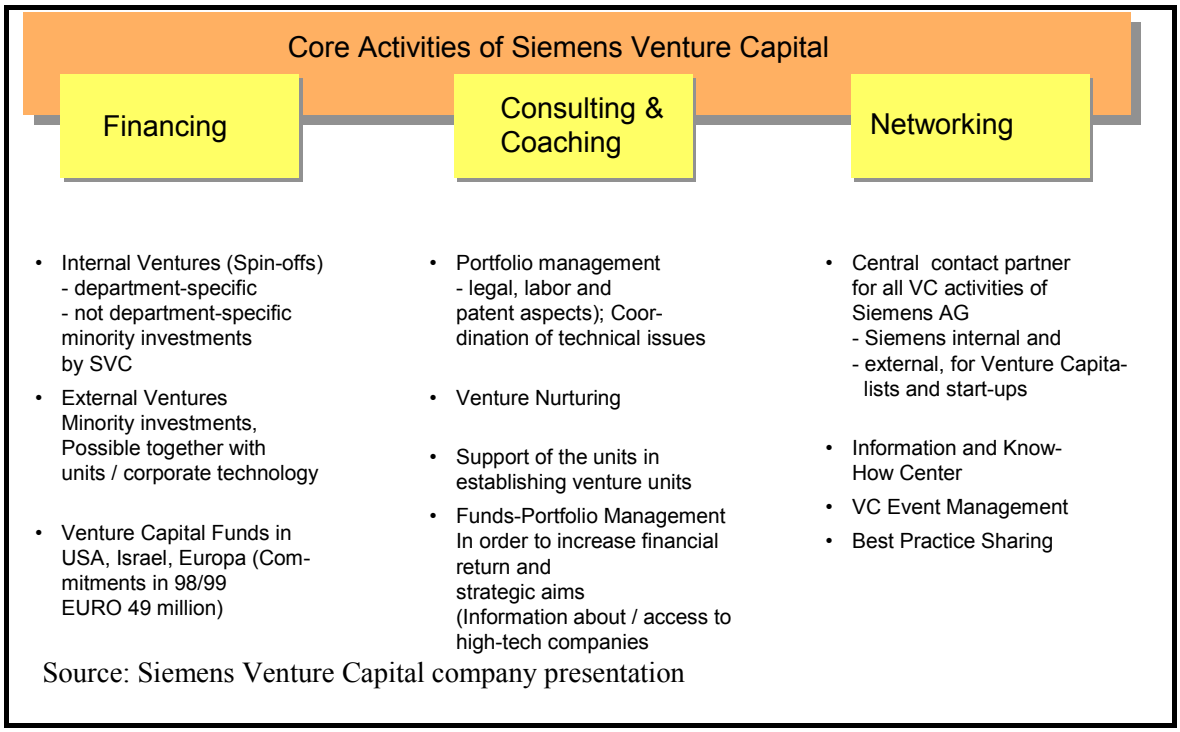
Siemens pursues three objectives with its CVC activities. The first is to identify and fund investments in emerging and innovative technologies that enhance the core business scope of *Siemens*. Second, supporting entrepreneurs for *Siemens* means not only investing capital, but also providing use of the links to *Siemens*' businesses. In this sense, they try to establish the link to the corresponding business group quickly and effectively in order to maximize the financial success of the company. Third, by leveraging the global power and resources of *Siemens*, *SVC* enables entrepreneurs to gain increasing market presence and credibility. Of

[29] Naveed Kahn is the president and CEO of *SVC*'s U.S. operations, see *Corporate Venturing Report*, October 2001, p. 17

[30] See www.ventureeconomics.com, on the homepage under "news", as of 12.09.2001.

course, the access to worldwide marketing and distribution channels, as well as the brand name *Siemens* play an important role. Putting all these objectives together, the effort should result in an attractive ROI for *Siemens*. The three blocks of core activities, Financing, Consulting & Coaching, and Networking, are summarized in the following figure.

Figure 2-13: Core Activities of *Siemens Venture Capital*



Source: Siemens Venture Capital company presentation

SVC, headquartered in Munich, Germany, is geographically represented at locations of the main businesses of *Siemens*.[31] In order to be present in the hot spot of the venture capital scene, in April 1999 *Siemens Venture Capital L.L.C.*, based in Santa Clara, California, was founded as a 100 % subsidiary of *SVC*. Another branch of *SVC* is located in Boston, MA[32]. Since 1999, *Siemens* venture units have invested more than €500 million, accumulating a current portfolio of more than 70 start-up companies.[33] Of the $180 million received by *Siemens* in 2001, 60 percent, or $108 million, went into 30 venture funds as indirect investments.

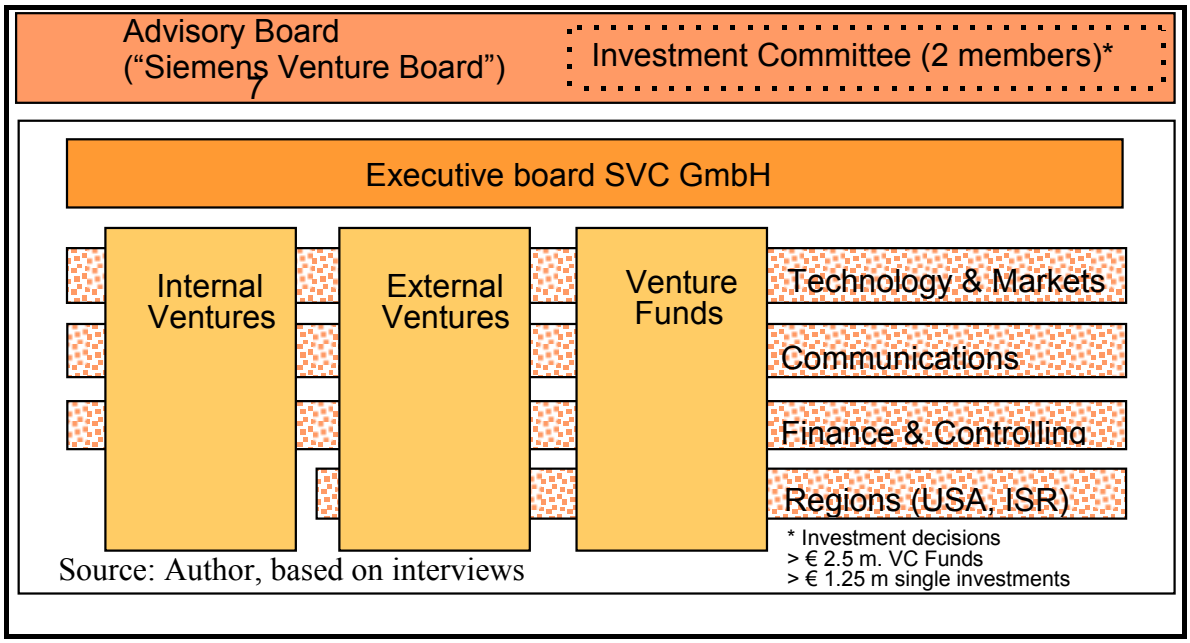
[31] At the same time, Munich (Germany) is the headquarters of *Siemens AG*.

[32] It is also planned to open a branch in Israel. Currently, one consultant is responsible for Israel and therefore commutes between Germany and Israel.

[33] The appendix includes a detailed list of the portfolio firms of *SVC*.

Investment foci are on seed, early, and mezzanine stage-investments in the fields of *Information and Communication, Automation and Control, Medical Solutions* and *Power*. Through investments in horizontal technologies, *SVC* operates from a trans-sectoral perspective in order to cover "white spaces", multiple impacts, and joint-competencies. Furthermore, *SVC* has the exclusive right at *Siemens* to invest in venture capital funds. The conceptual formulation of *SVC* is mirrored in the company organization structure: a matrix organization has been established that shows three business areas (*Internal Ventures, External Ventures, and Venture Funds*) and four cross-sectional functions (*Technology & Markets, Communications, Finance & Controlling and Regions*).

Figure 2-14: Company Organization Structure of *Siemens Venture Capital*



Source: Author, based on interviews

Investment process

Deal Generation

Basically, *SVC* comes with two kinds of deal-flow: the first present *external* "street deals", where blind inquiries for investments are sent to *SVC*. The second possibility is represented by deals that originate from the *internal SVC* network. At *SVC*, this network perspective embraces contacts they have to (a) dedicated VC partners, (b) investment funds, which provide direct access to 350 start-up

companies, and finally (c) the business units of *Siemens*. In-house generated deals especially represent a better basis for the further support in the investment process, since regarding these deals the contact between the business units and the company already exists, as this comment made by one investment manager illustrates:

> "We have a couple of investments that have been transferred from a business unit to *SVC* regarding interest in an investment. That has the huge advantage that we are beyond regarding the further collaboration, since we do not have to bring the company in contact with a business unit." (Steis)

With regard to tracking the deal flow, the interviews reveal an interesting difference between Mustang Ventures and *SVC*. While in the first case the corresponding business unit has access to the deal flow database of the CVC unit, and vice versa, this possibility is not established in the case of *SVC*.

Deal Evaluation

Regarding incoming investment inquiries at *SVC*, it is the investment managers' assignment to identify interesting portfolio firms for *SVC* in fields where the parent company is operating. With respect to the focused investment areas, *SVC* sees itself in an advantageous situation, since the operation areas of *Siemens* are broader in scope than is the case for other competitors in CVC. The following statement confirms this point of view:

> "The main way in which *SVC* differentiates itself from its competitors is that our parent company *Siemens* is positioned more broadly regarding their business activities than Intel, for example. Therefore, our focus is not as narrow as in the case of Intel Capital."(Steis)

The objective for an investment manager is to elaborate an investment proposal for those start-up companies that appear attractive. In doing this, the investment managers at *Siemens* are empowered by a high level of autonomy regarding the decision over which companies to screen and to inspect further in the investment process. However, the technological search-areas that have been identified in a business unit act as a guideline. With this in mind, the CVC manager attempts to select companies that close the gaps in the business units' portfolios. Since *SVC* wants to utilize the different experiences of its investment managers, the final

investment proposal is electronically distributed to all investment managers. During a weekly, mandatory telephone conference[34], questions regarding an investment proposal are dealt with. When a unanimous and positive decision has been reached regarding a potential deal, the investment opportunity will be pursued further in the due diligence process. An investment manager justifies the approach:

> "The process is configured like this, since we recognized that investment managers' different experiences lead to different investments. If all investment managers agree, we feel relatively confident that we have a good investment proposal that we can present to the investment committee. Four eyes see better than two!"(Blasel)

Interestingly, the possibility of active involvement by the business units in the first screening is not evaluated as favorable. The reasons illustrated for this seem reasonable: first, basic financial investment criteria (like investment volume, phase of investment, etc.) have to be checked by *SVC*. Second, *SVC* only wants to get in contact with business units regarding deals where they see a realistic chance that an investment could be of interest to a business unit. This approach supports the intention to use a business unit's resources economically.

In accomplishing the due diligence of the investment process, the business units are actively involved in investment activities for the first time. This is the case in 10-20% of the total deal flow at *SVC*. For the due diligence process relevant business units of *Siemens* comprise the internal resources competent in technological questions: the corresponding operational unit, *Corporate Technology* and *Corporate R&D*. On the other hand, however, it also includes more administrative departments like Legal Services, Tax, Controlling /Accounting, and Human Resources. The first reason for the involvement of *Siemens*' departments within due diligence is quite obvious:

> "… so you see, we really can use internal due diligence skills, and we use them for getting feedback if there is interest in a business unit a potential portfolio firm."(Blasel)

[34] Since it is an online conference, participation means the "dial-in" by each investment manager.

The second reason for this procedure at *SVC* simultaneously represents the establishment of the first contact between the business unit and the start-up company that is the basis for a subsequent cooperation between both. In this context, the investment manager is once more at liberty to select the persons he/she contacts at *Siemens* for cooperation in the due diligence process. However, it is not mandatory for *SVC* to have a business unit involved in the due diligence process in order to pursue the investment process. Unfortunately, the voluntary character of asking a business unit for advice entails the danger that *SVC* invests in a company that represents a competitor of one of the business unit's existing cooperation partners. This problem was clearly articulated in an interview at the business unit ICMS[35]:

> "As *SVC* does not need our 100 % commitment in all cases, it could happen that they invest and we work together with the competitor. That's nonsense. That helps nobody; that is not profitable for anybody." (Dr. Wiggenhorn)

Since *SVC* is aware of this situation, their general objective is to get the business unit involved and in contact with the investee; even if *SVC* has the expertise and knowledge among the CVC managers. Therefore, one of the primarily tasks of the CVC unit is to establish corporation-wide structures that allow fast decisions regarding investment possibilities. The interesting question is how *SVC* managers find the corresponding experts.

Of particular importance is that some business units have "innovation teams", or "venture units"[36]. The idea at *Siemens* is the following: on the one hand, each venture unit represents the single point of entry for *SVC* when contacting a business unit. They channel *SVC*'s inquiries to the corresponding people within the business units and are responsible for a speedy decision on their interest in the technology of a start-up company[37]. On the other hand, in return *SVC* has to support the establishment of these venture units, and to continually report on the

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[35] ICMS stands for Information and Communication Mobile Solutions. This business unit, founded in 2000, tries to bridge mobile infrastructure and communication.

[36] In this sense, venture units are small teams in the areas Information & Communication Networks (ICN) and Infineon Technologies, Information & Communication Products (ICP), Medical Engineering (Med), Finance (ZF), Technology (ZT) and Automation & Drives (A&D), responsible at the same time for Production & Logistics Systems (PL). Other Siemens units are only designated contact partners.

[37] At Siemens they define 'speedy' as 'within a few days'.

latest activities regarding venture capital to *Siemens*. These venture units are in line with *SVC*'s aims towards individual project-oriented work rather than relying on institutionalized meetings.

> "…since all is based on single projects, these contacts to the *venture units* are fostered and cultivated." (Blasel)

Besides this, *SVC*'s investment managers use their personal relationships to navigate their way through the company. The investment managers' personal contacts accrue either from previous functions in other units of the corporation, or from visiting internal and external events and meetings at *Siemens*. In this sense, each investment manager is responsible for his/her own personal network, and is urged to expand it constantly. Furthermore, the interviews illustrate that the longer *SVC* is in operation, the better CVC units are known within the group, and the broader the personal networks of the investment managers with the business units become. This facilitates *SVC* to coordinate the expertise required within the corporation for evaluating investment proposals. The process of "navigating" within the company looking for advice is perceived as follows:

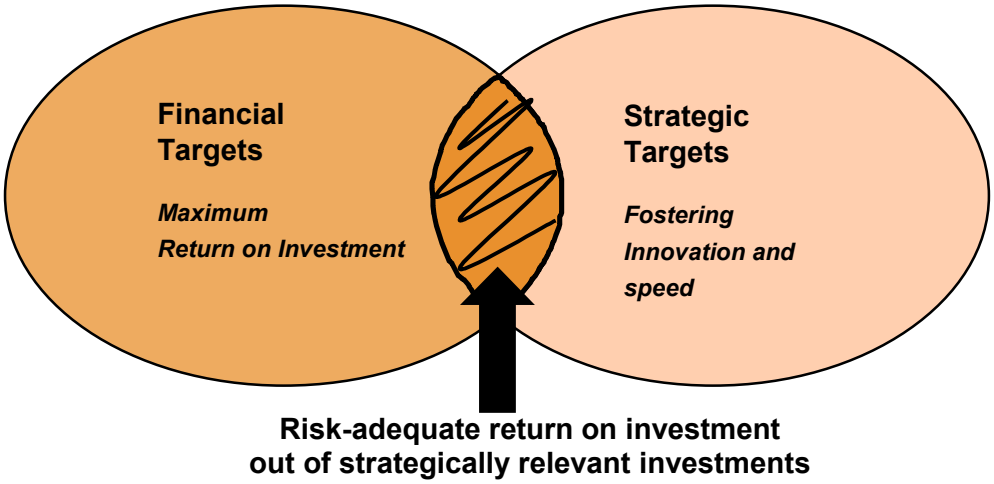
> "By 'navigating' our way through the company, so far we always found those we have been interested in. You ask all sorts of people, and you have colleagues with a lot of experience. Actually, it is the personal network that develops steadily. Now, due to our activities in the past we already have a number of contacts to the business units. That grows with time and experience." (Blasel)

Moreover, in order to expand the extant network of *SVC*, they actively try to establish new relationships with business units if there is an interesting deal for a business unit that has not yet been involved in CVC activities. In this pursuit, *SVC* invites the business unit to participate in the sales pitch, or to join an investment manager visiting a potential portfolio firm. Both possibilities pretend to establish a first personal contact between an investment manager and new business units. Finally, both the online presence of *SVC* on the intranet homepage of *Siemens* and the published *SVC* articles in the corporate newsletter "*Siemens-Welt*" aim to keep the business units informed about the CVC activities at *Siemens*.

Deal structuring and investment decision

In the preceding investment process, *SVC* has selected those deals that correspond with investment criteria. Graphically speaking, the selected companies of interest are located in the intersection of the two circles "financial objectives" and "strategic objectives".

Figure 2-15: The companies of interest are located in the intersection of the two circles "financial objectives" and "strategic objectives"



Source: Author, based on interviews

This target selection is a theme in *SVC*'s mission: "Fostering innovation for economic support". However, in spite of an officially stated equilibrium of both objectives in their mission, the interviews at *SVC* reveal a certain preference in favor of the financial goals. The following statement by an investment manager at *SVC* underpins this and shows the underlying reasons for it:

> "If in doubt, we prioritize the financial goals. The reasons are quite simple: first, financial success is easier to measure, and second, we do not invest strategically without financial returns."(Steis)

Companies that still have the unanimous compliance of the investment managers after an accomplished due diligence will be nominated as prospective portfolio firms at the investment committee. Interestingly, the actual composition of the investment committee depends on the investment volume: the executive board is authorized to make investment decisions of up to €2.5 million regarding fund-investments and up to €1.25 million regarding direct investments. *Siemens*

Venture Board reaches decisions regarding investments that exceed these limits in value. In the case of investments above € 5 million, the corporate steering committee of *Siemens* has to be called in. Therefore, at least with bigger investments a cross-unit perspective is thus established. A main success factor of *SVC* is that a decision is guaranteed within two days, independent of the actual composition of the investment committee.

Regarding the final investment decision at *SVC*, business units only take an advisory function. Further, *SVC* does not require any sanction from a business unit in order to pursue an investment decision. While this freedom disguises the danger that *SVC* may invest in a company in spite of its rejection by a business unit, at the same time it offers the possibility of investing in very future-oriented technologies that are currently not relevant for any business unit, but where *SVC* is convinced of the future relevance of the technology. This freedom is based on the structural embedding of *SVC* as a separate department, enabling *SVC* to operate independently and to reach decisions fast.[38] The vote of the business units is however taken into consideration indirectly, since the heads of *Corporate Finance* and *Corporate Technology* are represented on the board of *SVC*. Although board meetings only take place twice a year, it is possible for single members of the board to be contacted outside formal meetings as well.

Although *SVC* generally decides and is solely responsible for an investment decision, there is one exception: if there is a co-investment with a business unit, the business unit is also responsible for any decisions reached. Moreover, there is an unwritten rule that *SVC* does not usually invest in a company if a business unit signalizes negative feedback. This could be for the following reasons: (1) no current interest in the technology of a start-up company, (2) potential investment is a main competitor of an existing partner of a business unit, (3) technology is not valid from a technical point of view. As one investment manager put it, the situation is perceived as follows:

> "…if we are convinced of the high relevance of a technology, then we would invest in a company without much ado, even if we could not see a possibility for

[38] With respect to the investments, the accentuation of *SVC*'s independence should demonstrate that they do not represent the extended arm of the M&A activities of Siemens, that is interested in taking over a company by acquisition.

> cooperation right now. But normally, if a business unit rejects an investment, we also refrain from an investment in that company." (Blasel)

At the time of the investment decision, *SVC* does not insist that a cooperation contract between a start-up and a business unit be already in existence. However, *SVC* wants to have at least an indication that cooperation is realistic. For the future, they are currently planning to integrate the business units in the investment committee, where their sanction will be necessary regarding final approval.

In order to meet the requirements of the business unit regarding the decision making in the investment process (either due diligence, product or final investment decision), the business units apply milestone planning. However, this requires that the employees are informed about the process itself, and further that the milestones are also coordinated, tracked, and finally accomplished. That this tracking mechanism does not exclude escalation within a business unit becomes obvious in the following statement by one business unit manager:

> "If the people do not reach the deadlines, you have to kick up a row. And further, the issue then escalates if you inform the next management level. Sometimes you have to put the pressure on; that is how it works."(Dr.Wiggenhorn)

Portfolio and support management

Since *Siemens* is a technological company positioned strongly in many markets, it appears obvious that a high value added can be brought to the portfolio companies if only the internal collaboration is adequate. The transformation of these value-adding services in the post-investment phase will be explained in the following section.

From a theoretical point of view, the portfolio companies generally enjoy access to all corporate facilities. However, the individual project has to show, which corporate facilities are required by a portfolio company. Looking at the manifold spectrum ranging from technology partnership to distribution partnership to technology transfers between portfolio company and business unit to collaboration with *Corporate Technology*[39], the required involvement of a

[39] This usually takes place where basic technologies are concerned.

business unit becomes obvious. However, the final realization of any value added strongly depends first on the willingness of a business unit to collaborate, and second on the portfolio companies' requirements, which are related to the development stage of an investment.

For the portfolio company, the *SVC* investment managers are the first contact partners. However, they are only intermediaries, since their purpose is to get the portfolio company in touch with a suitable business unit. This aim is even determined in *SVC*'s balance scorecard. However, as soon as the formal collaboration between the portfolio company and the business unit is established, *SVC* takes one step back regarding the management of projects, which means a shift in the responsibilities of the investment managers. While they were responsible more on an active operational level during the pre-investment phase (e.g. accomplishing the financial due diligence, conducting negotiations, closing deals), their responsibilities in the post-investment phase are of a more representative nature: representing *SVC*'s interests in the shareholder meetings of the portfolio firms, and controlling the process of nurturing between the portfolio company and the business units. Since these projects take place directly between business unit and portfolio company, *SVC* is no longer actively involved.

> "…when we have established the formal basis for cooperation, we usually see that it works without our further input. Our purpose is that later on the portfolio company works directly together with the business unit without our input. We want to be involved in the beginning, but then we retract step by step." (Blasel)

In spite of this successive withdrawal of *SVC* during the post-investment phase, an investment manager generally calculates that one day per week will be required for the overseeing management of one company. This shows that in spite of no direct involvement, *SVC* stays informed about the *status quo* regarding the development of an investment. In the face of this withdrawal by *SVC*, it is even more important to have knowledge about critical contacts and people involved with the business units in order to ensure efficient internal processes. While venture units represented the entrance to a business unit in the pre-investment phase, in the post-investment phase SVC typically contacts people who do not belong to the venture unit. Now, although very working-level people are in charge of the daily collaboration with investments, the investment manager mainly stays in contact with senior management.

The question that has to be answered is, what are the incentives a business unit has to collaborate with *SVC*? Astonishingly, besides the profit from a strategic "win-win" situation there is no further incentive for a business unit to provide their know-how. Although the possibility to charge incidental costs can positively influence the incentive of a business unit to collaborate, in general there is no internal billing of services by business units at *Siemens*.[40] Therefore, since *SVC* has no incentive mechanisms for a business unit to collaborate, the investment managers feel a certain shiftlessness regarding the resulting cumbersome support management of a business unit.

> "Presently, the motivation at the business units simply – unfortunately - consists of the possibility that the business unit recognizes a 'win-win' situation. That is to say that with the innovation of the start-up company they have to be positive about an improvement of their products, their processes, or their access to the market know-how. We as *SVC* only can bring the business unit into contact with a start-up company. Afterwards, the daily business shows whether they really collaborate. We're not in charge of that. We can only introduce the business unit to the company, but we cannot force them. Therefore, the biggest hurdle lies on the side of the business unit itself: sometimes we really have to wait unacceptably long for their feedback."(Blasel)

At *Siemens*, the reason that there is no financial incentive for a business unit is partly related to the source of the capital as well the destination of the gained profits: both is *Corporate Finance*. This is the case unless a business unit together with *SVC* co-invests in a company.[41] Nonetheless, the interviews reveal a dilemma with respect to the financial profit-sharing of business units. On the one hand, the motivation for CVC of a business unit is low due to non-existent financial incentives for a business unit. On the other hand, however, since these co-investments are only long-term oriented, the interest on the side of a business unit to engage in this type of co-investments with their own budget is quite limited. The reason for this is that the time frame of thinking in vague CVC returns is not congruent with the operational one. The quotation of a business manager reveals that:

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[40] Exceptionally, regarding the services provided by legal and tax departments a cost allocation takes place by the use of intra-company prices.

[41] Since the re-organization of *SVC* on October 1, 2001, business units are also participating financially in the investments.

> "These kinds of investment have the disadvantage for us that the investments are only to exit in 3-5 years. Therefore, nobody invests 2 million of his/her own budget today in order to have the possibility (!) to earn 50 million in 5 years. That is not the time horizon we usually calculate in a business unit." (Dr. Wiggenhorn)

A central element in this post-investment scenario is represented by the *cooperation contracts.*[42] On the one hand, they determine the extent to which a business unit profits strategically from an investment (e.g. by joint distribution or R&D projects between a company and a business unit). On the other hand, it represents the written detail of the resources the business units are finally willing to bring in. The task of *SVC* regarding these cooperation contracts is that the investment manager attempts to formulate a 'win-win' situation both for the business unit (regarding the technical innovation of a start-up) and the portfolio company (regarding the required support by a business unit). However, since *SVC* wants to avoid long-lasting investment decisions in the pre-investment phase, the contracts are usually finalized only in the post-investment phase.

With regard to the characteristics of the post-investment collaboration between the involved actors, *SVC* reported three influence factors. First, the *quality* of the collaborations strongly depends on the fit of the individual "chemistry" between the actors involved. Second, the concrete workload of the persons involved in a business unit influences the *level* of collaboration. And finally, the *interest* of a business unit to collaborate depends on the immediate effects the technology of an investment has on its economic results. The situation is perceived in the words of one investment manager as follows:

> "…what we see regarding innovations close-by a business unit, we receive access to the business units very easily, whereas in very long-term oriented innovations we have more problems. In this case, we are better off having corporate technology as a contact partner, for example." (Blasel)

The interconnected critical challenge for *SVC* is to detach the required resources from the daily activities of a business unit, representing primarily time and personal know-how in order to support a start-up company. That in turn is aggravated in this case, since *Siemens* only applies operational figures (e.g. sale) as performance criteria to evaluate a business unit. The immediate consequence

[42] Between 80 and 90% of the investments cooperation contracts exist.

is that strategic issues are neglected in the business units, which means long response times for *SVC* regarding its strategically oriented CVC inquiries:

> "…the problem regarding long response times is due to the fact that the business units at *Siemens* are mainly driven to deliver adequate quarterly results. What *SVC* feels of that circumstance is that the strategic aspects sometimes are neglected." (Steis)

Putting all these obstacles together, the interesting issue is how *SVC* tries to overcome these hurdles. Of particular importance is that the investment manager knows relevant business unit employees and has personal contacts with them. In order to get voluntary support by people in a business unit, the positive influence of personal networking was mentioned several times during the interviews at *Siemens*. Moreover, the knowledge of the corporation structures and its businesses in order to locate efficiently the required expertise was emphasized as "USP" of a corporate investment manager. The awareness of this necessity at *Siemens* is mirrored by the composition of the *SVC* team. While 2/3 are former *Siemens* employees, only 1/3 of the *SVC* team has been hired outside the group. Interestingly, the same consciousness exists in the business units, as this quotation shows:

> "However, while all contracts and incentive systems are necessary for framing the collaboration, it is less important for the daily work. In this sense, the formation of the personal level is more elementary and important. Based on this personal approach, a lot of things can be handled; we don't have to charge costs if we don't want to." (Steis)

However, the personally based, voluntary engagement seems to have a limit. The interviews conducted in a business unit show two determinants an investment manager should always be aware of: the quantity and the quality of support inquiries forwarded to a business unit by an investment manager influence the motivation of a business unit. From a qualitative point of view, the investment manager must be convinced about the technical relevance and their significance for a business unit. Regarding quantity, the number of inquiries should be limited, since the interviews show that for large-scale CVC activities the strategic objectives are not sufficient and do not satisfy the expectations of a business unit. The comparison of the situation between *SVC* and Mustang Ventures, where financial profits are guaranteed for business units, corroborates this belief:

> " At ICMS the main incentive is to participate in the profit of a portfolio company. The incentive is much lower if we only obtain a better leverage effect in a strategic partnership. But strategic incentives would not be enough for an investment volume that we have with Mustang Ventures." (Dr. Wiggenhorn)

A somewhat different aspect influencing support management is the geographical location of CVC unit and business unit. Since the geographical proximity between *SVC* and *Siemens* divisions is highly important in order to establish a reasonable cooperation, the headquarters of *SVC* is located in the same city as the majority of the *Siemens* business units: Munich. Therefore, *SVC* also transfers investments to the specific *SVC* representation that the investment comes from (or is closest to). Both are done in order to facilitate the link to the business units.

> "I think that a geographical closeness to the business units is essential. You will not succeed in establishing a collaboration if you have a deal in the US but the business unit is located in Germany. Therefore, this has always been a strategy for us; you need to have a worldwide presence." (Blasel)

Further, a mutual understanding of the objectives and interests both of the CVC unit and the business unit is decisive for a successful collaboration. This means on the one hand that the operational units should know about the positive effects CVC could have for their business. In this pursuit, for instance, the business unit *ICMS* tries to rouse interest in CVC among their employees by clearly demonstrating possible venturing advantages. However, on the other hand, the CVC manager has, first, to demonstrate technical basic knowledge, second, to consider the personal interests of business unit employees, third, to know the political conditions at a business unit, and finally, to know when and how to approach the senior management of a business unit. These flexible abilities have been reported in the business unit as important personal characteristics that a CVC manager has to demonstrate in order to survive and maintain credibility at a business unit in the long-term.

> "The investment manager really has to be able to adapt himself to a business unit in order to survive. If not, he/she will not succeed in the collaboration in the long-term. You really need to have credibility in front of the technical experts." (Dr. Wiggenhorn)

Moreover, since the topic of CVC in general and *SVC* in particular is strongly pushed by *Siemens*' top management, the set-up of the required in-house

structures to a business unit seem to be facilitated. To put it precisely, at *Siemens* there is the obligation by the corporate executive management that regarding upcoming product decisions of a business unit the corresponding existing investments have to be explicitly considered as a potential alternative. Finally, the intensification of the personal relations and a further exchange of information are the purposes of frequent institutionalized events and meetings at *SVC*, where diverse business units are invited that could be interested in technologies of start-up companies. These mere internal events are supplemented by conferences at *Siemens* where external guests also participate. The biggest and most prominent example are "*Siemens Venture Capital Days*." The positive effect of this communication and 'get to know' platform is clearly illustrated by an investment manager:

> "From our past events, overall *Siemens Venture Capital Days* have developed manifold joint-activities ex-post; either between the portfolio companies or between the *SVC* and the business units." (Blasel)

Interestingly, *SVC* takes a firm negative stand regarding the definition of designated contact partners in a business unit for the start-up company in the cooperation contracts. The arguments for this rejection are quite clear. First, internal personal changes in a business unit make predetermining a constant contact partner impossible. Second, and even more importantly, *SVC* wants to retain the freedom of which business unit they address regarding a portfolio company, and last but not least, *SVC* itself wants to represent the constant point of contact for the start-up companies. This continuity would not be guaranteed on the part of the business unit due to permanent strategic changes.

Finally, the interviews reveal a further interesting distinction in contact persons regarding different post-investment aims. In this sense, while *SVC* preferably contacts persons from the upper echelons (e.g. supervisors or senior management of business units) for the final guarantee/coordination of the operational support, for the daily support of a business unit they address those who are located on a more operational level (e.g. technical experts). In cases where problems escalate, *SVC* even has access to the corporate executive management of the group.

Exit management

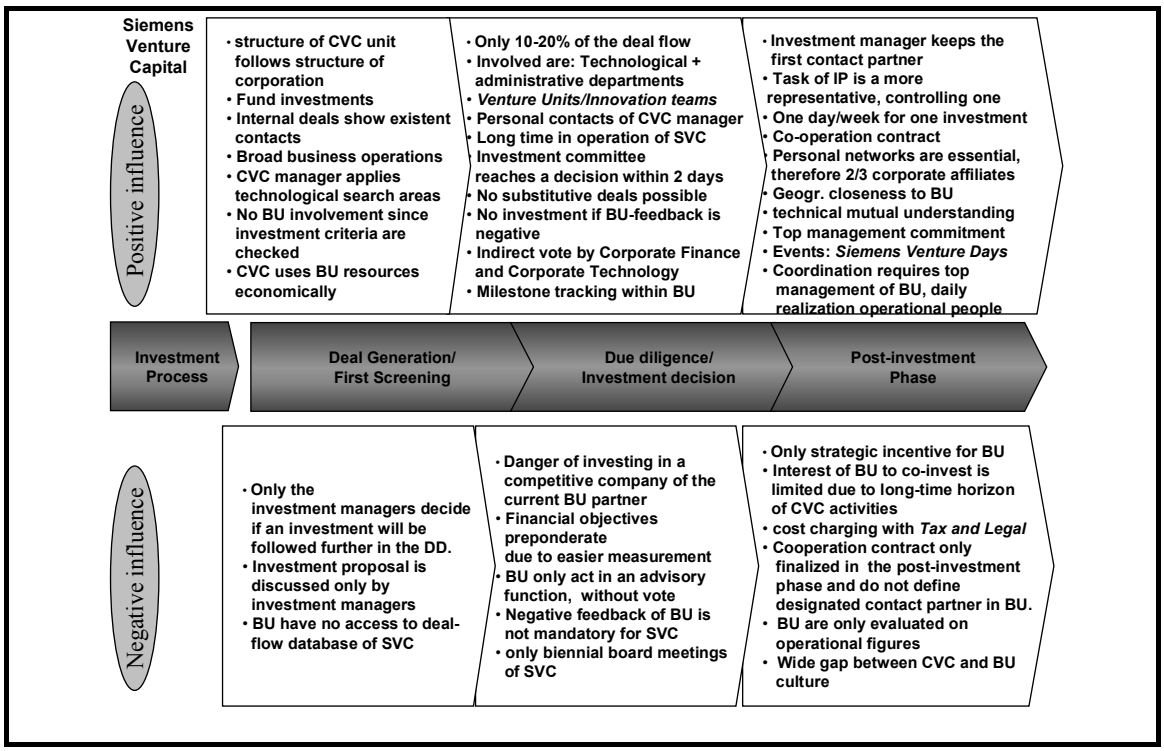
In general, *SVC* does not show any preference for a certain exit possibility. Although a business unit only participates on the financial returns of an exit in the case that a co-investment exists with *SVC*, again, the interviews show the pressing necessity of profit sharing in order to maintain the engagement in a business unit for further investments. This basic necessity is quite obvious in the words of a business unit manager:

> "However, what really would be essential for us in the long-term is that after the successful exit of a portfolio firm, we also get some profit from it. This would just be fair since we also contributed to the development of an investment. If not, we really see the danger here in the department that the topic CVC and the interest will drop away. That is especially true if, as in the case of *SVC*, the CVC unit is centrally organized within a corporation." (Dr. Wiggenhorn)

However, the case description regarding exit management at *SVC* has to be considerably shortened, since at the time of the interviews *Siemens* had limited experience in doing exits, since they had only carried out one exit: *November AG*, at the *Neuer Markt*, Germany.

In order to conclude this case description I summarize following figure statements of the interview, categorizing them in positive and negative influence factors during three simplified stages of the investment process: (1) deal generation/first screening, (2) due diligence/investment decision, and (3) post-investment phase.

Figure 2-16: Statements of the interview *Siemens Venture Capital*



Within case analysis

The case description of *Siemens* shows that it is reasonable to suppose that integrating CVC activities into the group is of focal importance for the success of *SVC*. This supposition is based on five findings that emerged during the case description: first, the management board, which also approves the strategic frame of CVC activities, is integrated concerning all investments exceeding € 5 million. Second, the possibility of doing co-investment for a business unit guarantees and enforces the link to the units. This means the attribution of economic results from a portfolio firm to the involved business unit, thus giving a stronger incentive for co-operation. Third, a close relationship to the business units originates from involvement of the business unit representatives in the *board of SVC*. Fourth, the geographical locations of *SVC* facilitate the link to the units. Since *SVC* is geographically present in all locations of the main businesses of *Siemens*, *SVC* has good access possibilities to them.[43] Finally, the existence of the venture units is a central element, since these units seem to support the link to the units as well. It helps the investment manager to know whom to contact, and it is guaranteed that the inquiries are efficiently distributed within the business units as well.

[43] In this sense, *SVC* in Santa Clara is even in the same building as the ICMS department.

However, this case reveals some weak points as well. In this sense, the detention of the *Siemens* business divisions in the first screening could be interpreted as *SVC* trying to avoid the business units losing interest in CVC in general, if they were trapped in cases where their interest in a collaboration was unrealistic. Overall, this would be the case regarding portfolio companies that are either far-off the current technology of a business unit, or that do not correspond to the financial investment criteria of *SVC*.

With respect to the position of being an *innovation manager*[44] at *Siemens*, the case description above provides evidence that the pure establishment does not settle the matter. To be the responsible "single point of entry" of a business unit for *SVC* may not only mean being covered with additional work, but rather inhering in this position a highly preferential image and significance within *Siemens*, featured by a special liability. This assumption pillars on the following statement that came up during an interview with a business unit:

> "The denomination may not necessarily indicate that these persons are overloaded with work; rather, the position should promote and enjoy a special status at *Siemens*. (Dr. Wiggenhorn)

As far as corporate culture between *SVC* and the overall corporation is concerned, there is really a wide gap between both sides. While the CVC unit is characterized by a flat start-up-like partnership structure (with only two hierarchy levels), the parent company and its business units follow conservative hierarchies known in huge companies. On the one hand, this reveals the actual reason why *SVC* strives for organizational independence. On the other hand, it is followed by a certain enviousness and limited engagement by the business units regarding CVC. The following quotation reveals that:

> "On the one hand, we as *SVC* see the possibilities we could realize with VC. On the other hand we see that within the corporation the topic sometimes becomes marshy at *Siemens*. The different cultures between *SVC* and *Siemens* do not always lead to peace and unity. Problems arise and we try to solve them. Therefore, I would characterize the collaboration as good, but with potential need for improvement." (Steis)

[44] An *innovation manager* is the responsible head of a venture unit.

However, the case description also shows that *Siemens* is aware of this "cultural gap" and therefore applies several mechanisms: the arrangement of common meetings and events; the intensive use of knowledge management programs in order to settle a common terminology; and, finally, the decision only to invest in complementary (and not substitutive) technologies. All these applied methods are horizontal measures to align the cultures. Unfortunately, there is no institutionalized job-rotation between CVC unit and business units.

2.3.2 T-Venture

The objective of this case is to describe the intra-organizational collaboration between the business unit and the CVC unit throughout the investment process at *T-Venture*. First, a brief general corporate profile of *Deutsche Telekom* and of *T-Venture* will be presented. Second, the case will focus on describing the investment process between the CVC unit and business units, and finally within-case analysis will be carried out.[45]

Corporate profile

"*Deutsche Telekom positions itself as a global Telematic supplier in a competition environment, that is characterized by the convergence of the technologies and the globalization of the markets.*"[46] In the financial year 2000, *Deutsche Telekom* increased revenue by 15.4% to EUR 40.9 billion. Net income rose by EUR 4.6 billion to EUR 5.9 billion and the number of employees has been approx. 170,000.[47] The markets in which business activities of *Deutsche Telekom* occur are termed as TIMES markets.[48] The corporation concentrates on

[45] This case study draws on transcribed interviews with Dr. Georg Schwegler and Ferdinand Kögler. The appendix includes an overview of the affiliations and job titles of all interviewees. Furthermore, this case is based on annual reports, public speeches, press releases and analysts' reports.

[46] See Deutsche Telekom AG, Annual Report 2000, p. 1.

[47] See annual report, 2000, p. 12

[48] The abbreviation TIMES stands for Telecommunication, Information technology, Multi-media, Entertainment, Security Systems.

four strategic pillars: *consumer Internet services*[49], *mobile communication*[50], *data/IP/system solutions*[51], and *network access services*[52]. These core businesses of *Deutsche Telekom* are mirrored in the structure of the management board of the group. In order to strengthen operative governance, two pillars – T-Tom/T-Systems and T-Mobile/T-Online - have been merged in one managing board function.

Within this group, the *T-Telematik Venture Holding GmbH* - in the following referred to as *T-Venture*- was launched in October 1997 as a wholly owned subsidiary of *Deutsche Telekom* AG. The stimulus for the first discussions with corporate finance and innovation management was represented by Dr. Thomas Kühr.[53] The fundamental idea was to set up a "catalyst between the group Deutsche Telekom and innovative start-up companies".[54] Driving this decision was an acute awareness at *Deutsche Telekom AG* of the need to address the rapid pace of development in the telecommunications market and to take innovative impulse from convergent sectors and regionally dispersed markets. By providing venture capital paired with other support services[55], *Deutsche Telekom* stimulates "detection and realization of new technologies and applications in the area of communication and information technology".[56] Since *T-Venture*'s sovereignty within the group to invest exclusively in venture capital is guaranteed by the board of directors and by the steering committee of *Deutsche Telekom*, there are no further venture capital activities in other units at *Deutsche Telekom*. Figure 2-17 shows the embedding of *T-Venture* within the *Deutsche Telekom* group*:*

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[49] With 9.2 million customers as per July 2001, T-Online is Europe's Internet market leader.

[50] The mobile communications activities of the Deutsche Telekom Group have been bundled in T-Mobile International since 2000.

[51] With its newly formed subsidiary T-Systems International, Deutsche Telekom is an address for the fast-growing information technology/ telecommunications market.

[52] Deutsche Telekom bundles telecommunications services for its 41 million residential customers and around 350 000 small to medium-sized businesses in the Group pillar T-Com.

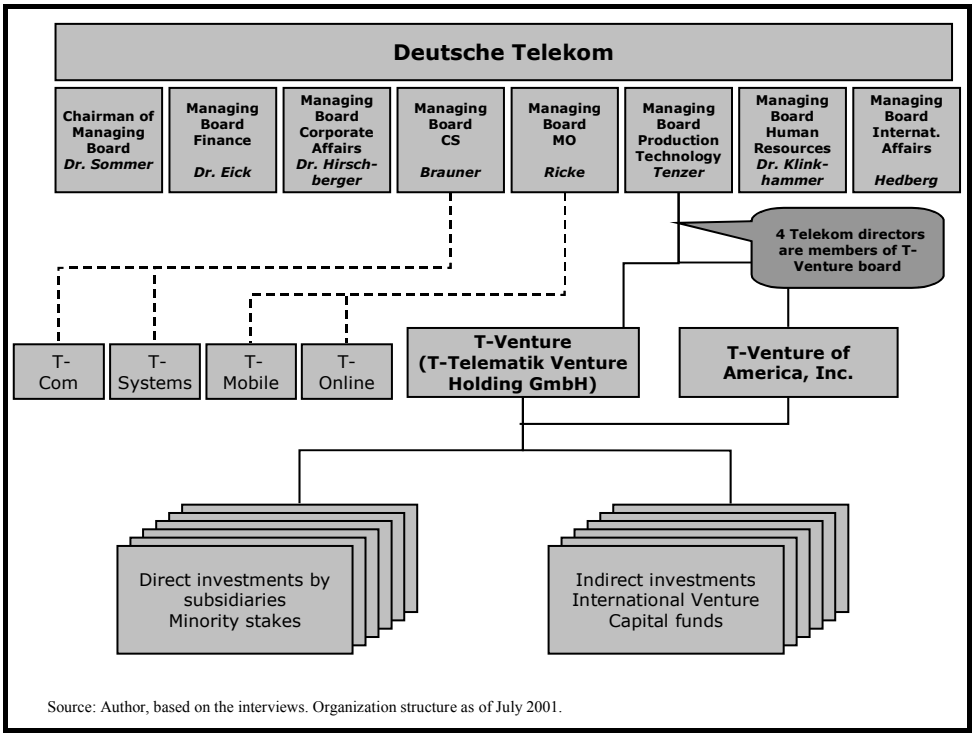
[53] Dr. Kühr is considered a trend-setter in CVC in Germany and has a lot of experience in corporate venture capital investing.

[54] See T-Telematik Venture Holding GmbH, www.t-venture.com/english/index

[55] The section "portfolio management" will refer in detail to the support services.

[56] See T-Telematik Venture Holding GmbH, www.t-venture.com/english/index

Figure 2-17: Embedding of *T-Venture* within the *Deutsche Telekom* group



Source: Author, based on the interviews. Organization structure as of July 2001.

With respect to the internal organization structure of *T-Venture*, three hierarchical levels are implemented. First, there are two chief executive officers (CEOs) who direct *T-Venture* on a managerial level.[57] The next level represents nine investment directors worldwide. Each of them coaches a number of investment managers on a third level.

Following their mission, *T-Venture* is strictly investing in companies that operate in the TIMES markets. *T-Venture's* original capital resources of DM 100 million have been increased to DM 300 million in Spring 1999, and to another DM 600 million in May 2000. Currently, *T-Venture* has a committed capital stock of €500 million by the executive board of *Deutsche Telekom*, to whom *T-Venture* is obliged to report the results of its CVC activities. With this authorized capital, *T-Venture* follows a dual investment strategy: on the one hand, they directly invest in start-up companies (representing ca. 75%), on the other hand, they invest indirectly in funds (representing ca. 25 % of the investment volume).[58] In search of exploiting developments outside Germany and to ease a knowledge transfer and market access, half of the invested capital went to German companies, a third

[57] Dr. Kühr (CEO worldwide) and Mr. Enge (CEO *T-Venture* USA).

[58] The appendix includes a detailed list of the portfolio firms of *T-Venture.*

to US companies and the rest to other European states.[59] In this sense, approx. DM 328.2 million has been invested in direct investments and in 9 international VC funds.[60] Since the beginning of the program, *T-Venture* has invested in 55 companies. Eight of the investments have led to an IPO, listed at *Neuer Markt* and at *NASDAQ*.[61]

Typically, *T-Venture* commits between DM 500,000 and DM 5,000,000 per investment in seed stage, early stage, and first growth round companies. The capital source of *T-Venture* is the consolidated balance sheet of the parent company *Deutsche Telekom*. The investments are managed by the team of 54 employees (26 investment professionals) who are distributed between 4 offices of *T-Venture* in Germany: Bonn, Berlin, Munich, and Darmstadt. The US market is covered by *T-Venture of America,* who manages the direct investments in the US: Redwood City (CA), and Boston.

While *T-Venture* began from a central perspective[62], nowadays the focus rests on diverse fund models in order to strengthen the internationalization process. Fund-in-fund investments[63], local funds[64], and finally the "INI fund"[65] have to be mentioned in this context. Moreover, the business units themselves provide joint funds, where the business divisions are represented in the corresponding investment and advisory board[66]. According to Dr. Kühr, the allocated € 100 million to separate funds each by *T-Online* and *T-Mobile* will be managed by *T-Venture* in pursue of "more motivation in working together with portfolio companies." For *T-Venture*, these fund models provide access to technical

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[59] The figures in detail are: Germany 51 %, USA 30%, Netherlands 3%, Great Britain 5%, France 6%, Switzerland 5%. The figures have been provided in the interviews.

[60] See www.t-venture.com/deutsch/presse/presse43.html

[61] One of the most prominent investments of *T-Venture* is *INTERSHOP COMMUNICATIONS*.

[62] At the beginning, the board of *T-Venture* autonomously managed the fund investments.

[63] A 'fund in fund' investment is defined as a fund that invests itself in several (regionally distributed) funds. Examples are co-investments with *Apax, Dresdner Kleinwort, TBG.*

[64] Local funds get the capital from local "*Sparkassen*", hospitals, etc. Examples are *Global IT-Venture fund*, Amsterdam, and *Bonn-Innova Venture Beteiligung* GmbH, Bonn

[65] The *INI fund* is a joint-fund of *T-Venture*, *Fraunhofer Insititut* and *University of Darmstadt*, mainly investing in early-stage investments.

[66] In this category is the *T-Mobile Venture Fund* (size $ 91.5 m), launched in 2001.

knowledge, potential business partners, and experience in venture capital investing.[67]

The investment approach of *T-Venture* follows a combination of high returns as an indispensable requirement for CVC activities of *T-Venture*. On the other hand, pursuing strategic objectives is also inherent in *T-Venture's* CVC activities. The focal point is both the observation of relevant markets and technological innovation for the corporation as well as the utilization of synergies between *Deutsche Telekom* and portfolio firms.[68] An inferior priority has the objective to add new jobs. However, "as a motor of a dynamically developing industry"[69] *T-Venture* wants to create a positive contribution to the image of the corporation by its CVC activities. While the CVC activities were mainly driven by financial returns to start with, in the meantime, strategic and financial objectives are equal for *T-Venture*.

Investment Process

> *"The team at T-Venture is practicing a systematic investment process for generating superior returns. A disciplined approach is taken with each stage of the investment process, from sourcing deal flow to screening decisions and due diligence to structuring and negotiating terms working actively with the management teams, and realizing investment liquidity."*[70]

Having in mind this promising promotion slogan of *T-Venture*, the following sections aim at providing detailed explanations of what this means for the investment process followed at *T-Venture.* In general, the investment process at *T-Venture* is a mult-istage process that requires diverse documentation in the specific steps along the investment process. Due to the legal structures that have

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[67] As of July 2002, T-Venture is broken up into four divisions as the company seeks to position its venturing investments in line with its 'four-pillar' development strategy. The four separate funds will include the *T-Mobile Venture Fund*, the *T-Online Venture Fund*, the *T-Systems Venture Fund,* and the *T-Com Venture Fund*; see info@PrivateEquityOnline.com

[68] The strategic purposes will be analyzed in more detail during the investment process.

[69] See Annual Report, 2000, p.26

[70] See brochure "*T-Venture*", where they refer to the investment process on p. 7.

been implemented by the establishment of diverse fund models, the resulting investment process requires complex management of the operational questions.[71] *T-Venture* attaches high importance to a clear definition regarding labor division and the separation of responsibilities between *T-Venture* and involved departments from *Deutsche Telekom*. However, does this complexity mean that *T-Venture* struggles with cumbersome and long-lasting decision processes within the group? This has to be shown in the following:

Deal Generation

T-Venture possesses two instruments in order to generate deal flow. The first "pipeline" represents the case where they actively use the group *Deutsche Telekom* in order to generate deals. This *internal deal flow* arises from the participation of *T-Venture* in the periodical meetings of the new business development units at *Telekom*. Thus, the latest external developments in the TIMES markets, as well as *Telekom* internal ideas that have the potential to be realized as spin-offs, are discussed. These new business development meetings aim to reinforce the internal deal generation at *Deutsche Telekom.* The second "pipeline" of *T-Venture* represents its *external deals* by actively networking outside the corporation. By doing presentations at universities, workshops, VC fairs, VC associations and business plan competitions, *T-Venture* gets access to external business ideas and (potential) founders. Since *T-Venture* is satisfied both with the quality and the quantity of deal flow, they refrain from doing any kind of additional public advertising.

However, the interviews reveal an interesting difference regarding the quality of processing and the attitude between internally and externally generated inquiries for financing. Although there is no formal notice at *T-Venture* to prefer internal inquiries, they are treated more exhaustively and with a more positive attitude than external ones.

[71] It has been reported that at least 3 legal units are involved where a fund is concerned.

Deal Evaluation

The *first screening* strives to review investment opportunities in order to eliminate deals that do not meet the fundamental investment criteria of *T-Venture*. *T-Venture* sees an integral guarantor for the achievement of the requested strategic objectives in the applied *quality requirements* during the investment selection. Independent from the origination of the deal-flow, the review of deals regarding potentially interested departments, represent the main part of the daily work of an investment manager at *T-Venture*. In evaluating investment opportunities on behalf of the fund, the investment manager focuses on the following aspects:

- Significant market opportunity
- Sustainable competitive advantages
- Talented entrepreneurs
- Global business opportunities
- Effective financing structure
- Ease of exit.

With these aspects in mind the investment manager refers to the strategic search fields of a business unit as a guideline. In order to let the investment managers to know about the "white spots" of the business units, the periodical discussions of the *T-Venture* team are supplemented by quarterly strategy circles, where the strategies of the business units and the corresponding one of *T-Venture* are mutually exchanged and discussed. However, the more efficient and continuous exchange opportunities for *T-Venture* are represented by business unit associates who are locally integrated at *T-Venture* for a direct collaboration with the investment managers.

> "But the most efficient way is to transfer employees from the business units to *T-Venture*. Then we have the experts working here in-house." (Kögler)

But with respect to the actual selection of portfolio firms after the first screening, the business units do not exert influence on the final decision, since it merely represents a reconciliation of the investment manager's personal notions and own market experience of the future trends. The investment manager does not have to

follow strictly "must-have" criteria from a business limiting his/her autonomy in matching potential investments and business unit requirements. Accordingly, the investment manager is constantly required to be a market expert.

> "Actually, what we do here is to find a match between our perceptions of the future market development and the strategic search field we get from the businesses of *Telekom*." (Dr. Schwegler)

Having reached a positive decision regarding the selection of an investment, the investment manager contacts the corresponding strategic business unit of *Telekom* group. Thus, the personal network of the investment manager within the group defines the paths he/she uses to contact the corresponding partner in the business unit. Furthermore, the embedding of *Deutsche Telekom* in the dynamic telecommunications market facilitates the challenge of an investment manager to disseminate enthusiasm for a new technology in a business unit. In the words of an investment manager, the situation is perceived as follows:

> "We had the experience that *Deutsche Telekom* operates in a very dynamic market and, therefore, the employees are motivated and favored by new ideas to a greater extent than in other areas." (Kögler)

T-Venture only proceeds further with the due diligence on the prospective investments that have been selected as most promising by the investment managers. While regarding the actual selection of portfolio companies there was no link to a business unit of *Deutsche Telekom, T-Venture* has recourse in some cases to the capabilities of the group regarding the technical evaluation of a start-up company. Although it is in no way mandatory that a business unit perform the due diligence, it is the first time in the course of the investment process that the investment manager directly cooperates with the relevant business units of *Telekom*. In this respect, *Telekom* experts participate in the presentations of business plans,[72] which enables the maintenance of a common basis and network for a later collaboration between CVC unit, relevant business unit and start-up company. A central element in this stage of deal evaluation is represented by the recently founded service department at *T-Venture*, called *Analysis*. This sub-unit

[72] However, it has to be mentioned that the participation is not mandatory, and therefore it is finally the decision of an investment manager to invite the Telekom experts.

supports investment managers by focusing especially on market aspects in the business model of a start-up company.

However, in the search for technological feedback, the question is how the investment manager turns to the suitable in-house *Telekom* experts. This is even more interesting since *T-Venture* reported that they did not run any institutionalized databases.[73] In order to make sure that all arising questions at the business units regarding an investment proposal will be treated during an efficient decision-making process, *T-Venture* maintains clearly defined responsibilities as well as personal profiles in the corresponding business units. The idea at *T-Venture* is that the investment manager can contact defined hubs within the pillars as first contact partners. They represent the link between *T-Venture* and the pillars of *Telekom*.[74] These hubs facilitate the decision making process, as the linking elements are responsible for the delegation of tasks within a business unit. But moreover, these 'nodal points' in the network of a business unit pretend not only to avoid problems, but actually to represent the first contact partner for *T-Venture* in order to solve problems. The words of an investment manager illustrate the procedure:

> "Since we have specified hubs within a business unit we know whom to contact. This helps us in finding further contact partners in the business unit. But further, the hubs are also held liable in the case of problem solving. We follow the general rule: conflicts are discussed up to the end." (Dr. Schwegler)

But, these institutionalized hubs only represent a necessary but in no way sufficient condition, since it has to be completed by the knowledge of an investment manager about the *Telekom* group itself. This additional necessity increases the speed of the finding process. Especially regarding business units that deal with business development themes, the investment managers seem to maintain a very good overview followed by established personal contacts. Interestingly, the interviews at *T-Venture* illustrate that they do not only contact persons working on an upper-management level in a business unit, such as the innovation manager, for example. Quite the opposite is true: particularly in the

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[73] Due to permanent re-structuring processes taking place at Telekom, the application of a database was reported as not practicable.

[74] The innovation managers of a business unit often assume these positions.

pre-investment phase they even prefer employees that are deeply involved in operational issues. These people especially seem to represent the best knowledge source for *T-Venture* during the due diligence process. The words of an investment manager illustrate the situation:

> "… therefore, we have to know the group of *Deutsche Telekom*. We do not wait until *Telekom* defines the corresponding structure in-house. Rather, we have to know from the "people-business" the competent knowledge owners here at *Telekom*. Since we are well linked in-house in order to know the corresponding business unit for a specific topic, it does not take too much time, just 2 or 3 telephone calls. In individual cases it could be a technology know-how center that we contact regarding specific questions. But as a general rule, the people who work in the market represent the majority of contact partners." (Kögler)

The recourse to the business unit resources regarding their technical evaluation of a start-up company is even free-of-charge for *T-Venture*, at least when the inquiry does not exceed a "normal" consulting project. However, the same logic applies regarding the gratis provision of information by *T-Venture* to business units in the form of innovation consulting or coaching. Only, in the case of an evaluation project that is performed by a *technology expert center* affiliated *to Telekom*, there are basic contracts that define intra-company prices.

Deal Structuring

Once after the due diligence *T-Venture* comes to the team decision that an investment opportunity is still of interest to one of *T-Ventures*' funds, the process of *deal structuring* begins. At *T-Venture*, *deal structuring* combines the negotiation of the amount of required capital, the determination of pre-money valuation of a prospective company, and finally definition of the key terms and conditions of the investment.

Since *T-Venture* not only accomplishes direct investments but also indirect or syndicated investments the situation is more difficult to coordinate.[75] In one third of these syndicated investments, *T-Venture* maintains the position of lead–

[75] The author defines syndicated deals as the set-up of a fund in co-operation with other companies, institutes or venture capitalists. An example would be the fund set up in collaboration with *Fraunhofer-Institut*, or together with *Nokia Ventures*.

investor. Apart from implying higher risk of losses by being the lead investor, *T-Venture* intends to influence their interests more precisely in the terms of the investment contract.

Investment decision

T-Venture only presents investment proposals to the *investment board* where they successfully completed the *internal* process of investment evaluation. Regarding these deals there is complete confidence that both *T-Venture* and one of the *pillars* of *Telekom* agree and positively comment an investment without any restrictions.

However, in the last instance this internal approval between *T-Venture* and a business unit has to be completed by a formally external consent of the investment board. But, the investment decision is not reached by calling together the investment committee once – the decision is reached rather in a recurring, circulatory way. Regarding the final decision to invest in a prospective company, there is a definitive cross-sectional link to the group of *Deutsche Telekom*. All investment decisions have to be supported both by the involved pillar and by the executive management of the corporation. Therefore, representatives of both the pillars as well as *Telekom* executive management are involved in the investment board. Nonetheless, since only three involved persons make the decision, *T-Venture* does not struggle with cumbersome decision making processes. Although a unanimous decision is not mandatory, this three person board has the advantage for *T-Venture* that, de facto, investments are only made in cases where the whole board agrees.

In the case where there is no unanimity in the investment board after the first round regarding a prospective company, *T-Venture* broaches the investment proposal again, hoping to solve the problematic topics. However, if they do not succeed in doing this, an investment proposal is definitely rejected. Again, the underlying purpose of the preceded investment process, the application of funds, is authorized (by the external approval), and the required support is secured (by the internal approval).

Portfolio Support Management

The case study of *T-Venture* shows that no preliminary support possibilities are offered to the portfolio companies. Only when *T-Venture* knows what actually is required by an investment do they call for support from *Deutsche Telekom* on a deal-by-deal basis. In general, the spectrum of support ranges from legal, human resource, R&D, to marketing issues. With respect to personnel management, a cooperation possibility worth mentioning represents the transfer of business unit employees to a venture. While personal resources are often scarce in start-up companies, a personnel transfer helps *Deutsche Telekom* to safeguard jobs in business units. The utilization of the buying power of *Deutsche Telekom* by a portfolio company in order to obtain attractive discounts is another example of offered support, which does not mean further negative restrictions for a business unit. Although *T-Venture* appreciates and supports the cooperation between an investee and a *Telekom* department, the investment companies have the granted freedom to transact business even with direct competitors *of Deutsche Telekom*. As a matter of course, this possibility does not positively affect a business unit's willingness to collaborate.

T-Venture's already mentioned participation in the new business development meetings helps to minimize search costs, and even more important, to implement a fast coordination regarding a suitable contact partner for the support management. Furthermore, it is the assignment of the investment manager to represent the direct contact and sparring partner for the investment regarding all decisions in the operational business. Therefore, at *T-Venture* an investment manager ideally handles approximately four portfolio firms. The investment managers remain actively involved in the post-investment phase and attempt to create the best scenario by establishing cooperation contracts.

In addition, for *Telekom* it is of great importance to have investment directors on supervisory board seats in the portfolio firms. With the aid of associated information rights and the use of power that is related to this board involvement, direct control possibilities of the entrepreneurial team are guaranteed by *T-Venture*. Since this representation is not only limited to *T-Venture*, but also

applies to the business units, it supports the willingness of a business unit to collaborate. The basic reason for the gteater willingness of a business unit is its pursuit to guarantee an investment development that corresponds with its operational interests. However, it is not obligatory that business units maintain board seats.

> "The main responsibility of an investment manager is to pick up and follow on an investment in the post-investment phase. We have to fight for a favorable development of the market circumstances for the business units. We cannot just define it once, and then drop everything." (Kögler)

However, while all these efforts show a pronounced relationship management between *T-Venture* and the portfolio firms, the relationships between *Telekom* employees and portfolio companies of *T-Venture* have more of an incidental character. Since it is not in the focus of this work, I only want to mention that these relationships are often initialized on fairs, where the portfolio firms represent themselves on *T-Venture* stands.

What can be said about the relationship management between *T-Venture* and *Deutsche Telekom*? Regarding the hierarchy level of the actors, the investment managers prefer persons at higher management levels for the assignment of tasks in the business units. In this sense, *T-Venture* tries to contact decision makers of a business unit, since they have the capability to delegate responsibility and to coordinate the commitment of the resources within an operational unit. In order to establish and create relationships between *T-Venture* and the decision-makers, *T-Open* has to be mentioned as a market place and the most prominent example on an institutional level. In the case of *T-Open*, it is a question of an internal fair of *T-Venture*, where *T-Venture* come together with approx. 300 managers of *Deutsche Telekom* and representatives of the portfolio firms.[76] Since this contact fair leads to a brisk exchange of information between the participants, *T-Venture* intends to organize this event on a regular basis. While this is a meeting organized by *T-Venture,* there are further business unit events, where they invite the investment managers of *T-Venture*. More on an individual level, the investment managers at *T-Venture* are constantly asked to seek personal discussion with *Telekom* experts actively in order to maintain a certain technical

[76] In this form, *T-Open* took place for the first time at the beginning of 2000.

competence. Since investment managers should apply the same terminology that is used in the business units, technical competence is essential for constructive discussion with the technology experts.

In spite of the structural independence of *T-Venture* as a separate subsidiary, the CVC unit is linked to the general reporting of the *Deutsche Telekom*. However, *T-Venture*'s requirements of controlling and reporting to the board of directors of corporate finance guarantees the involvement of *Telekom's* top management regarding the portfolio management. Moreover, top management involvement supports *T-Venture* in transferring the synergy and leverage effects to the business units. Additionally, *T-Venture* is asked to deliver synergy reports, which show the resulted synergies for both the corporation and the portfolio company. Since the investment manager has to take care of the synergy reports, he/she stays closely involved in the controlling process. Internally at *T-Venture* - also due to personnel growth - a part standardization of the controlling processes is pursued, e.g. in the form of unique check lists and files.

But what about the existent incentive structures at *Deutsche Telekom* that motivate the business units to collaborate regarding CVC activities? The only incentive for the business units is of operational or strategic nature. Operational means that a business unit sees a portfolio firm as a possibility that directly increases its revenues or decreases the costs of its daily business. Strategically, as a second path, is the topic "technology scouting". In this sense, a business unit strives to learn about new technologies important for its future business. These strategic interests arise on the one hand from personal interests of business unit employees, but on the other hand, strategic interests are triggered by a very long-term oriented performance increase or only maintenance of a business unit. Both paths increase the shareholder value of *Deutsche Telekom* in the long–term.

There is no direct profit sharing for the business units. However, *T-Venture's* future focus on fund-in-fund investments with the business unit shows that a certain lack of incentive is perceived at *T-Venture*. This reorganization in direction of a more pillar dependence aims at strengthening the willingness of the business units to cooperate with the investments of *T-Venture*. Moreover, in order to provide single employees of a business unit with more incentive, the launch of an affiliate fund is discussed at T-Venture, where individuals have the

possibility to invest their personal budget. Conversely, in order to decrease the possibility that a portfolio firm cooperates with a direct competitor of *Deutsche Telekom, T-Venture* also considers fixing incentives for the portfolio companies already in the investment agreement.[77]

Exit Management

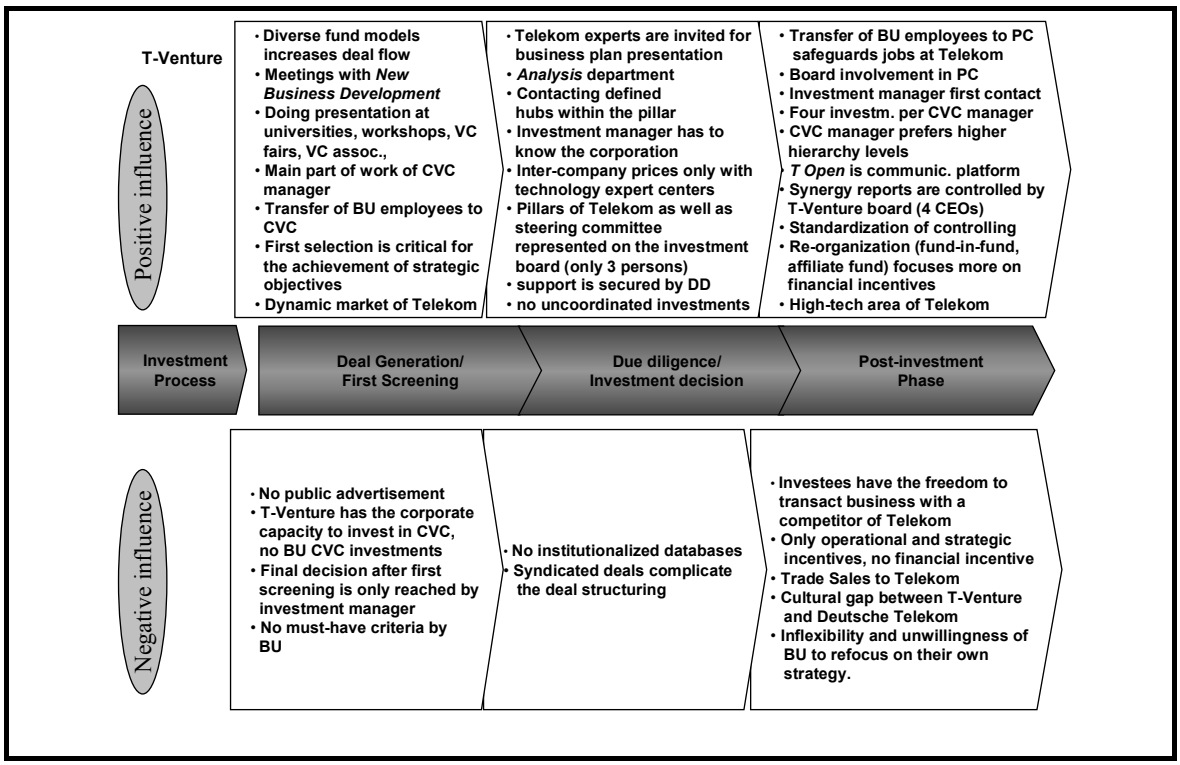
As a general rule, *T-Venture* pursues the termination of an investment ideally after five to seven years. For *T-Venture* one of the most important and difficult aspects of venture capital investing is knowing the optimum time and the kind of exit. In order to alleviate this problem, *T-Venture* makes team decisions on a deal-by-deal basis, where *T-Venture* and the company together define the further path of a portfolio company.

Regarding the theoretical possibilities (Buy Back, Trade Sale, Integration in the group, IPO), buy backs are of minimal significance for *T-Venture*. More important are trade sales whereas an acquisition by *Telekom* also represents an interesting possibility. Thus, the business units have equal rights in making a bid. However, a corporately motivated privilege against the other tenderers is not guaranteed for the business units. Nonetheless, the IPO of a portfolio firm at the stock exchange represents *T-Venture*'s favorite exit channel. In spite of a successful liquidation, the support of a start-up company by *T-Venture* can persist for a certain time. This is especially the case when *T-Venture* has to offer after IPO support due to the lock-up period after a company goes public.

In order to conclude this case description, the following figure summarizes the main statements of the interview, categorizing them by positive and negative influence factors during the three simplified stages of the investment process: (1) deal generation/first screening, (2) due diligence/investment decision, and (3) post-investment phase.

[77] In the US, it is already an explicit contract clause that in the case of a cooperation with a business unit, the shareholding stakes of *T-Venture* increase.

Figure: 2-18: Statements from the interviews at *T-Venture*



Within-case analysis

The affiliation of *T-Venture* to the board resort *Production and Technology* (and not to the *Corporate Finance)* enforces the impression of the strategic orientation of *T-Venture*. Besides the common financial and strategic objectives, *Deutsche Telekom* also pretends social objectives with its CVC program. Since *Telekom* defines itself as a partner of the small to medium-sized enterprises, they pursue the image of a socially responsible corporation.

The case description shows that the structural link of *T-Venture* in–house at *Deutsche Telekom* is managed by two mechanisms. On the one hand, the communication to the top management of *Deutsche Telekom* is first guaranteed by the composition of *T-Venture*'s board, second, by assigned reporting duties, and finally, by institutional committees and regular meetings. These mechanisms guarantee the bottom-up connection. On the other hand, the communication with the business units takes place through the daily project-oriented teamwork between the geographical representatives of *T-Venture* worldwide. All this enables the link downwards to the business units.

The cultural analysis of this case reveals that *Deutsche Telekom* is still undergoing a change in its corporate culture. Due to cultural gaps between the new business orientation of *T-Venture* and the engineering tradition of *Deutsche Telekom*, *T-Venture* only partially succeeds in transmitting entrepreneurial impulses to the corporation. Although a corresponding commitment by top-management is necessary, it is in no way sufficient. However, the existence of *T-Venture* and its CVC activities stimulates an internal cultural convergence. Interestingly, the longer *T-Venture* exits, the stronger is the awareness within the group of *Deutsche Telekom* that *T-Venture* has the capacity to do venture capital investing.

Nonetheless, the case of *T-Venture* shows a generally positive attitude and dedication in the business divisions regarding CVC activities. There is reason to believe that the innovative high-tech industry where *Deutsche Telekom* operates positively facilitates the challenge of *T-Venture* to inspire employees in a business unit for new and innovative technologies. However, to what extent this dynamic character is in a higher gear than the markets of the other cases of this study remains under discussion. However, it is inevitable that the investment manager coordinates the different interests in the business units operating in the convergent TIMES markets, as the statement of an investment manager at *T-Venture* illustrates:

> "Of course, our job as an investment manager is to co-ordinate the diverse interests that come up in a huge corporation like *Deutsche Telekom,* and overall in a convergent market as is the case in the TIMES market. The coordination is necessary to get the statement for support regarding a CVC project. This is our purpose whenever we meet the technology experts of *Deutsche Telekom*, who are interested in a specific topic." (Dr. Schwegler)

At *T-Venture*, the analysis of potential improvements shows two possibilities. The first could be the realization of a stronger commitment on the side of the business units regarding the resources provided by a stronger personal link between a business unit and portfolio company. The second potential improvement that would facilitate the work of *T-Venture* is the persistent flexibility and willingness on the part of the business units to re-focus their strategy in a new direction. The planned re-organization at *T-Venture* towards fund-in-fund investments with business units probably intends to establish a

stronger link to the divisions in order to guarantee the commitment of resources for CVC by a business unit. With the aid of these joint-fund activities, *T-Venture* attempts to synchronize CVC activities with the business units, avoiding uncoordinated investments parallel in different venture units of *Deutsche Telekom*. The bilateral discussion in the investment committee, where representatives of different business divisions participate, has the same purpose. The discussion concerning the launch of an affiliate fund goes even one step further. This effort aims at providing incentive for invested employees even on an individual level. To what extent this idea is feasible remains to be seen.

However, the general purpose of the reorganization at *T-Venture* mirrors their opinion that the structure of a CVC unit is closely related to the profile of the parent company. In the future, the followed centrally hybrid[78] approach of *Deutsche Telekom* reflects the increased awareness of the concrete market circumstances. It combines consideration of the dynamic or stiff market-environment, service or product market, or finally single or multi product firm. In the words of an employee at *T-Venture* the situation is perceived as follows:

> "We started CVC at *Deutsche Telekom* from a very central perspective. However, we experienced that in a large corporation with multi-product structures (as in the case of *Deutsche Telekom*), the topic CVC is on the one hand very division driven, since these divisions are represented as separate companies. On the other hand, *Deutsche Telekom* wants to coordinate the CVC activities in-house. Therefore, our future fund investments abut more strongly on the pillars of *Telekom*. In other corporations, the structure of the CVC could be more flexible. I think it is also worth having a look at the young companies in the market that sometimes apply new, innovative solutions." (Kögler)

With respect to the level of involvement regarding the investment managers, the case of *T-Venture* shows that they continually stay directly involved during the entire investment process. Interestingly, in this case the investment managers seem to act not only as door-openers, but to remain responsible for an investment "from the cradle to the grave". Since they have to be able to find, evaluate, and support a company, financial as well technological aspects have to be covered by their personal abilities. *T-Venture* attempts to maintain an almost perfect balance

[78] In this thesis, centrally hybrid is defined as corporation guided CVC activities that show a simultaneous participation by the business divisions.

regarding the whole mix of the *T-Venture* team, as a single investment manager is not able to combine all required characteristics. Furthermore, the case of *T-Venture* confirms the change that already emerged in other cases, that while in the pre-investment phase very operationally oriented employees represent the first choice for doing the due diligence, the upper-management level seems to be more appropriate for coordinating and delegating the post-investment support.

Finally, *T-Venture* seems to have a competent and strong backbone with their CEO, Dr. Kühr, who was mentioned several times during the interviews. Due to his long VC experience, he seems to represent a reliable contact partner for the CVC team regarding all VC-related issues that arise. Putting all this together, this case at *T-Venture* shows that the creation of value added taking place in the collaboration to business units is mainly person-driven. This assumption is based on the illustrations that the communication and network of investment managers are emphasized as the "keys" for successful CVC investing.

2.3.3 DaimlerChrysler Venture

In this last German case the intra-organizational collaboration between *DaimlerChrysler Venture* and business units will be described and analyzed. First, a brief corporate profile of *DaimlerChrysler* and *DaimlerChrysler Venture* will be presented. Second, the emphasis will be made on the investment process, which is followed by the within-case analysis.[79]

Corporate profile

DaimlerChrysler is one of the world's leading automotive companies. In 2000, it sold 4.2 million passenger cars, and 549,000 commercial vehicles. *DaimlerChrysler* had total revenues of € 162.4 billion, an operating profit of € 9.6 billion, and had 416,501 employees worldwide in 2000.[80] Today,

[79] This case study draws on transcribed interviews with Dr. Marianne Tümpen, Stefan Albrecht and Marc Henzler, and conversations with Niels Strohkirch. The appendix includes an overview of the affiliations and job titles of all interviewees. Furthermore, this case is based on annual reports, public speeches, press releases and analysts' reports.

[80] See http://www.daimlerchrysler.com/index_e.htm

DaimlerChrysler is represented in more than 200 countries around the globe and has production facilities in 37 countries. In 2001, it continues its strategy of focusing on its core strengths, "building innovative automobiles in all segments of the market." To meet this goal, the corporation has sold off numerous business units outside the core area of the worldwide automotive business[81], and now generates more than 90 per cent of its sales in the global automotive industry. With *Mercedes-Benz, Chrysler, Jeep®, Dodge, smart, Freightliner, Sterling, Western Star, Thomas Built Buses, Setra, Orion, American LaFrance, MTU, and TEMIC* the automotive group has unique brands with which it covers all important market segments. Furthermore, *DaimlerChrysler* has global alliances with *Mitsubishi Motors Corporation* and *Hyundai Motor Company* in order to ensure access to the Asian markets. By an update of more than 80 per cent of its current models and launching around 60 new models in the next five years, they compel their product offensive. The group has two headquarters: one in Stuttgart (Germany) and the other in Auburn Hills (USA, Michigan), the former headquarters of Chrysler.

Innovative ideas did not always belong to the heart of business at *DaimlerChrysler*. In order to give these product, procedure or process ideas a chance in the market was the main reason for the foundation of *DaimlerChrysler Venture* GmbH (*DCV*), a wholly owned subsidiary of *DaimlerChrysler* AG. Since the beginning of *DCV* in May 1997, the main purpose was to enforce the intrapreneurship at *DaimlerChrysler*. While at the beginning the achievement of financial returns was only of inferior importance, nowadays financial returns are more strongly assessed due to the better comparability with other CVC's.[82]

In 2000, the initial capital stock of the fund of DM 40 million was expanded by € 100 million and opened to external investment candidates as well. Since that time the purpose of window on technology has gained in significance. Further, *DCV* aspires towards maintaining the competence to cooperate with small businesses,

[81] Examples of disengagement from aeronautics, railway systems, and telecommunication are the successful foundation of the European Aeronautic, Space and Defense Company (EADS), into which DASA has been incorporated, the joint IT-venture between Debis Systemhaus and Deutsche Telekom, and the sale of the railway engineering subsidiary Adtranz to Bombardier are all expressions of that strategic focus.

[82] *DCV* defines a financial return of 15 % p.a. as minimum goal.

the development of commercial relationships, and to supporting spin-offs, where technologies could be usable for the group later on. Irrelevant are the enforcement of demand for *DaimlerChrysler* products, as well as the creation of potentially acquirable companies.

As of August, 2001, *DCV* has 21 companies in its portfolio in the areas of electronics, sensors, electro-mechanics, e-business, telematics, m-commerce, mobility services, software development, material technology, and fuel cell technology.[83] Although *DCV* offers investments between € 0.25 and € 5 million per company from seed up to expansion phase, they prefer to invest in companies that are close to the market introduction (start-up-operations) and in the growth stages. Since the work of *DCV* is centering on Europe and the US, they have offices established in Stuttgart, Germany and in the heart of Silicon Valley, Palo Alto, California.[84] There is no office in Auburn Hills (USA), the American headquarters of *DaimlerChrysler*.

From an organizational point of view, *DCV* is tied to Merger & Acquisitions (M&A), a sub-unit of Corporate Development to which *DCV* is obliged to report.[85] This connection is reasoned first by the founders of the CVC activities at *DaimlerChrysler* - Mr. Krökel, director of M&A, together with Dr. Tümpen, CEO of *DCV* - and second by the initial focus of *DCV* on internal spin-off projects of group employees. However, in their decision-making processes *DCV* positions itself increasingly independently from the rest of the corporation.[86] Moreover, *DCV* is excluded from the usual administrative, controlling and supervision requirements of the group.

The commitment for the provided capital comes on the one hand from the management board of *DaimlerChrysler*, headed by CEO Dr. Schrempp, and on

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[83] The appendix includes a detailed list of the portfolio firms of *DCV*.

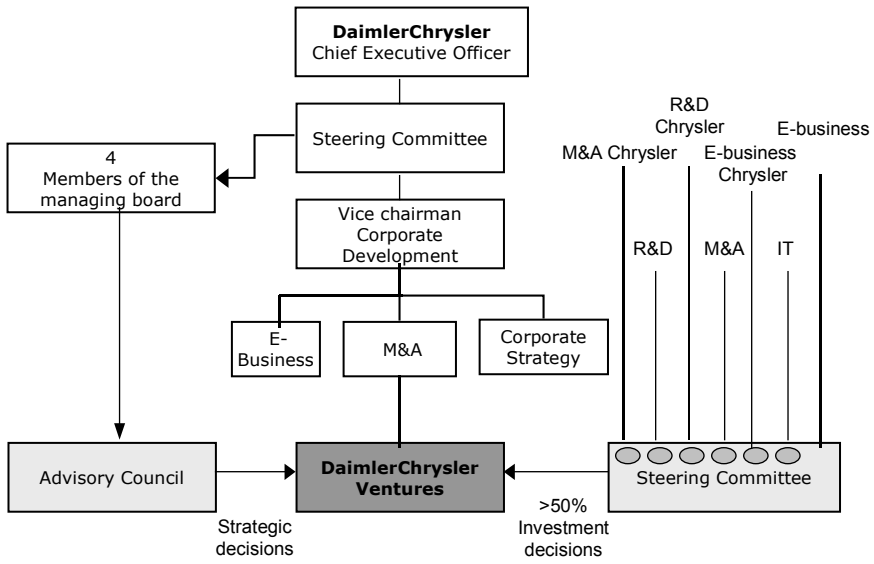
[84] In Palo Alto 13 employees of *DCV* are located. It is worth mentioning that in October 1995, *Daimler-Benz* opened an R&D center in Palo Alto. The R&D Center's mission is to keep *Daimler-Benz*' global R&D efforts at the forefront of the advanced technologies, and especially of multimedia technology and telematics applications, e.g., Internet-based e-commerce, architecture for online services, multimedia transportation and mobility software.

[85] M&A, Corporate Strategy and E-Business belong to Corporate Development.

[86] Examples of this are the existence of a separate factory number, and the movement to another office building outside the *DaimlerChrysler* plant site.

the other from the *Advisory Council* of *DCV*, that consists of four members of the executive board of *DaimlerChrysler*.[87] The *Advisory Council* is informed twice a year and discusses the strategic direction of *DCV* on an advisory level. While the team and the CEO accomplishes the strategy definition of the CVC activities, the *Advisory Council* discusses the strategic direction of *DCV* on an advisory level. The steering committee guarantees the cross-unit aspect, which combines representatives of various business units. The central embedding of DVC within the group, which was reported as elementary in order to act independently, but at the same time enables *DCV* to use the corporate identity of *DaimlerChrysler*, is shown in Figure 2-19.

Figure 2-19: The central embedding of *DaimlerChrysler Venture* within *DaimlerChrysler*



Source: Author, based on interview results

[87] The Advisory Council meets twice a year and consists of Corporate Finance & Controlling, Corporate Development, Global Procurement & Supply, and Corporate Research & Technology.

Investment process

The purpose of the following analysis of the applied investment process at *DCV* is to get information about the institutionalized "approval gates", the actors involved, and the reason for applying certain approaches. The detailed illustration of the single investment phases attempts to reveal problems arising, and even more interesting, the mechanisms *DCV* uses in order to overcome them.

Deal generation

While the funding activities were initially limited to internal spin-off projects at *DaimlerChrysler* the investment spectrum has expanded since 2000 by opening the sources of capital to external investment possibilities that show a strategic link to the group of *DaimlerChrysler*. The purpose of the extension of the investment spectrum was on the one hand a potential window on technology, but on the other hand the increase of the deal flow at *DCV*.

Although *DCV* shows an external deal flow by street deals, the interviews reveal that the internally generated deals by business units represent a higher incentive for the business units to collaborate, since the business units give their right arm to burn and nurture their "babies". The circumstance is illustrated quite obviously in the following statement of an investment manager at *DCV*:

> "If a deal originated in a business unit, they have their highest interest in these deals. In other words, they are in favor of the following procedure of these investments, or even stronger, 'they are crazy about' these deals." (Henzler)

Deal evaluation

Since the first step in the deal evaluation consists of investment managers of *DCV* screening the deal flow of investment possibilities, the relevant entrepreneurial teams are asked to submit an executive summary of their business plan regarding their new venture. During the first screening, the following aspects of the investment inquiries are inspected by the investment managers:

- sustainable competitive advantage,

- chances for economic growth,
- relation to the *DaimlerChrysler* group,
- use regarding core-products, optimization of processes.

Having successfully passed the assay of these general investment aspects, investments are evaluated regarding financial venture capital criteria during the financial due diligence by the team of *DCV*.

> "If some VC criteria were not complied with at all we would pass a deal over to a business unit for the technical due diligence. Even if the strategic direction of a company were fine, we never invest where we can't see a financial upside." (Albrecht)

By "sorting out the crap" (see interview with Mr. Henzler) and curtailing the initial number of inquiries to around 20%, the investment managers at *DCV* try to limit the start-up companies they transfer to a business unit to those deal opportunities that really represent a "never seen" or a "similar already accepted" scenario by the business unit. The investment managers at *DCV* are well aware of referring to business units and of utilizing their resources sparingly and economically. However, in reaching this decision, *DCV* takes no recourse to an internal database that includes detailed information about past investment inquiries.

> "If I get a business plan that is similar to one that I already transmitted to a business unit and has been rejected by a business unit, I will not transfer the same business idea to an operational unit a second time. The result would be logical, and the business unit would get angry." (Henzler)

If a company meets the expectations of *DCV*'s general and financial inspection, the potential investment company is asked for a detailed business plan in order to proceed with the due diligence. Since the financial due diligence has already been accomplished alongside the first screening by DCV, the assay is restricted to the technical due diligence. Although *DCV* has a basic notion about the technical minimal requirements of a deal by frequent conversations within the technical expert cycles, the positive evaluation of a technology by a business unit

is mandatory for the presentation of an investment at the steering committee.[88] This further narrows the number of prospectives to 2% of the initial deal flow.

> "The evaluation of the technology by our business units is highly important for us. Only if we get positive statements regarding a prospective portfolio firm, after we did the financial due diligence as *DCV*, can the start-up company be presented to our *steering committee*. Therefore, the positive vote of a business unit is a necessary condition for an investment decision." (Albrecht)

While the mandatory accomplishment of the technical due diligence allows the business units to gather detailed information about the technology of the company, it avoids problems arising alongside the post-investment cooperation due to an insufficient commitment of a business unit. However, the technical due diligence represents the only mandatory approval gate by a business unit. Moreover, the necessity of this business unit vote makes it unnecessary for *DCV* to collect technological knowledge in a separate database. Additionally, regarding investments that originated in a business unit, *DCV* mentioned the necessity to look for a second technical evaluation in order to have an independent, more objective opinion. The whole situation is perceived in the words of the CEO of *DCV* as follows:

> "It is highly critical and dangerous to invest in a company if you already know by the time of the investment decision that your own people in the operational units will use the products of the competitor of an investment. Therefore, we never did an investment so far, where we did not have the commitment of a business unit. However, regarding internal deals, we strive for a second evaluation, since it could happen that a business unit has a certain positive sentiment regarding deals that they provided us with. Therefore, the business units sometimes lose their objectivity." (Dr. Tümpen)

From this mentioned necessity of a business unit involvement arises the crucial question of how *DCV* localizes the corresponding technology experts for the due diligence process within the group. The interviews at *DCV* reveal three methods DVC applies. First, *DCV* uses organizational auxiliary means like the corporate telephone list, the intranet, or the available organization charts at

[88] However, in already ca. 50% of the cases some individuals of the steering committee voluntarily do a "quick and dirty" due diligence before the formal steering committee meeting.

DaimlerChrysler. Second, the investment manager attends meetings of the operational departments in order to get to know the technical experts of operational groups. Last, and even more important, the former employment of the invest managers in other departments within the *DaimlerChrysler* group enables them to know the structure and key members of the corporation. Besides the latter two possibilities, the daily work of the investment manager supports the maintenance of the personal networks an investment manager possesses internally in the corporation. The supportive infrastructure of information technology (IT) represents a necessary but in no way sufficient medium for efficient intra-firm processes.

> "In terms of interaction, e-mail and *Lotus Notes* are core aspects in order to make the corporation workable. Without these mediums, we would not know our contact partners and waste resources finding experts. But this is only a starting medium, which supports us in maintaining our personal networks." (Albrecht)
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> .

The planned internal reorganization of *DCV* aims at counter-balancing currently existent deficits in this corporate navigation process. First, it is planned that the team of *DCV* reflects technological key areas of *DaimlerChrysler* by maintaining competence centers.[89] The idea is that through recurring and manifold investments in a certain technology area an investment manager accumulates technological expertise and strengthens his/her personal contacts to the relevant business units. Each competence center will show a senior and a junior investment manager who is responsible for the coordination and delegation function in the interface between *DCV* and a business unit. They are also required for a structured collection of all technical information and contacts in a database regarding their competence area. Further, it is planned that the evolving expert cycles, embracing the competence center of *DCV* and representatives of a business unit, meet weekly in order to discuss current issues of their technical area. And second, *DCV* will be informed about the direction in the strategic roadmap of a business unit in order to facilitate the appropriate selection of investment companies, which is aligned with the technological "white spots" of an operational unit. The necessity is perceived in the words of an investment manager as follows:

[89] Examples are e-business, electronic, mechatronic, information technology, telematic.

> "The competence centers will enormously facilitate the task of finding a reasonable contact partner. Further, in order to be able to accomplish an appropriate selection of investments, we should know about the technological search fields of the business units." (Henzler)

In search of new technologies filling the "white spots" of the strategic roadmap, the investment manager has to show candor regarding the current economic and personal circumstances of the business units. People with the necessary drive and 'from the box thinking' are needed. However, these soft skills should be framed by technical as well as financial hard skills. The required characteristics are illustrated in this statement from a business unit interview.

> "If an investment manager demonstrated limited horizons in his/her mindset, he/she would get acceptance problems in a business unit. They need to be open for the problems we have in a business unit, in order to deliver portfolio firms that are useful for following our strategic roadmap." (Strohkirch)

Deal structuring

As soon as the deal evaluation has been successfully completed, the investment and share structure will be negotiated. This effort accumulates in drawing up the corresponding investment contract, necessary for the presentation of an investment in front of the steering committee. Since the majority of investment managers are former employees of the group, the question awaiting closer analysis is: where does *DCV* take the investment specific knowledge? In order to overcome the initial lack of financial-specific knowledge, the *DCV* team attended external venture capital and M&A seminars, and asked external consultants for advice when doing the first investments in the beginning of *DCV*.

However, the negotiation of the deal structure is the sole responsibility of *DCV*, where the business units are kept out, since *DCV* sees itself in the role of accumulating financial knowledge in the context of deal structuring. The financial knowledge pool at *DCV* regarding venture capital investments further combines an understanding and appropriate handling of the collaboration with a start up-company, due to their specific entrepreneurial features.

Investment decision

Having hammered out a deal, the steering committee is convoked for its final approval. Since only the start-up companies actively suggested by an investment manager at the steering committee come into question for a potential funding, the investment managers have extensive autonomy.[90] In all cases, the investment managers only prepare decision memos for the committee where they get a very positive and convinced feedback from a business unit. However, the final approval regarding an investment and its volume has to be accomplished by a majority decision of the steering committee. The composition of the steering committee, which includes representatives of Corporate Research & Technology, Corporate Development, M&A, and representatives from e-business and information technology, guarantees a cross-sectional link and an alignment of the investments towards the overall corporate strategy of *DaimlerChrysler*.[91] However, due to the existent personal interests in the steering committee, there is no absolutely objective decision. The interview shows that *DVC* is quite aware of this situation.

> "You can only represent key aspects of business areas in that committee in order to keep it workable. If not, you would have 20 people or more, that in return would be totally inefficient. …since a successful development of the investment is only possible with the aid of the cooperation by the business units, it would not make sense to invest if the majority votes against an investment. This committee is made up of the people who say 'stop or go', 'take it or leave it'. However, to be honest, we probably never had a 100% objective decision due to existing personal and political interests in this committee." (Henzler)

In contrast to the steering committee, the advisory board acts on a purely advisory level. Moreover, since the board only meets three times a year, it only has limited influence on the strategic development of *DCV*. Although the advisory board is informed about investment decisions, they do not have any decision rights or votes regarding the actual investment decision.

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[90] It has to be mentioned that an investment is not presented at the steering committee even if there is a positive business unit feedback.

[91] But the concrete composition of this committee changes over time and depends on the currently booming and prospering topics on the market. In this sense, there are many e-business representatives in the steering committee, due to the boom of the e-business market in the past.

In the event of a favorable decision, the corresponding documents, modalities of the required management support, milestones of the project controlling and the concrete financing plan are finalized. Although as a general rule *DCV* participates in the capital stock of the venture company as a minority shareholder (between 12% and 30%), *DCV* aims at rights "similar to those of a majority shareholder."[92] Formally, the investment decision is reached by the closing of the company agreement.

Portfolio and support management

The financial funding of a portfolio firm is set down in a jointly agreed company agreement with the start-up company. In addition to providing financial funding, *DCV* actively supports the venture companies in setting up and managing their operations.[93] However, since its role is limited mostly to supervising the strategic decisions, the planning and budgeting processes, and to controlling tasks, the management support does not infringe on the daily activities of the new companies.

Especially regarding the focused seed and early stage investments, the provision of smart money is evaluated as critical in order to give the start-up companies the required kick in the early development phases.[94] To meet the individual consultancy and support requirements of each portfolio firm optimally, *DCV* makes regular use both of the available group resources, as well as selected external experts in their network. But the support possibilities by the business units, quasi the "value-added of *DCV*", are not defined well in advance, since the cooperation with the ventures is managed project specifically, and it rather depends on the requirements of a portfolio company: while spin-off projects require the creation of a business plan, external projects mainly focus on the establishment of any kind of cooperation-contract with *DaimlerChrysler*. However, *DCV* shows the deficit that in the past they (almost) never succeeded in

[92] In addition, the provision of loans to the new company is also possible. Guarantees are not taken over; see DVC report at http://www.dcventure.com/e_start.htm

[93] The provision of money alone is evaluated as a commodity at *DCV*.

[94] In this sense, examples are the network of DaimlerChrysler, their technological in-house expertise, cooperation contracts (R&D, sale, marketing), corporate certification, etc.

delivering a written commercial agreement together with the investment contract. Therefore, it strives merely for a noncommittal letter of intent. The scenario is perceived in the words of an investment manager (Henzler) as follows:

> "The optimum scenario for us would be to close the investment and at the same time have already defined a concrete order for the investment: quantity X per year is bought by business unit Y. We keep working on this issue. But it is difficult."

Nonetheless, the interviews at *DCV* show that the exchange of resources between CVC unit and business unit is limited to intangible resources (like information and know-how about markets, trends, etc.) and does not include the exchange of material resources. Although the exchange of immaterial resources was reported to be important, there is no formal process available.

> "There is an intensive exchange of information, since 'know-how is power'. But there is no formal process, rather everything happens on a deal-by-deal basis." (Albrecht)

The already mentioned central embedding of *DCV* in the *DaimlerChrysler* group allows *DCV* both the use of the acquired technologies in several operational units of *DaimlerChrysler*, and the transmitting and locating of support inquiries across the whole corporation. But the question awaiting closer analysis is, what are the effects of this central structure on the incentive of a business unit to collaborate on an operational level? The whole exchange that happens on an operational and commercial level between the business unit and the investment company remains the sole responsibility of a business unit, and *DCV* has no competence to force a business unit to collaborate with a portfolio firm. The words of the CEO Dr. Tümpen show that *DCV* can only refer to the commitment of a business unit already stated in the *due diligence*:

> "The business units are completely free in their decision to use the product of a portfolio firm. Something that must no way happen is that a business unit only selects a product because *DCV* invested in a portfolio firm and not because it actually represents the better product. However, in order to avoid the situation that a business unit buys the product of the main competitor of a portfolio company, we have the institutionalized adjustment in the due diligence with the business unit."

Moreover, the business units do not hold any supervisor or advisory board seats in investment companies. In addition to that, *DCV* has emphatically deprecated

and denied the opportunity of financial incentives for the business units due to the following reasons: first, financial interest on the part of the business unit would cause conflicts in upcoming strategic decisions between the business unit and *DCV*. Second, *DCV* evaluates financial incentives as impractical since the collaboration of individuals in a business unit is needed. Finally, the capability of a business unit to manage investment shares is quite limited, since the operational units at *DaimlerChrysler* are used to thinking in budgets and not in strategic long-term purposes.[95] Putting these thoughts together shows that the "window on technology", strictly speaking the expansion of their technological ken, remains the only incentive for a business unit to collaborate. Moreover, for *DCV* internal cost-charging represents an unsuitable basis for a daily collaboration since it needlessly prolongs business unit feedback and would lead a CVC unit to the same situation as a dedicated VC.[96] The following statement throws light on the personal voluntary character of individuals regarding the CVC engagement. However, it should be followed by a positive image gain within the company.

> "So far, the people did it because they liked to do it. If you once start to incentivize in a financial way, you trigger a long-lasting spiral. If we cannot revert to our in-house knowledge fast and for free, we get into the same situation as a dedicated VC. I think the situation would become very problematic if the main purpose of all people involved were to earn a lot of money by CVC engagements. In my opinion, a business unit is not able to think in shares, they only think in budgets. What should be the incentive of a business unit to have some more money in their budget only after 5 years perhaps (!)?" Therefore, individual support should be followed by an increase in the personal image in the group." (Henzler)

Apart from these (moreorless) institutionalized incentive structures, four other factors influence the acceptance of *DCV*'s inquiries in the business units. The first factor is the actual business purpose of an operational unit and its interest in innovative technologies.[97] The second influence factor is externally driven by the current boom and attractiveness of the CVC topics, like e-economy, for example. Third, while in the case of internally generated deals (inside-out deals) the interviews illustrate a more reactive involvement of the CVC managers due to an

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[95] In this sense, at most strategic long-term acquisitions could be of interest to a business unit.

[96] The only thing *DCV* evaluated as practical to implement are "side funds", where individuals invest their own money. The planned funds go in this direction in the case of *T-Venture*.

[97] While e-business shows high interest in CVC, the interest in process engineering is limited.

existent push at a business unit, the majority of investments, the outside-in deals, ask for a more pro-active style of *DCV*. In the latter case, the investment managers are the ones instigating the pushing-process, since the innovative technologies of these outside-in deals often cause a 'not-invented here' syndrome in a business unit. Since the interviewees characterized *DaimlerChrysler* as a very traditionally managed company that generally tries to avoid the topic outsourcing as much as possible, there are legitimate reasons for the supposition that in the case of *DaimlerChrysler* the 'not-invented here' syndrome is stronger than in other companies analyzed in this thesis. Finally, the willingness of a business unit is even less in cases regarding spin-off investments that become irrelevant for the business units after the re-structuring of *DaimlerChrysler*.[98] Nonetheless, *DCV* sees itself in a situation of competitive advantage, since the invested companies operate on niche markets that are only a tangent to the classical core technologies of a business unit. Therefore, there is no direct competition between the business units and portfolio firms.

Concluding this sub-section, it can be said that the classical first contact partner and orchestrator regarding the support management during the post-investment phase remains the investment manager. In order to get the "right people in one boat", the investment manager steadily attempts to expand his/her contacts. Since *DCV* strives for an intensive hands-on support in the post investment phase, they limit the number of portfolio firms to three per investment manager.

> "…, really you constantly have to stay in a close involvement in order to avoid an investment 'burning out'. (Albrecht)

With respect to involvement and cooperation of the business units, it is critical for *DCV* that on an operational level there is backing and commitment by the superior management board.[99] Moreover, the higher this commitment is located in a business unit, the easier it is for *DCV* to mingle with a very operational level in order to overcome the 'not invented here' syndrome, especially regarding the external outside-in deals. However, *DCV* only follows this top-down process where the investment manager has no personal contacts to operational people in a

[98] *Debis Systemhaus* or *DASA* are examples of that.

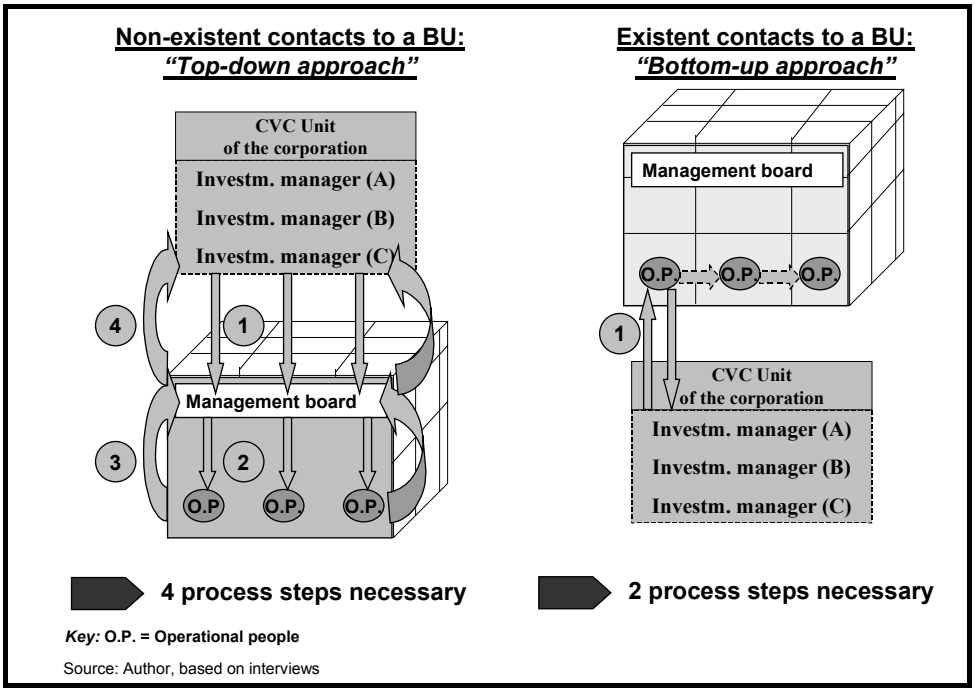
[99] This means that *DCV* reported that they sometimes got the best technical input even on a very low operational level, especially regarding very technical questions.

business unit. If the topic CVC is already diffused in a business unit and thus *DCV* has personal contacts, the integration of a business unit follows a "bottom-up" process, where the detour is not necessary. Since the latter approach requires fewer steps, it represents the more qualitative one in order to get efficient support. The following quotation makes it quite obvious:

> "The higher the authority level on which you enter a business unit, the better you get the cooperation activated. Unfortunately, this is the case at a big organization like *DaimlerChrysler*, unless we already know some people in a business unit. As soon as the topic CVC is known in a business unit, you get the people you need on an operational level. That's what determines the quality of the collaboration." (Henzler)

The following figure illustrates the differences between the "top-down" and the "bottom-up" process.

Figure 2-20: The differences between the top-down and the bottom-up process



Putting together the advantages of having numerous contacts in *DaimlerChrysler* shows the reason why the majority of the *DCV* team is comprised of alumni of the International Career Partnership Program of *DaimlerChrysler*.[100] Due to the

[100] The *International Management Associate Programme DaimlerChrysler (IMAP)* offers Top Talents the chance to participate in a global entry program which provides interdisciplinary

job rotation which has already occurred within different units at *DaimlerChrysler*, the alumni of this in-house program show the required contacts and networks within *DaimlerChrysler* that are necessary for a successful CVC collaboration within the corporation, as this statement by an investment manager illustrates.

> "Most of us completed the international career partnership program before working here at *DCV*. Since the participants have been active in various sites in the corporation during this program, they get a very good overview and insights about *DaimlerChrysler*, and they have already socialized well." (Albrecht)

Finally, the *DCV* also reported negative experiences regarding business unit willingness. The interest of a business unit in a portfolio company seems to be related to their product life cycle. While the product cycle in the automotive industry averages at 7 years, the corresponding time frame of 1-2 years regarding CVC investments is definitely shorter. This sharp difference leads to no attention and interest on the part of the business units regarding these "short-term" oriented CVC projects. The result of the unsuccessful collaboration, where *DCV* did not succeed in getting the interest of a business unit for an investment, is that the technology of an investment was implemented afterwards in a competing automobile corporation. The following quotation refers to these disappointing cases:

> "Sure, we also have negative cases in our repertoire, where our business units did not join an investment. Unfortunately, this product is now used by *FORD*." (Henzler)

Exit management

Generally, after three to five years an investment company reached market maturity for *DCV*, the trigger for initiating the exit management of an investment. As subsequently the product/technology idea has successfully penetrated the market, followed by certain market influence, *DCV* disposes of its shares, which it offers to the companies' founders (buy back) or third parties, such as banks, industrial companies, etc. (trade sale). Another important type of exit for *DCV* is

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project assignments, a production assignment and an assignment in a branch as well as an intensive training series.

the registration of the new firms at the stock exchange (going public/IPO). The pursued type of exit is defined in the investment agreement. However, that *DCV* favors going public, since it throws up the lowest hurdles, is revealed by the statement of an investment manager:

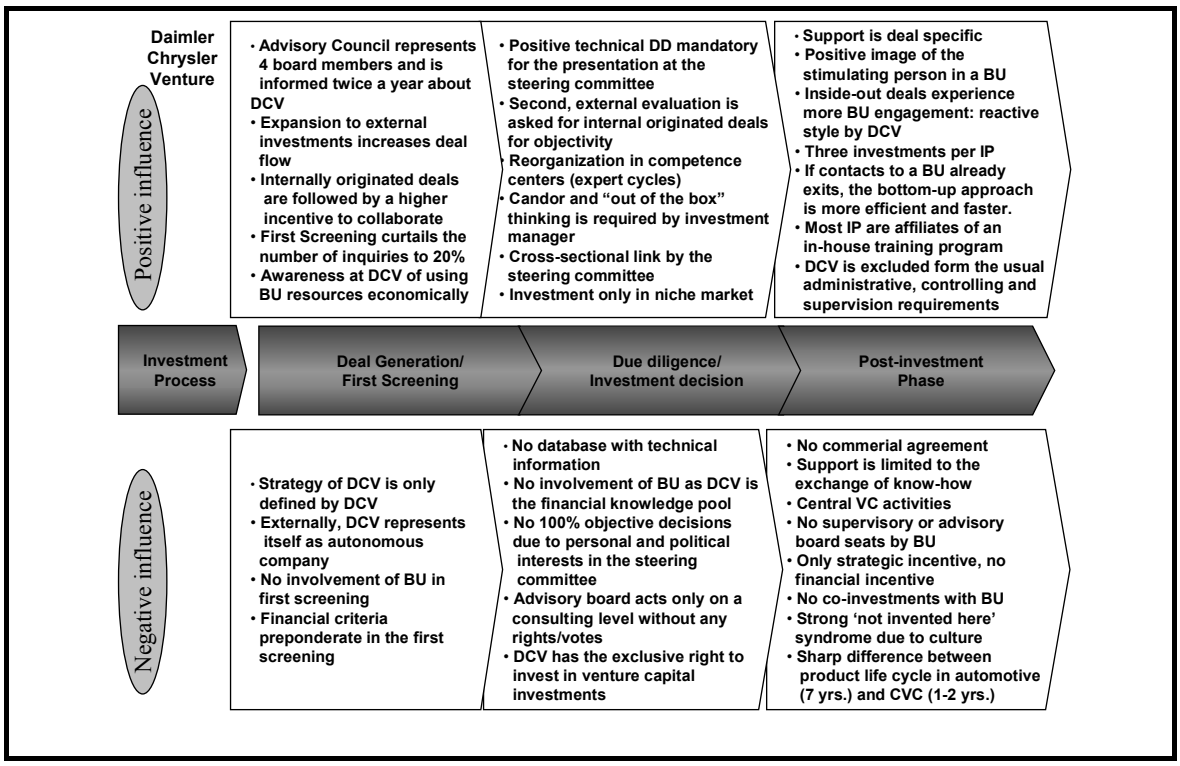
> "Companies that did not reach the stage of an IPO after that time-frame will probably be acquired by competitors. But for us, an IPO represents the easiest exit since the search for buyers and the negotiations with potential investors ceases to apply."(Albrecht)

For *DCV*, the offer of an IPO support is necessary in order to ensure the long-term development of a portfolio firm. However, since at the time of the interviews *DCV* has not conducted any exit, the achieved financial returns of *DCV* since their foundation are merely based on mathematical estimations of the ventures. Almost needless to mention is that the impact of the program on the entrepreneurial stimulation at *DaimlerChrysler* is very difficult to measure. Since this issue remains on an instinctive basis, the supervisory body of *DCV* has to rely on the perceived positive statements of the employees. However, a positive image of *DCV* within the group is fundamental for a cooperativeness of business units regarding further CVC activities. *DCV*'s CEO illustrates it quite obviously:

> "Only our acceptance and our positive image within the group of *DaimlerChrysler* build the success of the relationship we have with the business units." (Dr. Tümpen)

Congruent with the structure applied in the cases descriptions above, Figure 2-21 summarizes the emerged issue in this case by categorizing them in positive and negative influence factors during the three simplified stages of the investment process: (1) deal generation/first screening, (2) due diligence/investment decision, and (3) post-investment phase.

Figure 2-21: Statements from the interview at *DaimlerChrysler Venture*



Within-case analysis

Doubtlessly, *DCV* belongs to the early-movers in the German CVC market. Due to their relatively long existence, *DCV* has established a certain corporate internal track record and also best practices regarding CVC investments. From a procedural point of view, this case shows a cross-sectional approval from the group of *DaimlerChrysler*, since there is a mandatory approval gate in the investment process by the technical due diligence of the business units. Nevertheless, a clearly defined investment approach of definite separated tasks is followed, since on the one hand *DCV* is responsible for all financial and VC criteria of an investment, and on the other, the business units primarily focus on related operational and commercial issues. Yet, *DCV* keeps actively involved during the complete life cycle of a portfolio firm by monitoring and controlling the whole investment process in the role of moderator. Beyond the business unit involvement, the composition of the deciding steering committee showing operational managers of *DaimlerChrysler* allows a cross-unit alignment of the investments with the general corporate strategy of *DaimlerChrysler*. However, due to these two cross-unit links (business unit approval in the due diligence and

steering committee approval), *DCV* is quite limited in their decision-making autonomy.

> "Our procedural approach guarantees a cross unit strategic alignment of objectives. Nevertheless, interdependencies are minimized: the business units do not tell us what we have to do from a VC perspective, and *DCV* would not force the business unit to close any purchase commitments with an investment." (Albrecht)

The analysis of the involved actors within a business unit shows that the concurrence of operational people and senior management of a business unit is essential. On the one hand, operational people are responsible for the technological feedback of the due diligence and the operational integration of an investment technology in their strategic roadmap. On the other hand, the senior management level of a business unit at *DaimlerChrysler* is authorized to make decisions regarding potential co-operation contracts or the application/development of a product.

Looking at the existent incentives structures of a business unit in the case of *DCV*, the case descriptions reveal that the main part of the collaboration is based on a voluntary engagement by the business units. However, it becomes obvious that the voluntary character and the absence of managerial authority by *DCV* towards the business units, entails long-lasting feedback loops by the business units showing a series of required counter-signatures on any documents that leave a business unit. This uncertain character is even more critical regarding the required technical due diligence in the pre-investment phase, since the unique strategic incentive, the window on technology, is still merely hypothetical and embryonic. Since the appliance of pressure would make the situation even more complicated, distributed personal networks within *DaimlerChrysler* are important for the investment manager.

> "Particularly regarding technical assessment it is difficult to get a response in an acceptable time. What would be an alternative? To apply enormous pressure which in return would put us in the doghouse? Certainly not. In this scenario, the goodwill basis goes back to the personal networks we have as investment managers. Regarding one concrete deal where I really had good personal contacts to the people in the business unit (…we already had some beers together) I had the due diligence back in the best time. Then its: 'you scratch my back, I'll scratch yours'." (Henzler)

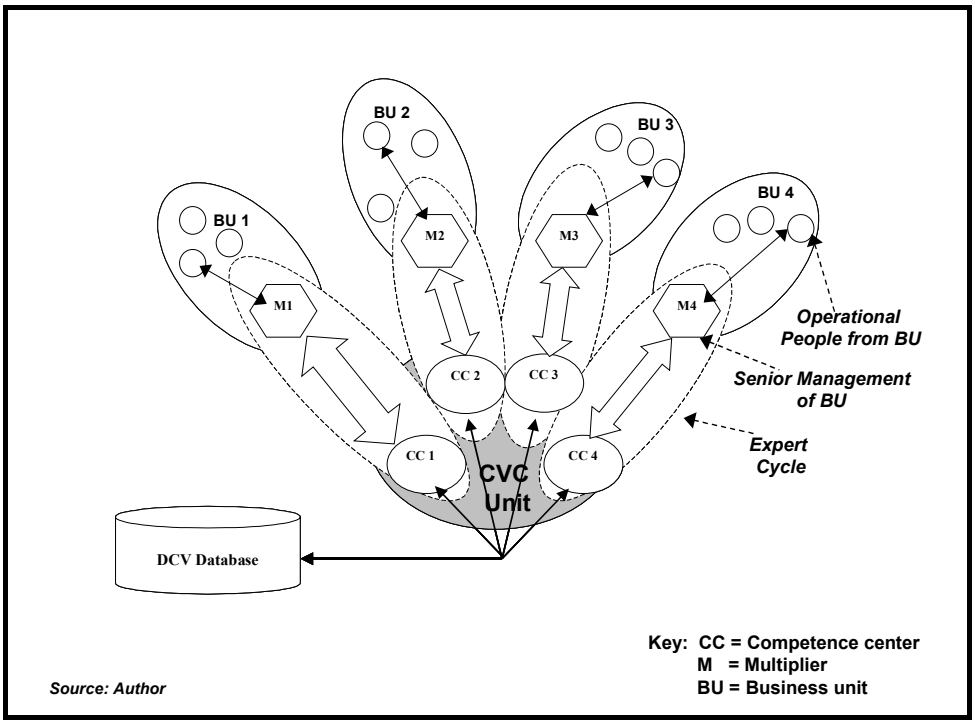
In order to maintain these required networks within *DaimlerChrysler*, a fundamental element is the engagement of their investment managers mainly from the alumnus of the International Management Associate Program DaimlerChrysler (IMAP). However on an interpretative level, on the positive side this could mean that *DCV* mainly focuses on already existent networks and contacts in the group regarding their managers. On the negative side this could mean that *DCV* cannot offer the financial incentive systems common on the private equity market that are necessary to attract investment professionals.

> "If we hired people from the private-equity area used to half a million DM fixed salary, in principle that would have broken our complete compensation structures." (Dr. Tümpen)

However, the current efficiency oriented reorganization of the *DCV* structures and processes mirrors certain deficits. Focused competence centers on specific technology areas enable the establishment and structuring of a knowledge and contact database for *DCV*. However, the recourse to knowledge and networks of contacts in a structured way requires that the collection of data should be supplemented by general access, by well structured search possibilities, and finally by rating the internal contact quality.

But even more important, the planned competence centers aim to strengthen the institutionalized link to the business unit by having investment managers responsible and focusing on a technology area. In order to guarantee an efficient transmission within the business units on an operational level, multipliers on the side of the business unit are defined. These multipliers represent for *DCV* the single-point of entry to a business unit and should be contacted at the interface between *DCV* and the business unit as a coordination hub to the operational people. These corridors of power within the corporation are responsible for the following inspection of CVC inquiries within a business unit. The following figure illustrates the purpose of the competence centers at *DCV*.

Figure 2-22: The purpose of the competence centers at *DaimlerChrysler Venture*



Finally, the case description *DCV* also shows that the process of involving a business unit in CVC activities seems to follow equivalent aspects of a marketing concept, known under the abbreviation "AIDA principle"[101]. To find the access to a business unit means in a first step to draw attention to CVC in general, and *DCV* specifically. Several mechanisms are applied at *DCV* to generate the first attention in a business unit, even before the actual involvement of a business unit in the deal generation: having a CEO with numerous contacts distributed in the corporation up to the top management of *DaimlerChrysler*; the presence of *DCV* in the intranet of the group; further, showing telecasts about *DCV* on the internal *DaimlerChrysler-TV*; distributing *DCV* booklets in the corporation. However, even more important for *DCV* in order to win attention is the ultimate technology of an investment. This technological innovation has to be classified by the highest quality and outclass the current product in a business unit. The interviews reveal that this challenge is strongly influenced by the internal embedding of a CVC unit:

[101] This abbreviation stands for *Attention, Interest, Desire, Action,* see www.gabler.de

> "At *BMW*, the CVC unit is de-centrally located in corporate development. They really see CVC as a tool to get external developments in-house. *DVC* is centrally located on a corporate level, but we at *DCV* first have to get the link to the business unit. We have to get to the situation that the operational units thinks *DVC* is somebody who really can help us."

As soon as this attention is reached, the second issue of *DCV* becomes to get the interest of a business unit in a specific investment. Within the deal evaluation of the investment process, the investment manager tries to disclose potential benefits that could result from an investment first on a senior management level within the business unit. The planned competence centers can be interpreted as an institutional effort in this direction. As soon as a business unit is interested, the investment manager aims to generate the desire in a business unit to be involved by initiating the commercial agreement alongside the phase of deal structuring. The action of a business unit takes place in the concrete collaboration during the post-investment phase. However, the extent of collaboration depends on the predefinition of the operational corporate targets of a business unit. In order to enforce the engagement of a business unit, the executive corporate level might include subjective measures of divisional performance along with objective measures (e.g. any CVC milestones such as number of supported CVC investments, hours spent on CVC activities) in addition to the usual rate of return criteria.

Finally, the analysis of the corporate culture shows a certain contentment on the part of *DCV*, since the interviewed investment managers illustrated that they do not encounter a dog-eat-dog mindset when they navigate within the corporation. Besides the efforts of the corporate executive management to support this positive mindset (e.g. newsletters*, DaimlerChrysler TV,* knowledge management systems, etc.), *DCV* itself also makes an effort in this direction: the establishment of the sub-unit business development, or the *DCV*- roadshows within the corporation, for example. This case shows that the longer *DCV* exists, the more intensive and better developed become the links to the operational units. However, these positive illustrations should not disguise the fact that besides the common goal of having a successful investment, every group follows their own goals first and foremost. This situation requires that the investment managers have to be aware of a hidden agenda when communicating their CVC goals in order not to provoke too much covetousness.

2.4 The Cases Of American CVC Programs

It is the aim of the following three sections to describe in great detail intra-organizational collaboration of three American CVC programs, *Motorola Ventures* (Section 2.4.1), *GE Equity* (Section 2.4.2), and *Intel Capital* (Section 2.4.3).

2.4.2 Motorola Ventures

The objective of this case is to give a detailed description of *Motorola Ventures* performing corporate venture capital activities for *Motorola*. First, a brief general corporate profile will be presented, including the history, context, goals and focus of the program. Second, the case will focus on the different stages of the investment process, and finally within-case analysis will be carried out.[1]

Corporate profile

Motorola Ventures was formally founded in 1999 as the official CVC unit of *Motorola*. As of April 2002, the parent company, *Motorola*, had revenues of US$ 30.04 billion, and a net income of US$ -3,937 billion (both in 2001). In 2001 *Motorola* was America's 26th biggest corporation with more than 147,000 employees.[2] The parent company is a global leader in providing integrated communications solutions and embedded electronic solutions.[3] *Motorola* had already been making minority investments for 40 years. However, there has only been a centralized venture capital group within the corporation since 1999, called *Motorola Ventures*. Before *Motorola Ventures* was founded, a lot of the business units were taking the responsibility for making their own investments.[4] However,

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[1] This case study draws on transcribed interviews with Kelly S. Mark and Kurt Estes, and conversations with Franco Lodato. The appendix includes an overview of the affiliations and job titles of all interviewees. Furthermore, this case is based on annual reports, public speeches, press releases and analysts' reports.

[2] See *Handelsblatt* survey, 02.04.2002: "The 100 biggest US companies in 2001".

[3] For further details see http://www.*Motorola*.com/content/0,1037,1,00.html

[4] However, it has to be mentioned that today there is still the opportunity for the business units to make investments that originate from their P&L-sheet.

Motorola had two reasons for setting up a central CVC unit. First, as there are a lot of investments spanning several of *Motorola*'s business units, *Motorola Venture's* purpose is to get the support of all possible BUs in *Motorola*, and not limit it to the BU that is actually doing the investment. Second, they wanted to ensure that investment support and contacts are more independent of strategic or personal changes within a business unit.

The presiding statement of *Motorola Ventures* is to have a strong strategic investment model: to select investments that have a strategic fit with *Motorola*. A second goal is to get financial returns on the investments, strictly speaking an IRR[5] above 50%. Thus, the overall purpose of *Motorola* is to "…grow shareholder value by driving acceleration from outside in. By being the 'connect point' of new technologies, new markets and new people, strategic value, profitable growth, and profitable revenue are obtained. The goal is to accelerate existing businesses, get talent and open new markets."[6]

All three locations of *Motorola Ventures* are close to the main businesses of the company[7]. With 13 closed deals in the first half of 2000 (8 deals in 2001), *Motorola Ventures* is one of the 25 most active corporate venture capitalists.[8] With an annual fund of $150 million, *Motorola Ventures* was also ranked in the upper half of the Corporate Venturing Allocations in 2000. With only three IPOs in 2000, they generated a value of US$ 221. This value took *Motorola* to the top three in the market ranking.[9]

Looking at the preferred investment stages, 57% in early stage and 43 % in mid stage, mirrors *Motorola Ventures*' focus on primarily early stage investments, overall start-up first stage and second stage.[10] *Motorola* does not invest in seed, angel-financing or mezzanine investments. In 2000, the industry focus of

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[5] IRR stands for 'Internal Rate of Return'.

[6] See http://www.*Motorola*.com/content/0,1037,1,00.html.

[7] Offices are maintained in Chicago, Boston and San Francisco.

[8] The appendix includes a detailed list of the portfolio firms of *Motorola Ventures*.

[9] For detailed information see Corporate Venture Report, January 2001, Asset Alternatives.

[10] See official presentations of *Motorola Ventures*.

Motorola Ventures was broader than the core businesses of the parent company: embracing deals in biometrics[11] and biotechnology.[12] They focused on 14 areas of technology in 2000.[13]

Investment process

Deal Generation

The first phase in the investment process is deal generation, which aims to generate a sufficient deal flow. The interesting question becomes, how does *Motorola Ventures* get the deal generation managed? By looking at the descriptions of the investment managers' daily workload, I observed two methods: first, for the internal deal flow of the corporation, the technology specialists seem to be an important source. This could mean that potential deals which seem to be interesting for the business units arising out of their former collaboration with an external company, are transferred to *Motorola Ventures*. All interviewees indicated, that a BU favors internally generated deals over external deals that are transmitted from the CVC unit to the BU. Moreover, since this case shows that the internal deal flow becomes more popular and active as more people in *Motorola* get to know about *Motorola Ventures*, the importance of publishing invested deals within the group has been reported. Further, in order to increase internal deal flow, meetings with business units are institutionalized, either to maintain established relations or to build new relationships with the business unit. However, this has to be supplemented by the CVC manager personally convincing the business development person in the 'periodical reviews' to pass their strategy document on to the CVC unit.

[11] The company in this area was "*Identix"*, which delivers a biometric fingerprint authentication.

[12] The companies invested in biotechnology are "*Phsiome Sciences*", delivering a simulation for biological processes; and "*TissueInformatics*", which performs digitized analysis and delivery of tissue.

[13] These are: *Content Delivery, Smart Messaging, Storage, Enterprise Services/Security, Voice Portal, Telematics, Wearable Technology, Distributed Computing/Architecture, Improved Human Interfaces, Wireless and Broadband Content, Biometrics, Next Generation Antenna Technology, Personal Area Networks, Biotechnology*.

Regarding external deal flow, interestingly the case indicates an active and a passive method on the part of the CVC unit: passive, by daily screening incoming e-mails at *Motorola Ventures* regarding street deals. Further, besides the screening of investment bank reports, the active methods of the investment manager include the maintenance of numerous personal contacts. These contacts maintained by an external open communication could be directed either to external Venture Capitalists, investment professionals or to investment bankers. Finally, the studied case shows that both *Motorola* and the CVC unit are actively looking to maintain contacts to universities and students.

Having selected some potentially strategic investments of the deal flow, the CVC manager contacts potentially interesting companies where the investment manager sees a strategic relationship to *Motorola*. The aim of this company contact is to get more detailed company and product information. When analyzing the information received, the investment manager always has to be briefed about a potential fit between these companies on the one hand and the different business units of *Motorola* on the other. This may be followed by an invitation to potential start-up companies to present their company.

The central structure of *Motorola Ventures* is going back to the objective of deal generation. The interviews indicate that *Motorola Ventures* as a centrally organized CVC unit has a better overview of different BUs, that allows them to build a broader knowledge of BU activities across the whole corporation. This is important as *Motorola* tries to generate as many deals as possible within the company. The interviews with investment managers suggest a positive relationship between internal deal generation by a BU and access to the support of the BU in the later investment process. As regards the deals generated by a BU, the probability of a potential failure or of having investments that are out of the business unit's focus of interest is definitely reduced, as they attempt to increase internal flow. Since there is no internal corporate publication such as a newsletter, the questions is how investment managers succeed in publishing CVC activities within *Motorola*. Astonishingly, I observed that *Motorola Ventures* does this in a fairly unorganized way. As there is no structured process, it seems to be strongly dependent on the personal contacts and working style of the individual investment manager:

> "There is no structured way for us to get that. That's more a matter of the investment professional saying, 'this is what I got as investment, and these are the contacts I have: how do I get this information?'. We try to keep up with it as best as we can for *Motorola*. We are *Motorola*. We are no subsidiary." (Estes)

Deal Evaluation

I will explain the stage of evaluating deals first by describing the process of *first screening.* All efforts in this step of the deal evaluation finish with the pitch presentation to the approval board. This is necessary for *Motorola Ventures* in order to start the detailed due diligence process. This is what I will subsequently discuss in this investment phase section.

In proceeding with the investment process, the first screening process mainly deals with the question: how strong is the strategic relationship and potential relevance of a start-up company to a business unit? The strategic dimension implies that the business unit should get access to technologies, talents, or possibilities that are either (1) not available in the business unit, or (2) would have to be developed internally in the business unit, or (3) are indispensable due to the fast development of the markets the business units are active in. Of special importance is that the investment should also positively affect the sales and orders of a business unit, which in return benefits *Motorola'*s economic situation. Since *Motorola Ventures* sees itself as a tool that tries to help the business unit in developing their strategy, the case of *Motorola* shows that the investment manager tries to find a fit between a potential investment and a business unit. However, in order to see a possible strategic fit between potential investments with one of *Motorola'*s business units, the corporate venture capital unit has to know and understand the strategy and direction of a business unit. In other words, the identification of interesting investments makes it necessary for the investment managers to at least have an idea about the main activities, needs or resulting opportunities of a business unit. The interviewees mentioned that by being informed about the weak spots of a business unit, *Motorola Ventures* tries to find out what kind of external technological input is required by a BU. Interestingly, the interviews show that information on a BU is mainly dependent

on open communication and personally established relationships between CVC manager and business unit.

> "Therefore, in order to understand the strategy and the needs of a business unit, we work closely together with them in order to fill holes in their strategy, and this is just a matter of establishing a relationship with the business unit..."
> … if they'll say, we've identified a hole out there, and they say, we want to fill this hole. What I will do is to select out of the possible companies the one that will fill this hole." (Marc)

Nevertheless, one more formal method was indicated in the interviews: *Motorola Ventures* tries to be involved in the strategy meetings of the business units. In spite of the fact that the CVC unit is not actively involved in formulating the future strategy of the different businesses within *Motorola*, this possibility allows the CVC unit to follow the strategy of a BU. This information is necessary in order to fill the strategic gaps by portfolio companies.

However, in order to present an investment to the approval board, *Motorola Ventures* depends on the support of one of the business managers. Having reached an agreed consent with a business unit, the corporate venture capital manager is in charge of preparing a 4-page pitch which summarizes the strategic value of a deal. In this document *Motorola Ventures* includes indications of future support by and from a business unit regarding a potential investment.[14] The majority decision of the approval board, which includes four corporate senior managers, gives the go-ahead for the due diligence process. Interestingly, I observed in my interviews that a positive decision is obtained in about 50 % of the deals presented.

The due diligence process embraces two main issues: the financial due diligence and the technical due diligence. In the financial due diligence, the CVC manager mainly refers to criteria which are normally used in the private equity industry, for instance, defensible intellectual property position, proven business model, customer availability, time to profit, or management personnel. The analysis of

[14] Since this pitch is only made for about 1 % of the initially available deal flow, it reflects a strong pre-selection effort.

the business plans according to these criteria aims at the financial evaluation of the business models of the companies. Regarding the technical due diligence process, the investment manager plays the key role in initiating the involvement of business units in order to get their support for the technical due diligence. Therefore, business plans are passed over to the business units, and meetings are organized with business units that seem to be interested in the deals. At the same time, the transfer of business plans to operational units aims at increasing the notification of CVC activities at *Motorola*. As one individual put it:

> "What I try to do as the investment manager is to take the selected companies and rank them according to who has the best investment prospects. The business unit will rank these companies as to who the best product company is. Passing business plans to the business units helps us to get corporate venture capital more widely known within *Motorola*, which helps us further in getting more business plans sent from the business to us". (Estes)

The analysis of the interviews shows that a positive feedback from the business unit regarding the technical due diligence is the second "go, no-go" decision in the investment process of *Motorola Ventures*, which represents the link between *Deal Evaluation* and *Deal Structuring*. Therefore, enough potential strategic benefit has to be visible for the BU in order to get positive feedback.

Examining the question of how the due diligence process is performed at *Motorola Ventures* shows a clear dichotomy. On the one hand, this means that the financial due diligence is very centralized at *Motorola Ventures* since a higher number of deal-flow in a central unit facilitates the maintenance of investment and venture capital know-how and expertise, which is very specialized. On the other hand, the technical due diligence is decentralized and represents the responsibility of a business unit. The reason for this came up in an interview:

> "The business unit knows and understands best the technology of these companies. …they will kick the tires on a company thoroughly to be able to say, 'we think this is something good'." (Marc)

After presenting the process of deal evaluation, I will discuss the above-mentioned problems that *Motorola Ventures* struggles with. I found in this case

that the high number of diversified business units results in two issues: first, the detection of the strategic relevance of an investment possibility to one of the BUs. The second difficulty relates to the extent to which CVC managers can learn from each other. As *Motorola Ventures* is organized in a way where each investment manager tries to cover a different area of technology from the diversified parent company, the possibility of learning from each other is fairly limited.

Another main problem mentioned in the interviews is related to a trade-off in importance regarding different objectives of *Motorola Ventures*. On the one hand, the accomplishment of good financial results is important for the CVC unit since the financial results represent the basis for the compensation of the investment manager. On the other hand, the CVC unit cannot neglect the strategic dimension in order to get crucial involvement of a BU in the further investment process. The following statement shows that *Motorola Ventures* tries to select portfolio companies for which there is at least one business unit strategically interested:

> "You have to try to get them to pay attention to an investment, or even to get them thinking further than their current focus. …To identify the holes in their strategy and filling them helps tremendously in getting the involvement of the BU." (Estes)

However, a critical contradiction between the "strategic investment model" of *Motorola Ventures* and their actual investment approach seems to arise from the interviews. I observed that in "cases of doubt" when balancing strategic vs. financial goals, good financial investments outweigh strategic ones in the CVC manager's decision as to which deals to continue with in the investment process. The compensation basis of a CVC manager and the inconvenience of measuring strategic results strongly influences the preponderance of financial deals.

> "We're going to be a financial venture capitalist and we're going to make strategic investments where we can, but you know what, if it falls out, then we better have a very good financial investment. Most of these things are pretty qualitative versus quantitative. There is no explicit tie to our rewards and measures on the strategic side, as yet. The reward comes down to the financial results, as it is easy to measure, strategic is not as easy to measure. So…, if I'm rewarded financially I'm

> looking to pursue this goal before looking at the strategic fit. I think it has to be done more in parallel, contributing to our statement and goal." (Estes)

Since *Motorola Ventures* has been operating for two years now, the question awaiting closer analysis is whether there are any effects on the observed problems due to the long existence of a CVC unit at *Motorola*. Interestingly, I observed that some of these problems seem to have become more moderate over time. The long experience of doing CVC investments in *Motorola* seems to facilitate and support the work of *Motorola Ventures* in different ways. Regarding the establishment of relationships and creation of open communication between the CVC unit and the BU, the early stages of operation at *Motorola Ventures* especially have been characterized as problematic. This was even more complicated, since the majority of the investment managers at *Motorola Ventures* were hired from outside the company. Therefore, they could not refer to existent networks and knowledge of the *Motorola* structure.

> "When this group was initially set up, people tended to be more outwardly focused than inwardly focused and didn't have the wealth of experience of thirty years at *Motorola*. Most people in this group have been with *Motorola* for a short period of time."(Marc)

However, now that *Motorola Ventures* has a longer history within the parent company, this problem becomes obsolete for three reasons. First, the higher level of interaction increases the number of established relationships between CVC unit and business unit. Second, the quality of the relationship between *Motorola Ventures* and the BU is influenced in a positive way. The case shows that the basis for the BU cooperation is developing more of a voluntary character. Third, as the positive impression and awareness of the CVC possibilities becomes more widely spread across the BU, it leads in return to an engagement that is driven by the interest of a business unit. This statement by an investment manager confirms the aspects mentioned:

> "We're seeing much more interaction between our companies and our business units, even since we started the investments. In return, the fact that we have been in existence for a long time leads towards us extending our personal networks. In addition, it's moving closer and closer to being voluntary. But even more important is that now the business units like to work together with us, because they understand that we are a tool which helps them get what they need on a commercial

> basis. So, I think our biggest success is the awareness in our business units that they can work with us closely on these equity investments to maximize what value they can get out of them." (Marc)

However, showing problems also requires analysis of the mechanisms *Motorola Ventures* applies in order to facilitate actively the collaboration between BU and CVC unit in the deal evaluation phase. This will be done in the following paragraphs. Regarding the question of how *Motorola Ventures* is trying to improve its relationship to the business units, the interviews delivered mainly one important mechanism: trying to maintain certain regularity and continuity in meetings, communication and information exchange between BU and CVC unit. Therefore, the investment managers try to get in contact with a business unit whenever they can, either by a conference call, or even more efficiently by direct personal contact between the investment manager and the technology experts, in the course of technology meetings, for example.

> "Therefore, you have to have a good and constant 'person to person' interaction with BUs. You can't do it once and then walk away. You have to continually refresh that. That's the biggest challenge we have. However, the technology meeting with the engineers is a key input for us." (Estes)

Following the chapter outline, I will now analyze the actors involved in evaluating deals. Looking at whom the investment managers mainly interact with, I observed that *Motorola Ventures* tries to cooperate and stay in close contact with the business development personnel of a business unit. With the aid of the middle management the CVC manager gets first contacts and access to the engineers working at the operational level of a BU. Having established the contact with the business development, the investment manager is further in charge of organizing the first round table meeting with all actors involved in an investment: the business unit, the CVC unit and the potential investment company.

> "…if I get a business plan in or if we're working on a business plan in identifying a business unit, the first person I'm going to call is probably the business development person, unless you're really involved with the process engineer. I'm not going to understand hundreds of engineers that may be out there. Now, if we bring in the company, I'll coordinate the meeting, I'll contact business development and they (hopefully) tell me who I have to invite to the meeting (or

> they invite them directly). Then all will show up and evaluate the company and go through it. The engineers are involved in all steps of the process. They have to be, since they have some intent in their mind of what they are going to work on with a company." (Marc)

However, the interviews suggest that the integration process of the business unit is influenced in two different ways: first, the personal qualifications of an investment manager, and second, the industry area of an investment. Regarding the personal abilities of the investment manager, it must be said that different characteristics of investment managers have been reported as supportive in performing the deal evaluation:

> "...,, it's a lot like being in sales, because you go there and you have to sell yourself to businesses you are working with and get the BUs interest. Therefore, first you have to be able to sell yourself and your investment, and second, you have to be very determined in navigating through the big company" (Marc)

The second influencing issue refers to the investment manager's task of figuring out the optimal mix on the spectrum with the polar cases "closeness" and "distance" between the investment area and the core business of an operational unit. On the one hand, the closer the potential investments are to the current business unit strategy, the easier it is for the investment manager to get a business unit interested enough to collaborate. On the other hand, the farther away these potential investments are located from the current activities, the more interesting it could be for the long-term strategy of *Motorola*. However, the longer this time span becomes, the more difficult it is to get the necessary attention of a business unit.

Besides the investment area, the focus on the early, first and second stage investments helps *Motorola* to diminish the "big pool of deals". Actually, three reasons have been mentioned for limiting *Motorola Ventures*' potential investment stage. (1) They avoid investments in pre-IPO companies that are only interested in getting the *Motorola* brand as investor for their IPO roadshow. (2) Access to privileged rights in early-stage companies is easier for *Motorola* to obtain than in growth stage companies, since the investment amount represents a higher percentage of the whole company value. And finally, (3) it is easier to

develop an early-stage company in a direction that promises the highest strategic outcome for the investor.

Deal Structuring

Having finished the deal evaluation, in the deal structuring phase *Motorola Ventures* aims at negotiating and completing the shareholder and collaboration agreements. In detail, these agreements include legal documents (e.g. shareholder rights), equity documents (e.g. investment conditions), and commercial documents (collaboration conditions). The investment agreement clarifies governance rights, which includes how many board seats the CVC unit gets in the portfolio company. At *Motorola*, the negotiation of this governance possibility in an investment is seen as the only responsibility of the CVC unit. Moreover, the interviews show that not only the task of negotiating them, but also the later filling of the board seats in investment is predominantly performed by *Motorola Ventures*. The existence of a central CVC unit allows *Motorola* to ensure a certain corporate standard and uniformity regarding the investment agreements in the deal structuring stage.

As there are no direct financial incentives available at *Motorola* for the business unit, the interesting question is how the investment manager motivates the operational people for any collaboration. The interviews show that the investment manager has two possibilities to influence interest and positive feedback regarding an investment: first, the CVC manager has to give prominence to the potential resulting commercial benefit of an investment for a business unit. In order to get an idea of the pretended and pursued rights the BUs would like to achieve with a specific investment, the business unit is asked about their interest in formulating a commercial agreement. Second, accentuating the benefits of investing corporate money instead of using their business budget to realize strategic benefits was indicated at *Motorola Ventures* as a stimulus for the business unit to participate in CVC activities. The rationale is that as business units they do not have to balance the risk of losing money against potential advantages of an investment - it is seen as an “upside unlimited” possibility with no downside risks.

In the case studied, I observed that seeing *Motorola Ventures* as a tool also has an effect on how they organize the deal structuring: while the CVC unit is responsible for the equity relationship, the business unit takes care of the commercial relationship. According to this task sharing, while *Motorola Ventures* is in charge of finishing the equity and investment agreement, the business unit is responsible for the commercial and collaboration agreement. This division of responsibilities is reflected in the questions of concern in the CVC unit and the BUs:

> "We'll do the equity terms, negotiate the equity agreement, but we also help with the commercial; but not get so involved as long as there's a business person involved from the business unit. When you're executing the investment, their business development person will be involved to help formulate the commercial relationship. In managing the equity relationship, we as *Motorola Ventures* ask ourselves, 'are we able to get something financial out of the invested company for our corporate money'? At the same time, the business unit is concerned about the question: 'What is our commercial benefit?'." (Marc)

Interestingly, there is no indication that *Motorola Ventures* struggles with lengthy corporate processes to get any required feedback from the organizational core. This is even more astonishing considering the huge corporation of *Motorola* and the existent prejudices about slow and complicated decision making often connected with the bureaucracy of such companies.

> "We tend to move very fast, to get approval. I've never seen an approval within the investment process hold up the start-up. I guess I look across forty different investments and I've never really seen us be the 'anchor dragging along'." (Estes)

Looking for reasons for this astonishing statement, I found a relationship between the speed of getting feedback from a BU and the level in the command chain in a business unit that the CVC unit contacts. In order to get fast feedback from a BU in the deal structuring stage, it seems that the existence of contacts with higher levels in the command chain in a business unit is helpful for the investment manager. The realization of the expected support of a business unit in a reasonable time is pursued by a positive feedback from the senior management level in a BU.

Investment decision

The sub-sections above presented the pre-investment phase of the investment process. Once these steps have been completed, the decision is: what leads to the post-investment phase? How is an investment decision reached? First, by discussing the existent policies at *Motorola* for carrying out corporate investments, I will show how *Motorola Ventures* is affected by that. In general, every single minority investment made in *Motorola* needs CEO approval. However, the CVC unit enjoys an exceptional position in the corporation: *Motorola Ventures* only required approval from the approval board to start the technical due diligence. After the positive feedback of a business unit regarding the technical due diligence, there is no further corporate decision necessary between deal structuring and final investment execution. Therefore, corporate top-management has no direct opportunity to control that the money provided for corporate venture capital in *Motorola* is invested in technology companies that are related to the industry of the parent company. The corporate money comes out of a fund, the volume of which is negotiated and decided annually. However, I observed that the fund volume available for the CVC unit is dependent upon the development of the CVC market and the success of *Motorola Ventures*. Therefore, as it differs each year, it is not seen as set for the long-term.[15]

In the following, I explain the business unit's involvement and influence regarding the investment decision. Looking at the interviews I found that the investment decision at *Motorola* is reached collaboratively between the CVC unit and the business units. Although the final investment decision is the responsibility of *Motorola Ventures*, I observed that they usually try to get strong commitment by an interested business unit after the technical due diligence. Interestingly, I found in the interviews that the business unit commitment is emphasized more than the decision of the approval board. This fact is mentioned in the interviews, as there will be no investment if there is positive consent by the approval board, but no full belief in the technology of a prospective company by a business unit. This is even more astonishing since the business unit's support is not formally mandatory. However, since the commitment and realization of the

[15] In 2001 they were intending to invest all $50 million allocated. In 2000, *Motorola Ventures* invested $102-103 million. For 2002 they planned to invest another $100 million.

commercial agreement is not a mandatory prerequisite for an investment decision, *Motorola Ventures* has the flexibility to go on in the investment process if time pressure of the market circumstances requires a fast decision.

In the final section of the investment decision, I will describe the methods *Motorola Ventures* uses to facilitate the required collaboration of the business unit. In order to overcome an uncertain or even non-specific commitment by a BU, *Motorola Ventures* tries to apply three kinds of mechanisms. First, by putting the commitment in written form, at least as an e-mail. Second, by completing the commercial agreement before the investment decision as far as possible. And finally, *Motorola Ventures* pursues the commitment of interest as high as possible in the hierarchy within a business unit. The following short quotations illustrate the corresponding situation:

> "… preferably, we try to get the commitment of a BU signed in a commercial agreement 'we are going to do this for this company.' Typically speaking, we try to put together commercial agreement and a strategic relationship before we make the investment. We want to get this certified as much as possible. I hate to do this for my companies later on, but it can be done, it is just much more difficult. And you know, the higher level the buy-ins, the better." (Estes)

Portfolio and support management

To develop a better understanding of the post-investment phase in which support of the start-up company has to be guaranteed by an appropriate collaboration between business unit and CVC unit, this section attempts to present insights into main activities and variables of the support management phase at *Motorola*. Breaking down *Motorola Ventures*' motto *More than just money* into its components reveals four main things that are mentioned in their mission: brand, distribution, technology, and expertise. With the objective of providing support for the start-up companies, the important task of *Motorola Ventures* is to find the most appropriate fit between a business unit and the portfolio company in order to create a win-win situation both for a *Motorola* department and for a start-up company. Thus, the CVC unit pursues an outside-in acceleration by opening a communication channel between these two actors. The deeper analysis of this post-investment phase shows that *Motorola Ventures* spend most of their

working time identifying BUs that respond to a certain support inquiry, and maintaining these relations within the corporation. Interestingly, the whole process of getting contact with a business unit appears to be mainly initiated by the investment manager. Since the central CVC unit of *Motorola* has an overview of all business units at *Motorola*, they aspire to maximize the support available over the whole spectrum of different business units by initiating a communication flow between business unit and portfolio firm. The following statement by an interviewee exemplifies this:

> "We kick the doors down and let the portfolio company walk through. But it's really their responsibility to walk through. It's very difficult in a large company like this to get in and find the different business units and identify the specific spaces a lot of times. Once you have that two-way communication flow going, your investments naturally begin to improve because you're getting that feedback loop going, and you are getting their personal value in there". (Marc)

However, the capability to navigate within the big company is determined and influenced by the capabilities of the investment manager. Although the interviews show that each investment manager has different networks within *Motorola*, when navigating within the company in order to find the fit between BU and portfolio company they mainly rely on personal acquaintance of contact partners. Nonetheless, while these persons are case-specific, depending on the various technologies at *Motorola*, the investment managers prefer to rely on their favorites.

> "I have some of my favorites, Kelly has some of his favorites, Susan has her favorites. I have few people I use, but it really depends on technology. But there is not a certain person within a regular business unit field that covers all the business." (Estes)

The relationships and networks used between the investment managers and the BU are pretty much based on personal, informal relations which emerged from past investments. However, these informal relations are the entrance to the deeper roots of further contacts within *Motorola*. Since there are no formalized ways of exchanging information, it is crucial for the investment manager to ensure open communication between the business unit and the CVC unit. One interviewee put it like this:

> "The information exchange is mainly based on informal relationships and on investments we made on behalf of the business units. It's very informal. I don't think there is any set structure. Actually, it's word of mouth. A lot of times I'll talk with someone and they will give me a name or two. I'll call a business unit and talk to them for a little bit. It's like a tree, a kind of a root system." (Estes)

Nevertheless, the actual kind and quality of support cooperation is strongly dependent on factors that are not directly manageable by *Motorola Ventures*. Specifically, the willingness and commitment of the BU and the quality of the relationship between business unit and portfolio firm can only be indirectly influenced by the CVC unit. However, there is a positive relationship between the degree of the previous involvement of individuals and the quality of the relationship. Moreover, the quality of the relationship defines how reliable an investment manager judges a contact partner to be. This statement by an investment manger mirrors this situation.

> "It depends on the business unit. Some we work a lot better with than others. Some get it really well and want a lot more of it, and some of them are still learning. Most of our business units definitely like to work with us and work pretty openly with members of our group. There are a lot of people that I'm in contact with who help me out or write me some information on the evaluation of a company. However, there are not a lot of people I can count on to work well with our companies. So, depending on the organization and the person, I've got good relations with a number of people." (Marc)

In order to realize the value added services mentioned in the statement of *Motorola Ventures*, the CVC managers attempt to involve a business unit in the support management directly as much as possible. This aims at establishing a close cooperation between business unit and portfolio company. The reward for a business unit for providing access to the support of the corporation is the receipt of product discounts, preferred license rights, or privileges in a company. To get a leverage effect for the portfolio company, *Motorola* tries to get the technology of a portfolio company implemented in the products of a business unit as far as possible. Although there are no direct financial incentives[16] for a business unit to be active in CVC activities, all this effort is made in order to get any indirect financial reward for the business unit, either by an increase in sales, by additional

[16] Direct financial incentives could be profit sharing or equity participation.

development orders for the R&D people in a business unit, or by a decrease in their internal production costs. The financial returns from a *Motorola* employee bonus for a good overall trading result are more long-term oriented.

What are the mechanisms *Motorola Ventures* refers to in order to facilitate the collaboration process? This question is even more interesting, since the above descriptions show that the product part is managed by the business unit. Furthermore, the incentive of providing a business unit with board seats in a company is not applied by *Motorola Ventures*. As long as there is no responsible business unit identified for an investment, the first contact partner for the PC remains the investment manager. However, the identification of a responsible business unit regarding the support for an investment depends on the reaching of a commercial agreement before the investment decision. As a pre-investment mechanism, the commercial agreement that has been approved by senior management of a business unit is seen as the perfect way to facilitate access to resources and to avoid problems at a later stage. One interviewee emphasized this as follows:

> "The commercial agreement is 100% the best way to provide access to some pretty significant resources. That is the preferred channel for *Motorola Ventures*. It is crucial that we can get a commercial agreement in place at exactly the same time that we make the investment, because that shows commitment by the business unit. As it is much easier to get the involvement of a business unit before an investment decision than it is afterwards, we define as much support as possible before doing an investment. If you don't have that it is more difficult." (Estes)

For three reasons, the central structure of *Motorola Ventures* is seen further as a supportive mechanism for realizing management support. First, the set-up of both internal and external relationships is streamlined for efficiency reasons. It aims at uniformity regarding the maintenance of relationships. Second, *Motorola Ventures* assumes that there would be less information exchange between the business units if corporate venture capital investments were decentralized by the business units.[17] A limited support potential for the start-up company would be the effect. And finally, by doing corporate venture capital in a centrally

[17] The interviewees mentioned that about 30% to 50% of the time it happens that a start-up company has significant relationships with more than one business.

organized way, *Motorola Ventures* aims at making the support of the portfolio company less dependent on personal and strategic changes in a BU.

However, the analysis of the investment managers' work at *Motorola* shows that identifying a potentially interested BU is only one side of the coin. Once a relationship is established, an additional part of its work is represented by the coordination and maintenance of these relationships. This task is networking within the company, holding numerous meetings, telephone conferences and further introduction of business unit people and entrepreneurs. Interestingly, the case at *Motorola* also shows that coordinating and maintaining the relationship in the post-investment phase is related to shifts in responsibility: the investment manager takes a step back and encourages the portfolio company to interact directly with the business unit as far as possible. The findings suggest that the investment managers are not interested in a further intermediary position. Nevertheless, the investment manager tries to keep up to date as to the development of the portfolio company. The reason could be characterized under the banner of problem prevention: if a portfolio company has to be presented to another business unit at *Motorola*, it is important that the investment manager is informed. One informant explained:

> "What I'll do is to introduce the business to the start-up, and try to set up a meeting with the appropriate people, let them initiate the meeting. I step back and let them work through the relationship. We will just kind of help to shepherd that and make sure, check in, see how the company is doing. We encourage them to work as closely as possible with the business units since I don't have to be at every meeting or part of every phone call, but I do need to be informed about what's going on. …., I always require my start-ups and the business units to keep me informed of all the contact they are having. I don't want them to use me as a crutch". (Marc)

Furthermore, as soon as the relationship is established, the CVC managers move their contacts from the operational level, which was most efficient for the due diligence, to a higher level in the chain of command. While the commercial relationship will continue on the operational level of a business unit, the investment manager stays in contact with the senior management of the business unit for coordination purposes. The maintenance of contacts to the senior management level in a business unit serves as a kind of problem-solving mechanism. As one interviewee put it:

> "I continue to work with the senior level management of those business units just to make sure that there are no problems or issues. I let the company work with the mid-level managers to develop the commercial relationship. I will only touch base with some critical person, when the door is kicked open. Usually, the business development person will hand it off to the commercial group which will then decide what they might be doing with the company." (Estes)

The following paragraphs will provide in-depth descriptions of the hurdles that the CVC unit is confronted with regarding support management. One problem reported at *Motorola* is commercial agreements which are not formulated and finalized at the point of investment. The reason for this is expectedly due to the necessity of fast decisions and resource restrictions. Insufficiently or even worse, the direct consequence is no cooperation between the BU and the CVC unit. A further impediment to providing the best support for the start-up companies was reported candidly by the CVC manager himself. To put it in a nutshell, their very high workload with a lot of indirect administrative tasks sometimes impedes the best level of support that is actually required.

Furthermore, the findings indicate that apart from the advantages of the central structure of the corporate venture capital unit at *Motorola*, it also has a negative impact: the refusal by personnel on the operational level in a business unit to accept any new technology that comes from outside the organizational borders of a business unit. This phenomenon is known as the 'not invented here' syndrome. Interest and motivation would be higher if investments were managed directly by business units. However, this phenomenon is also related to deeply personal characteristics: individual pride. Interestingly, the actual roots of the fact that business units are mainly driven by their proprietary daily business and therefore sometimes neglect their interest regarding CVC investments, are seen as strongly influenced by the performance measurement on somebody's scorecard. For instance, a CVC manager at *Motorola Ventures* (Marc)acknowledged this:

> "Any investment you make, you are going to have the 'not invented here' syndrome. *Motorola* is a technology company. We have a lot of very talented engineers, a lot of people with, I don't want to say big egos, but they are very proud of their work and rightfully so, in many cases. The other thing you have is, if I am in a business unit, and I make an investment on behalf of my business unit,

> my motivation to work hard with that investment is greater than if corporate makes the investment."
> "…what you are interested in comes down to the issue how you track somebody on his scorecard. People perform based on what they're measured on, and the business units are (unfortunately) not measured on how they do their investments."

In order to overcome the problem of insufficient time commitment of a business unit in performing CVC activities, the CVC unit especially strives for investments that have a direct, near-term impact on the operational indicators of a business unit: how they produce a product and what profit margin they make. However, the best mechanism for *Motorola* goes back to the deal generation. If an investment is rooted and initiated from a business unit, it is followed by a very strong resource-commitment for those internal deals.

In retrospect, the interviews reveal the necessity to review the internally developed relationships between *Motorola Ventures* and its business units. Regarding the future, those relationships that really promised and realized strategic synergies for the CVC program will be in the focus of collaboration. However, it is important to mention that despite there being no doubt about the positive effect of the support facilities that *Motorola* can provide for young companies to develop well, a certain independence on the part of a start-up was mentioned as a highly critical characteristic. Since an investment company cannot rely upon *Motorola* alone, additional business contacts (either clients or suppliers) are critical for guaranteeing a portfolio company's good economical development.

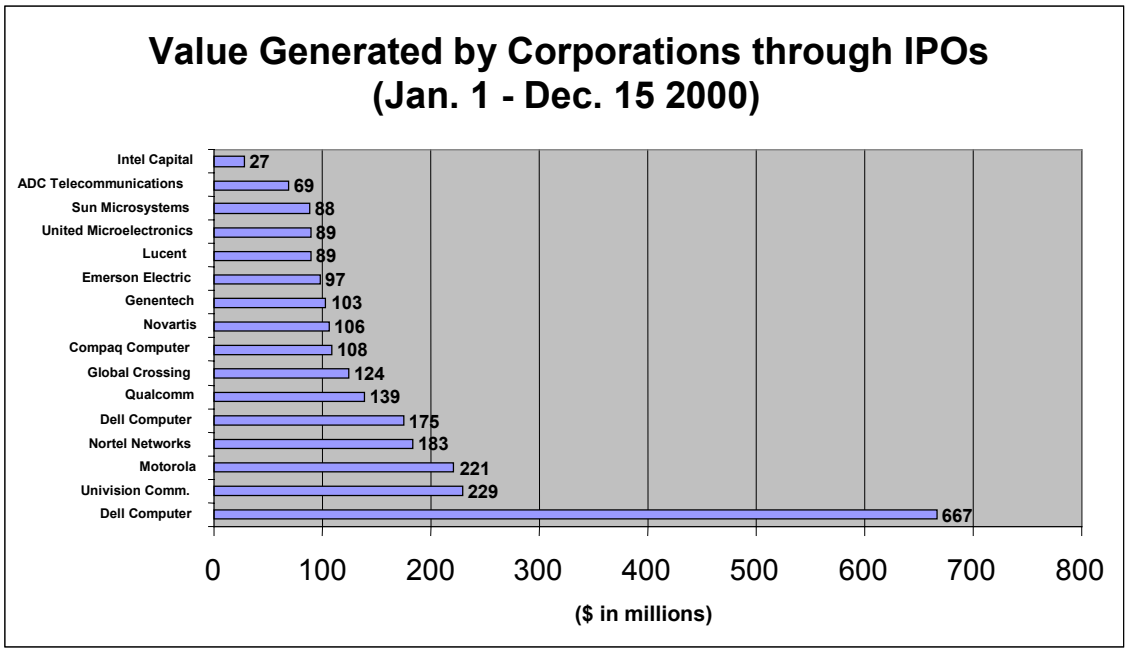
> "They can't be wholly dependent upon relationships with *Motorola*. They have to be able to stand on their own. If *Motorola* were to disappear, they should be able to survive and do well. If that's not the case, I'm not going to make the investment." (Estes)

Especially when the investment relationship between *Motorola* and its investments is coming to an end, this becomes even more important. This leads us to the last phase of an investment process: the exit management.

Exit Management

Subsequently, I will explain how *Motorola* manages the exit regarding its portfolio companies. Since the annual profit of *Motorola Ventures* is rolled out on the scorecard on corporate business strategy, independent of the kind of exit, the results achieved by the CVC unit go back entirely to the parent company. As the following figure shows, *Motorola Ventures* quite successfully performs exit management. *Motorola Ventures* is the third most successful CVC regarding the generated value of their exits.

Figure 2-23: Value generated by corporations through IPOs[18]



Source: Corporate Venturing Report, *Asset Alternatives*, January 2001

However, the crucial question for this study is to what extent the exit strategy influences future collaboration with a business unit. Due to the developing market of *Motorola*'s industry, the CVC manager institutes the exit no later than

[18] Based on value of shares held by corporations minus original equity investment. Calculated using SEC filings and share price of company as of 12/15/00. Does not include stakes that corporations acquired through spin-offs or transfers of technology of assets.

after three years in order to realize the market valuation of a company's technology. One of the major items in traditional venture capital is the definition of a precise exit option. However, the statements given in the interviews show that having a defined exit strategy is not taken into consideration as much at *Motorola Ventures*. In analyzing the reasons for a certain negligence of this final stage of the investment process, the interviews pinpoint the overall strategy of *Motorola Ventures*: focusing on a strategic investment model puts timing and mode aspects regarding maximal financial return second.

> "We perhaps aren't looking at exit strategies as closely for the return as others because we are looking at strategy aspects first. Although I keep my eye on potential investment return, I certainly don't manage that as closely as the other venture capitalists. There was a company that would have been provided a very good return, since their product was very beneficial for *Motorola*, but I wouldn't be trying to ram them into an exit which could actually hurt us."

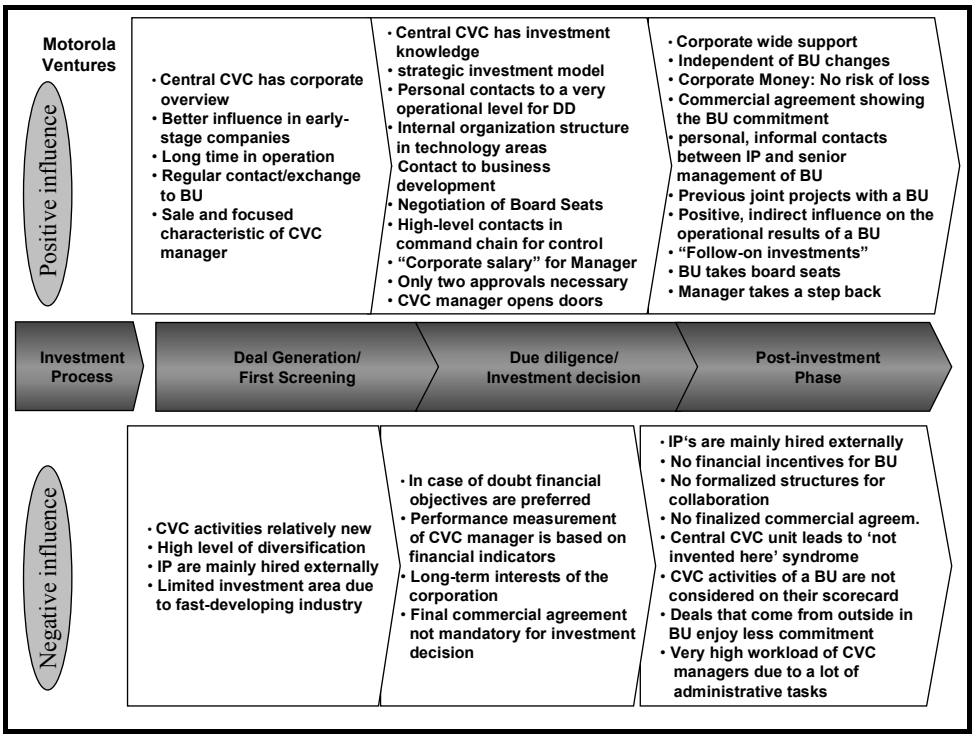
However, there is a contradiction between the official objective of *Motorola Ventures* and the personal, inofficial preferences of the CVC managers regarding the purpose of a specific exit channel. While the CVC program seeks primarily strategic results for *Motorola*, the definition of a "good" exit at *Motorola Ventures* does not reflect this notion, since only financial attractiveness was mentioned. The short statement by an investment manager illustrates this:

> "…but honestly, regarding my preferred exit channel: whatever makes the most money. Therefore, any exit channel can be 'good' or 'bad' depending on the financial return on that exit, so I don't have a preference."

However, the management of the exit strategy has to ensure that *Motorola Ventures* protects its achieved rights regarding a portfolio company, when their technology is integrated in a *Motorola* product. Since *Motorola Ventures* attempts to avoid complicated situations with a main competitor of *Motorola*, the possibility that certain competitors achieve the majority stake of an investment in case of an IPO has to be contractually excluded. Therefore, when formulating the investment agreement, the protection of *Motorola*'s intellectual property in case of an exit has to be considered. A conflicting situation with an investment could result if certain exit possibilities are limited.

Summarizing these in-depth case descriptions of *Motorola Ventures*, the following figure contains the statements of this interview by characterizing them into positively and negatively perceived influence factors during three simplified stages: investment process of (1) deal generation/first screening, (2) due diligence/investment decision, and (3) post-investment phase.

Figure 2-24: Statements from the interviews at *Motorola Ventures*



Within-case analysis

The case description of *Motorola* reveals two kinds of relationships: the formal collaboration, mainly based on the collaboration contracts, and the informal collaboration, which is mainly based on personal contacts and existing networks within the corporation. Interestingly, while the former is important as a basis, the personal relationships are crucial to make things happen fast and uncomplicatedly.

Moreover, the case shows different stimulus in the collaboration in the investment process. Since no further approval by *Motorola*'s headquarters or by a business unit is required for the final investment decision after the consent of the approval board, *Motorola Ventures* applies a single stage investment process.

In a given frame regarding the investment amount, the CVC can manage an investment relatively autonomously. On the one hand, this could be interpreted as positive independence and flexibility for *Motorola Ventures*. On the other hand, how far this independent decision has an impact on the actual commitment of a business regarding CVC activities remains questionable. Generally speaking, the case description shows that in the pre-investment phase the CVC unit is the main driver and orchestrator, which makes the collaboration to the business units "come to life". During this phase, the role of the CVC unit could be interpreted, metaphorically speaking, as a kind of match-maker. This combines activity in bringing the (external and internal) cooperation partners together. Therefore, the CVC has to be aware of the needs and goals of the different actors: the BU, which is mainly interested in a window on technology, the corporation with financial and strategic aims, and the start-up company that focuses on the promised support and services and does not want to lose too much autonomy. Against this background, the task for the CVC unit is to find a match which satisfies these different needs with the optimal results for each actor.

The case description of the post-investment phase shows that once the match is made by an investment decision, the CVC unit takes a step back and stays in a passively involved position. As soon as the basis for a corporation is established when entering the post-investment phase, the business unit becomes more active in the focus of interest. By being a close partner in the financial area, the investment manager can only add some value to the (hopefully) working cooperation. Regarding the cooperation between the portfolio company and the business unit, they can only try to facilitate this relationship by avoiding problems or, if problems already exist, by solving them. Speaking metaphorically once more, the role of the CVC can be seen as being a relationship-facilitator, a kind of "marriage maker".

2.4.2 General Electric Equity

The objective of this case is to describe the CVC activities of *General Electric Equity* (*GE Equity*). First, a brief general corporate profile of *GE Equity* will be presented. Second, the case will focus on describing in depth the different stages

of the investment process. Finally, some summarizing within-case analysis will be carried out.[19]

Corporate profile

GE Equity is the corporate venture capital unit within *General Electric* (*GE*), the world's biggest company by market capitalization. As of April 2002, the parent company of *GE Equity* had a market capitalization of US$ 480 billions, revenues of US$ 125.91 billions, and a net income of US$ 13.68 billions (both in 2002). With more than 313,000 employees in over 100 countries *GE* also represents one of the world's largest employers.[20]

Within the conglomerate of *GE*, *GE Capital* is one of the 12 major businesses of *GE*.[21] *GE Capital* is the largest non-bank financial company in the world. With its embracing 24 businesses, *GE Capital* is a diversified banking institution, completely owned by *GE*. [22]

GE Capital contributed $ 5.2 billion net income to *GE* in 2001, and shows an average annual growth rate of 19% since 1983. One business within the 'Specialized Finance' sector is *GE Equity*, a 100 % legally owned unit of *GE*

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[19] This case study draws on transcribed interviews with Alex Sanchez-Mollinger and Lorenzo Rossi in London (both investment managers at GE Equity). The appendix includes an overview of the affiliations and job titles of all interviewees. Furthermore, this case is based on annual reports, public speeches, press releases and "*Corporate Venturing* " reports.

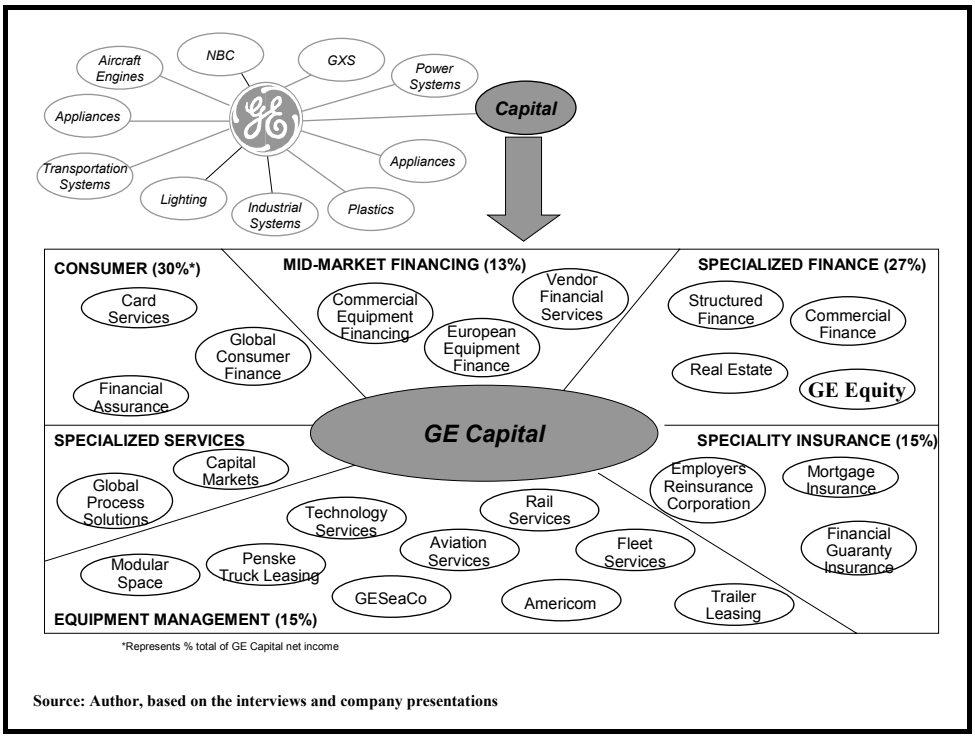
[20] As per a *Handelsblatt* survey, 02.04.2002: "The 100 biggest US companies in 2001".

[21] The other businesses of GE are: GE Transportation, NBC, GE Aircraft Engines, GE Appliances, GE Power Systems, GE Specialty Materials, GE Lighting, GE Medical Systems, GE Plastics, GE Industrial System Business, GE Information Services.

[22] The other businesses of *GE Capital* are: Within the consumer sector (that represents 30% of *GE Capital* net income): *Card Services, Financial Assurance, Global Consumer Finance*. Within the area Mid-market Financing (representing 13 % of the *GE Capital* net income): *Commercial Equipment Finance, European Equipment Finance, Vendor Financial Services.* Within Specialized Services there are *Global Process Solutions, Capital Markets*; within Equipment Management (15% of the *GE Capital* total net income) there are *Modular Space, Penske Truck Leasing, Technology Services, GE SeaCo, Aviation Services, Americom, Rail Services, Fleet Services, Trailer Leasing*; within Specialty Insurance (representing 15% of the net income of *GE Capital*) are *Employers Reinsurance Corporation, Mortgage Insurance, Financial Insurance*; within Specialized Finance (representing 27% of the net income of *GE Capital*) there are *Structured Financed Group, Commercial Finance, Real Estate* and *GE Equity*.

Capital. The approval of *GE Equity*'s strategy by the CEO of *GE* guarantees the involvement of *GE*'s top management team. The following figure illustrates the organizational embeddedness of *GE Equity* in the parent company.

Figure 2-25: Structure of the organizational embedding of the CVC unit at *GE*



Source: Author, based on the interviews and company presentations

Although *GE Equity* was not formally incorporated until 1995, venture capital investments have been made since the beginning of the '90s as part of the structured finance group. *GE Equity* was promoted by *GE Capital* in order to diversify assets under management. *GE Equity* started first by only making investments in funds. The exchange of people between *GE Equity* and diverse investment companies managing the funds enables them to maintain knowledge in private equity.

> "The main concern was to have an opportunity to invest in companies that don't accord to the businesses of *GE*. We saw the high valuations in the market and were just eager and excited. That's why the initiative came about". (Rossi)

With offices in five continents[23] and more than 200 investment professionals distributed in thirteen cities worldwide, *GE Equity* is a global private equity player.[24] *GE Equity* invested $1.5 billion in over 200 companies, and managed a portfolio of $6 billion in the year 2001.[25] The diverse portfolio brought up to 375 companies worldwide[26] and investments in 86 funds.[27]

The portfolio of *GE Equity* is diversified regarding three aspects: geographical, by industry lines, and by investment stages. Three industry lines are mainly focused on: (1) Financial Services, Auto and Healthcare,[28] (2) Technology, Media and Telecom,[29] (3) Enterprise Services.[30] Due to the widespread nature of *GE* businesses there is a broad range of possibilities for investments to ally with a relevant business unit of *GE*. *GE Equity* was characterized as a program that is far removed from the corporate leadership, since this venture unit is not part of the chairman's office.[31] *GE* shifted its investment focus from early stage to late stage investments, since growth equity financings and buy outs are preferred. The reasoning for this is quite simple: Very early, start-up companies require somebody to hold their hands, and check on them every day. *GE* as a very big organization honestly acknowledged deficits in providing that.

GE Equity kept pace with *GE's* global expansion, increasing their international investments by over 25 % in Europe[32], Asia and Latin Ameriapprox.[33] The

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[23] North America, Asia, Australia, South America, and Europe since 1995

[24] *GE Equity* has two headquarters, one in Stanford, CA, USA, and one in London, Europe.

[25] See *GE* Annual Report 2001, p. 15.

[26] The appendix includes a detailed list of the portfolio firms of *GE Equity*. 65 investments are located in Europe.

[27] Examples of funds: *Gilde, Cornline, JP Morgan Capital, Apax, TVM*.

[28] This includes innovative technologies, enabling technologies, non-invasive diagnostics and telematics and vehicle technology. The biggest financial sector stake is $ 50 million in the transaction processor First Data Corp.

[29] This embraces fixed line and wireless application, internet and media related and B2B model.

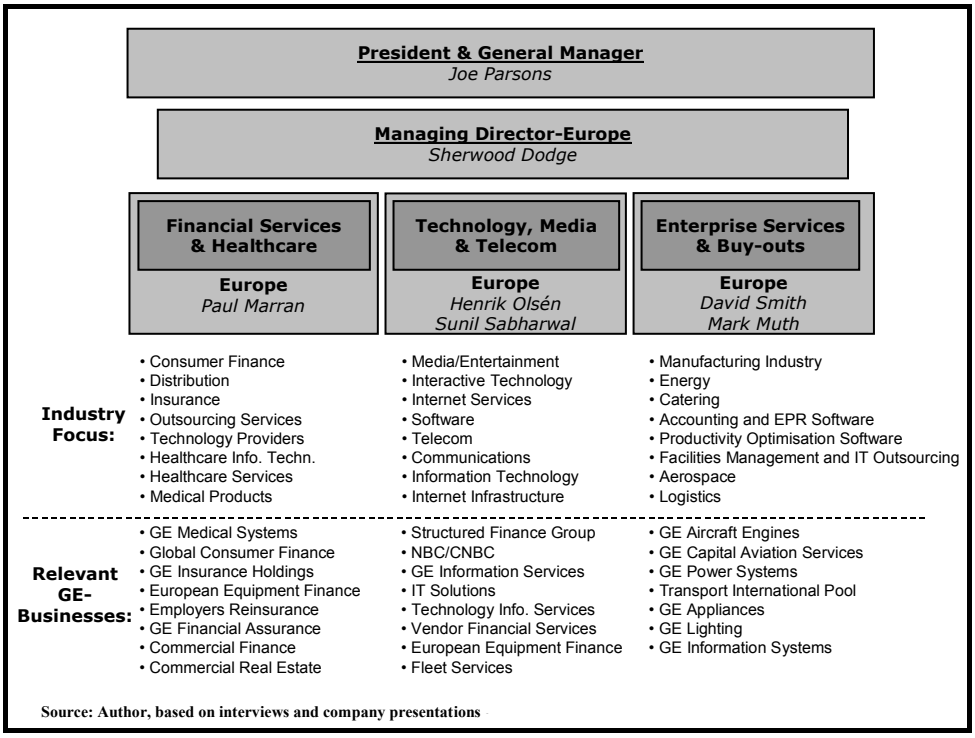
[30] This means developed business, European focus, growth opportunity and MBO and LBO type.

[31] See Corporate Venturing Report, p. 19, October 2001

[32] There are three offices in Europe: London, Milan, and Frankfurt. In the European locations there are 24 investment professionals working. The value of the European portfolio is $ 650

internal organization of *GE Equity* reflects a matrix organization embracing geographical teams (e.g. Europe, USA) and industry teams. This structure allows *GE Equity* an internal communication flow along the geographical and industrial dimensions. Further, this matrix organization structure enables investment managers to become technology experts by repeated investments in one industry area. The internal reporting follows this structure: the European team of a certain industry reports to the corresponding technical team in the US. The organization structure of *GE Equity* in Europe is exemplified in Figure 2-26.

Figure 2-26: The example of *GE Equity Europe*



The typical investment of *GE Equity* can be characterized as follows: *GE Equity* strives for minority positions in companies[34] that show a solid management team and already existing products or services. Further, the companies have to display revenues of a minimum of US$ 5 million[35]. In deal size the range is fairly wide:

million, of which $157 million were invested, $30 millions in direct investments, $20 millions in follow-ons, and 12 exits were performed in 2001.

[33] See www.geequity.com

[34] This means investments of 5 to 49 percent ownership in a portfolio company.

[35] However, the interviews indicate that US$ 10 million and above is more typical.

between a minimum of $5 million and $50 million. The exit strategy at *GE Equity* is a trade sale or an IPO.

The flexible investment approach of "*GE Value Add"* is based on three fundamental pillars: first, strategic investing, meaning that there is a value transfer between a *GE* business and a portfolio company. Second, financial investing represents investments for capital appreciation over 3 to 5 years. And third, fund investing in target industries or geographies to enhance deal flow.

In the subsequent sub-chapter, each section represents one phase of the investment process. I will begin each phase by describing what *GE* does. Then I will explain the mechanisms and factors involved in how they do it. This is followed by a description of the actors involved (whether the tasks are performed by the CVC unit alone, by a business unit, or by both in collaboration). Each section will further contain an explanation of the reasons, purposes, and effects of the presented mechanisms.

Investment process

Deal Generation

There are two ways in which *GE Equity* gets promising investment possibilities: either externally or internally. Regarding the first possibility, the investment managers of *GE Equity* participate in industry conferences and maintain focused relationships with dedicated VCs and investment banks, since both are useful for *GE Equity* to stimulate the deal flow. Internally, *GE Equity* asks the businesses of *GE* for the transition of investment proposals to *GE Equity* which are of interest to them. Interestingly, in order to intensify the internal deal flow, *GE Equity* uses the opportunity to give the employees of the business units a personal monetary incentive if they present an interesting company to *GE Equity*. Although it is a relatively limited amount, it was mentioned as an essential incentive for operational employees.[36]

[36] It has to be mentioned that the actual amount remained undetermined in the interviews.

The general purpose of deal generation is to identify companies that match the notions of at least one *GE* business, in order to facilitate future collaboration with a *GE* business. In the pursuit of appearing as an attractive investor for potential companies, *GE Equity* uses its "Value Beyond Capital" approach, which promises to offer "*more than just equity capital*: *an invaluable connection with the businesses, resources, expertise, and world-class brand of General Electrics Company".*

Although there could be early involvement by a business unit regarding internally generated deals, *GE Equity* is the main point of contact between *GE Capital* and external investment opportunities. However, in finding companies that meet the criteria of the *GE* businesses, the investment managers refer to operational *GE* businesses in order to learn about the products and customers of an industry area. Regardless of this, *GE Equity* also looks for external deal flow that is not related in any way to a *GE* business.

Finally, there is a kind of outsourcing of the deal origination to pursue a potential deal flow for *GE Equity*: investment in 86 private equity funds. On the one hand, these fund investments provide *GE Equity* with deals that represent opportunities for co-investment. On the other hand, since *GE Equity* is involved in the board of directors of some funds, these co-investments with funds are seen as an opportunity for *GE Equity* to expand their investment knowledge and expertise.

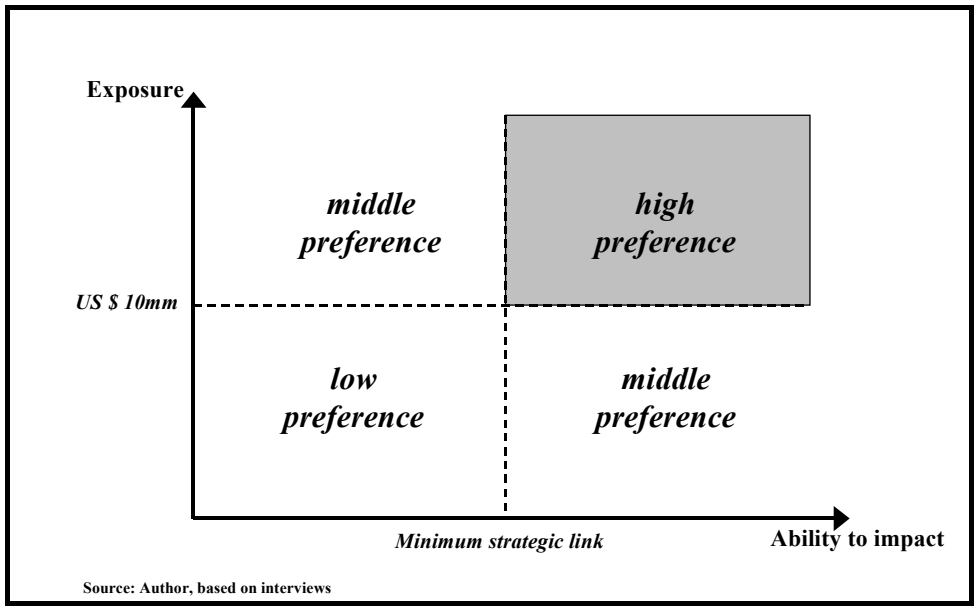
At *GE*, the high diversification in different industry lines is seen an important opportunity to position themselves more independently from the development in a specific market segment. The relatively high diversification across industries - compared to *GE*'s competitors in the venture capital market - was reported as *GE Equity*'s competitive advantage in order to sustain financial returns in economically turbulent times of the CVC market. As an investment manager put it:

> "*Intel*, for example, recently invested in a lot of companies that are only technology focused. But they are not diversified and probably *Cisco* as well. If you look at *GE*'s portfolio, we are diversified across industries. So, when the market for exits goes down for a certain technology, you can sustain reasonable financial returns." (Rossi)

Deal Evaluation

Subsequently, I will describe the *deal evaluation* of potential investments at *GE Equity*. Following the overall outline of this chapter, this includes an explanation of the first screening and due diligence processes. With regard to the first screening, *GE Equity* evaluates a company according to the criteria "exposure" and "ability to impact" as a kind of funnel to limit the number of potential investments. The objective of applying that criterion is to secure certain basic company value and to make it grow. The "ability to impact" criterion reflects the possibility to make a company grow with the aid of a strategic link to one of the *GE* services. Due to the strategic linkage *GE Equity* sees a chance to enhance a company's ability to execute. Regarding the "Exposure" criterion, investments with a value of more than $ 10 m and exceeding a minimum level of strategic link are classified as "high preference". These two criteria result in the following figure.

Figure 2-27: Selection of targeted investees at *GE Equity*: A limited number of investees are selected for value-adding activities



The identification of deals that are located in the "high preference" quadrant of the matrix requires important personal abilities on the part of the investment managers. In order to consider opportunities to work with the business unit

beyond an investment, the investment manager's ability to "think after the black-box" is a critical success factor for the CVC managers to make the collaboration with a business unit possible at all.

Having identified a company when screening the deal flow, the investment manager contacts an appropriate business line of *GE* to ask the business unit employees about their technical opinion regarding a company. Interestingly, in the case of *GE* it is important to mention that this is not mandatory. However, contents and the rate of feedback strongly depend on the quality of the relationship between the CVC unit and the business unit contacted.

The analysis of *GE Equity*'s deal evaluation reveals a wide gap between the official statement of supposed strategic investing and the actual primary focus: financially interesting investments. This obvious contradiction is illustrated and confirmed in the statements of all CVC managers interviewed:

> "We are mainly financially motivated, so there is no strategic angle here. Although we tend to do some strategic investments, the bottom line at the end of the year is our evaluation based on financial returns, not on strategic. …, while other CVCs are more hands on, the financial profit is clearly in our focus. Therefore, we are more oriented like a dedicated VC." (Sanchez-Mollinger)

The reasons for this approach are quite obvious. First, there is no formalized obligation that *GE Equity* is limited to do only strategically interesting investments. And second, since *GE Equity* has a big amount of cash-flow at its disposal, the investment managers aim to diversify their portfolios across asset classes in order to decrease the personal risk. This happens independently of any strategic aspects. Further, the strong emphasis on financial returns originates in the expectation of *GE* against CVC activities, namely to look for high financial returns. As a result, it is only of secondary importance for investment managers to strive for strategic goals when evaluating potential investments. The following statement illustrates this:

> "There is nothing that says every investment you do must be strategic. So think of us as asset managers investing across all asset classes. With the money that we invest in private equity, we want to get some strategic benefit of course. But first of all, we are evaluated on the return of the money. So if we invest in a company

> strategically and we lose money, we are fired effectively. So, the main goal here is to make money, second goal is to make money from strategic companies. Therefore, we also invest in companies that are not strategic at all." (Rossi)

Now I will continue with an explanation of how *GE Equity* performs the due diligence process. Only as a strategic part of the pie does *GE Equity* typically try to leverage on the businesses of *GE* in order to get to know when they do the due diligence.[37] However, regarding the strategically intended investments it must be said that *GE Equity* does not select companies that are close to the core businesses of *GE*. By this, the CVC unit wants to avoid *GE Equity* investing in a company at a good evaluation, and some time later one of their business units being interested in buying that company at a price that is not of financial interest to *GE Equity*. The definition of the term "close" at *GE* on the one hand includes the opportunity to refer to the knowledge of a business unit, and on the other, guarantees avoiding differing financial interests. This intention results in making complementary deals and avoiding investments in direct competition with one of *GE*'s core businesses. Finally, in order to avoid a situation later in the post-investment phase where the provision of specific support possibilities at *GE* may depend only on a business unit, *GE Equity* mainly selects companies whose products can not only be distributed by *GE*. Therefore, the identification of companies that stand on their own two feet and show a certain independence from *GE*'s facilities was mentioned as a highly necessary prerequisite for a potential investment.

While the focus on this type of autarkic company at *GE Equity* aims to avoid any conflicts either due to insufficient or abruptly aborted support by a business unit, the identification of primary financial investments mainly requires *GE*'s investment mangers to have an investment banking background. Interestingly, *GE Equity* interprets the former employment of an investment manager within the corporation as a two-edged sword. While former employment could accelerate the process of getting an overview of the corporation, at the same time it may detract from acting in favor of the general prosperity of *GE* without any business unit orientation. The majority of *GE Equity* employees have

[37] In a "snapshot", *GE*'s investments can be roughly summarized as 50% with strategic link and 50% completely financial investments.

characteristics similar to the "optimal" mix of financial deal-expert and existing internal networks within the corporation as former M&A employees.[38] In addition, CVC managers have the possibility to rotate in other business units outside *GE Equity* for a certain time.

Deal Structuring

The objective of this phase at *GE Equity* is to finalize the business agreement with the start-up company. At *GE Equity*, independent of the origin of a deal (external or internal), the investment manager is responsible for negotiating the financial deal structure. Therefore, an investment manager's investment skills have once more been highlighted as indispensable. However, the promotion of value added services indicated in *GE*'s slogan "*value beyond capital"* indirectly enables *GE* to gain a stronger negotiating power in terms of the equity stake *GE Equity* gets for a nominally specific amount of money. This is circumstantiated by the following statement by an investment manager:

> "Our approach 'value beyond capital' definitely supports us, since we are able to negotiate harder terms with the companies, i.e. to get more shares in the companies for your capital. But primarily, somebody who is working at *GE* Equity has to be a deal-expert. So, to do that you need financial background. If you look at the corporate venture capitalists, the successful ones are typically those who have people with investment banking background. Since we are evaluated to our return on investment, you need to be a deal-expert." (Rossi)

Regarding the deal structure, it must be said that *GE Equity* also offers *GE*'s business units the possibility of co-investment. The reasoning of providing business units with co-investment is quite obvious. It aims giving the business units an incentive to provide additional value-adding services. In this sense, for example, a transfer of commercial business transactions from a business unit to the portfolio company in return enhances the economic situation of an investment. That means that in the case of a co-investment with a business unit, their initial investment increases in value as well.

[38] In the interviews it was mentioned that around 70 % of the investment managers have worked for the M&A unit at *GE*. However, external employees are also hired.

Investment decision

As *GE* embraces very diversified business activities distributed across its 12 major business groups, it is important to know how *GE Equity* reaches the final decision to do a minority investment. Moreover, the existent prejudices in big corporations concerning long, protracted, and cumbersome decision processes make an in-depth understanding of these processes even more exciting. The following section aims at providing these insights.

As soon as the investment manager decides to follow on a company in the investment process, he/she presents the potential deal to the corresponding geographical committee. This step is followed by the pitch-presentation for a potential investment candidate, which is presented to the investment committee by means of a regular video conference.[39] Since the existent target criteria are the only restrictions for an investment manager regarding his/her personal decision about what to present to the investment committee, they are quite autonomous regarding any business unit cooperation.[40] The investment committee represents only two members of senior management: the president of the corporation (CEO) and the chief investment officer (CIO), who is at the same time the head of risk-management at *GE*. This investment committee makes the first formal *"*go*"* or *"*no-go" decisions in the single-stage investment process. Moreover, these two people seem to apply a certain labor division: while the president focuses more on the link between the business of an investment and potential businesses of *GE*, the risk mana*ge*r focuses on all risk-related aspects of an investment. Interestingly, the decision making process is anything but a long, cumbersome process. Since the process is immediately finished by a clear "yes" or "no" decision, there is usually no delay. The smooth transition to a clear decision is further granted by the approach that only support units like legal or risk-management have the opportunity to veto if they have serious concerns regarding legal or risk questions. However, whether the investment committee accepts a veto or not is up to its own discretion. Having received a positive feedback from the investment committee regarding a potential investment, the investment

[39] At the time of the interviews the pitch presentation was always on Mondays.

[40] GE Equity focuses on certain industries and looks for companies with a turnover of between $5 and $100 million.

manager has the relative autonomy to invest money from *GE Equity's* budget, authorized for three years by *GE*'s CEO. Only in cases where an investment exceeds the investment limit of US$15 million does the investment committee have to consult *GE*'s management board to get approval for an investment.

In the context of the actors involved in this investment-making process, interestingly, there is no direct involvement regarding operational business units. Therefore, it remains the sole responsibility of the CVC manager to decide whether there is a substantial synergy with a business unit. How far the CVC manager is able to reach a reasonable decision, and how big the danger of a wrong decision is, remains under consideration. Although this circumstance could be followed by a weaker commitment regarding the support of a business unit, the reason for keeping out the business units is to avoid long and protracted investment processes due to differing goals between CVC unit and business unit.

> "In this phase there is no direct involvement of the BUs, because our main objective is financial return. So, our guys at *GE Equity* and investment committee as well look at it to see if it is a good financial investment first of all. In contrast, the business unit only would agree to an investment if they saw a strategic fit to their business." (Sanchez-Mollinger)

Although there is no mandatory involvement of a business unit, the investment managers are still free to contact the business unit regarding technical understanding of an investment. The crucial question that arises is: what are the mechanisms *GE Equity* uses to maintain the personal relationships necessary to contact the business units? This question becomes more important, as above explanations show that the business units are neither involved in the investment committee, nor represented in the pitch presentation of investment candidates. I observed two methods in my interviews: an institutionalized and an informal one. First, in the institutionalized method all sources of files and information are centrally stored in a database by *GE Equity*. As this database is stored in the Intranet of *GE*, it allows global access to everybody involved with *GE*'s CVC activities. This database was mentioned as an important opportunity to learn from past experience. The second and even more important *institutionalized* method represents participation of the CVC managers at the quarterly department meetings of the business unit as guest-speakers. This is used as a platform to exchange information either by personal discussion or by listening to

presentations and case studies, etc. Further, all sales people who maintain numerous contacts in the industry are present at this meeting. In the interviews this was mentioned as critical for keeping the business units informed about what is going on regarding CVC at *GE*.

> "And that helps, because all the persons can see us and we can tell them what we are looking for. It's just to refresh in everybody's mind what *GE Equity* is doing." (Rossi)

With respect to the *informal* dimension at *GE Equity*, the CVC managers stay in close informal communication exchange with the CEO's of the business units. However, this communication was reported to follow certain "networking processes", which are at first concentrated on a small number of involved business units. Only if the collaboration with one business unit proves successful contacting other potential business units was described as a "silver bullet":

> "…, we identify the corresponding strategic business, and we try with one. The least you have the better it is to start because you are more concentrated and more focused. So one is better than five. It's really only to make things simple in the beginning". (Sanchez-Mollinger)

Since there is no direct involvement of the business units in the investment decision of *GE Equity* the probability of investments in "wrong" technologies is increased.[41] In order to avoid that, the *global practice leader* of an industry group[42] acts as an adviser in the *investment committee*, since they keep and distribute global knowledge regarding a specific industry line. Nonetheless, since they don't have any decision votes, they only can passively influence the decision of the investment committee.

In the context of getting business units involved in strategic investments, *GE Equity*'s "best practice" represents *co-investments* with a business unit.[43] Apart from the approval of the CVC unit, the board of the business unit has to approve this kind of syndicated deal as well. A formal contract (*one-pager*) between the

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[41] "Wrong" technology is defined as an area that is not of interest to a business unit.

[42] This means the CEO of a certain industry line (e.g. financial services, or telecommunication).

[43] Since co-investments are only intra-firm accounted, *GE Equity* remains the sole investor vis-à-vis the portfolio company.

CVC unit and the corresponding business unit stipulates the *co-investment.*[44] However, interesting is its financial incentive: *co-investment* comprises the risk of financial loss for the business unit. Obviously, the effect of this kind of financial incentive is quite considerable, since the number of *co-investments* a CVC unit has with a business unit is respectable.[45] However, the more an investment is located in the strategic area of a business unit, the higher is *GE*'s business unit's interest to co-invest with the CVC unit.[46]

Putting all this together reveals that the actual incentive of a business unit to collaborate with the CVC unit remains the strategic interest to learn from the investment companies, e.g. by "joint-projects". Further, strategic possibilities that could arise from collaboration with an investment company in the post-investment phase are the reason why there is not any charge for information of a business unit in the pre-investment phase. Therefore, the investment manager only addresses a business unit if he sees a real strategic angle for an investment. This approach aims to avoid potential problems in collaboration with an un-cooperative business unit due to weak strategic incentives. In that case, *GE Equity* prefers to manage the investment at their sole financial interest.

> "The business units are not charging for anything, because they learn from that. Therefore, they are happy to come and see the company with me. It is in everybody's interest to get involved. So, we only work together with a business unit, if there is some good strategic reason. We don't try to highlight something strategic, where it is not really the case. In that case, we have to make a good financial investment. Then, we rather do it all by ourselves as financial investment, than working with a business unit that is not committed and convinced." (Rossi)

[44] This document shows the ownership percentages (of both, *GE Equity* and the business unit), the splitting of the costs, and the management responsibility of the investment.

[45] *GE* reported that regarding the strategic investments (~180 investments) 50% of them represent co-investments (~ 90 investments) with business units.

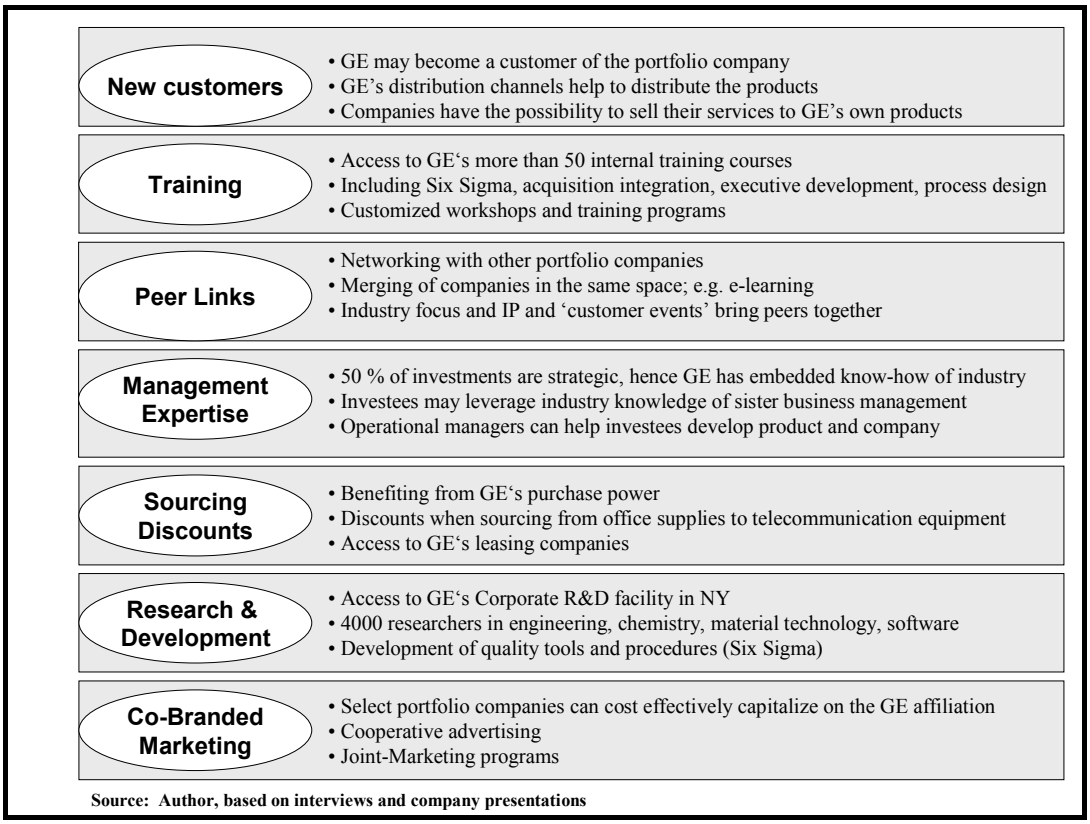
[46] Examples mentioned in the interviews are businesses at *GE* as *Card Services*, with *First Data Corporation, GEFA* with *AnnuityNet, GE Aircraft Engines* with *Enigma*, etc.

Portfolio management and support

After having invested in prospectus companies, the objective of *GE Equity* in the post-investment phase is to guarantee that they can realize their overwriting statement in an appropriate internal collaboration: *"More than investors, ... to become partners.*"[47] Since in the case of *GE* the start-up company has to ask a huge corporation, that is both geographically scattered and industrially highly diversified, the question of how *GE Equity* succeeds in getting the required support by the business units is even more important.

Therefore, it is indispensable to get an idea about the possibilities that *GE Equity* promotes to their companies. The following figure summarizes the value added services offered by *GE Equity* to enhance the value of their equity investments ("*GE Advantage").*

Figure 2-28: The value add services offered at *GE Equity*



[47] See interview of Joseph E. Parsons, President and Chief Executive Officer at *GE Equity*, printed in the Annual Report of *GE* 2000, p. 15

With respect to the general scope of potential support, *GE Equity* excludes any support for a portfolio company that could negatively impact the reputation and the stock evaluation of *GE*.[48] A closer look reveals that in order to realize value added services, *GE Equity* often depends on the collaboration of its business units. While in the pre-investment phase the business units have been mainly excluded, they are supposed to take care of all commercial aspects arising along the support management in the post-investment phase, as one investment manager explained it quite metaphorically:

> "I as an investment manager just do the introduction to the business unit, and the business unit executes everything that is commercial. The ventures have to learn to dance with the business units and vice versa." (Rossi)

Due to the size and high diversification of *GE*, the investment manager is not capable to provide a complete overview about the potential support and value add possibilities to his investment companies. Therefore, he organizes a *coming together* event for all investment companies, where they have the possibility to exchange information and collaboration experience in *GE*. Having an idea about the possibilities, the investment company informs the corresponding investment manager about its support necessities. This external demand triggers the internal process within *GE*. In order to make support possible through collaborating business units, *GE Equity* has to persuade the operational units of the prospects of CVC investments. As the CVC unit sees itself at the interface between *GE*'s strategic businesses and the investment, the CVC managers try to bring the "right people" in contact in order to make sure the best closing gap. The objective of an investment manager becomes to establish a win-win situation for the CVC unit and the business unit. The case at *GE* shows that two criteria determine if the inquiry of a portfolio company will be successfully followed on within *GE*: (1) the investment manager has to know whom to call, and, (2) the investment manager has to control that his request will be treated and actively supported by a business unit.

However, this short description of "success factors" regarding the internal process of the investment manager poses two crucial questions: first, how the

[48] In this sense, *GE* does not do any advertisement for a portfolio firm on the web-site of *GE*, they do not take the sponsorship for an investment, and they keep investments fairly secret.

investment manager knows the "right person" to call in a business unit. And second, how he controls that a business unit cares about a portfolio company. Since the term "right people" strongly depends on different aspects (e.g. technology of the portfolio-company, technology focus, their geographical location, or the kind of inquiry), the investment manager cannot rely on institutionalized paths of contact with a business unit or designated contact partners in the business units. The interviews reveal an astonishingly easy and unprofessional method: having a good telephone list helps enormously to get started. However, even more important are the personal contacts of an investment manager in *GE*, originating from his former projects and his location etc. Furthermore, the investment manager can contact the *Value-Add Service* Team, which is responsible to inform the investment manager about corresponding experts at *GE* in the context of a specific technical inquiry. Moreover, the CVC manager maintains his relationships by regular meetings with the *CEO* of a business, the *head of business development*, and the *technology officer*. Finally, since top management of *GE Equity* comes from a wide range of businesses within *GE*, the connection process is further facilitated.

> "… due to the former affiliation of the top management of *GE Equity* to other businesses within *GE*, they are good in connecting those businesses. If I can't help myself they can press and make sure that something happens."(Sanchez-Mollinger)

To control the supposed support within *GE* means that the CVC manager cannot just once place a call to a business unit. Quite in contrast, he has to follow up the inquiry process, and provide organized platforms where people get the possibility to get together. It is crucial that the whole process is triggered and constantly overviewed by the investment manager. In order to overcome insufficient collaboration, the CVC manager sends a copy of the *one-pager-agreement* showing the co-investment of a business unit to the CEO. This was reported as a most efficient way to make a business unit to follow up a support-inquiry.

However, the interviews showed that different objectives between CVC unit and business unit are the reason for insufficient engagement regarding CVC activities. While *GE Equity* is expected to do successfully financial investments, the business units are expected to deliver good operational results. Therefore, *GE*

Equity aims at increasing operational results of a business unit, as one interviewee put it:

> "… , because our businesses are incentivized first on financial returns of their operations themselves. As operational people have different goals than helping us as an 'investment company', reality sometimes looks worse than theory. So, it depends whether it leads to a better price than the so far used product." (Rossi)

The analysis of best practice mechanisms at *GE* for a collaborative support management shows that being financially motivated is seen as a main success-factor of *GE Equity* to make sure that there are enough leverage effects on the corporate side. Interestingly, in following its financial objectives *GE Equity* sees itself in close competition with *Intel Capital* or *Cisco*.[49] As one interviewee said:

> "But fundamentally, *GE*, *Intel*, and *Cisco*, are in the type of category, where financial returns are the main objective. Then you got a leveraging obviously on the corporate side. Because, if you have financial returns motivating you, you make sure that everything else goes right. Yes, I think financial motivation is going through the text of the success of CVC." (Rossi)

Second, the interviews I had at *GE Equity* show that a long "*internal track record"* is important for the CVC unit. A supportive intra-firm culture takes time to develop. In other words, the positive attitude in the business units regarding CVC investments require a certain time of CVC activities at *GE*. Furthermore, since a permanent change between "enthusiasm" and "rejection" regarding CVC within *GE* would negatively influence the willingness of a business unit to collaborate, enough and lasting financial resources are provided by the parent company. At the same time, it guarantees a long lasting support for the portfolio companies.

> "*GE* has a lot of money in cash. So, that helps because you continue and the investing companies will be able to follow in the support of the parent, and not going in the 'vicious circle', that if your parent company has trouble now, you fail and get into the situation that you don't have funds anymore." (Rossi)

[49] *Intel Capital* is also included as case in this work, see chapter 2.4.3.

Third, since early stage companies require more business unit engagement for an effective "hand-on" support, *GE Equity* prefers to invest in late stage investments. Late stage investments are supposed not to depend merely on the leverage effects of *GE Equity*. In the past, *GE Equity* experienced that due to the early development stage, start up companies are often neither able to provide any clients to the businesses, nor to represent themselves companies that are internationally expanding. Therefore, late stage companies can add more value back to the businesses of *GE*, what implies a higher incentive for a business unit to collaborate with *GE Equity*. An investment manager pinpoints two reasons:

> "…first, as a very early start-up company you really need somebody with holding hands and checking you every day. *GE* as a big organization is not good in that. And second, when we introduce companies to our commercial businesses, they will ask us first, who is using that company. If we say, 'the company is a start-up and your business unit will use it first, nobody gets comfortable. *GE* is a very safe, conservative organization. Therefore, we found that it is much better to invest in well established companies whose products are already used. So if we come to the business unit to ask them for help they feel safe, as they can use a certain technology as well." (Sanchez-Mollinger)

Generally in the interviews it came up that the dilemma between focusing on the business unit activities, which guarantees internal collaboration, and broad technical focus, which ensures less vulnerability to the development of one industry, has been overcome by focusing on diverse industries which are complementary to *GE*. One investment manager at *GE* put this as:

> "One reason for the fact that a lot of the CVC's are failing is its focus on only one industry, e.g. *Intel.* A CVC should create a diversified portfolio, that allows you to grow over time, independently of the business cycles of a single industry." (Rossi)

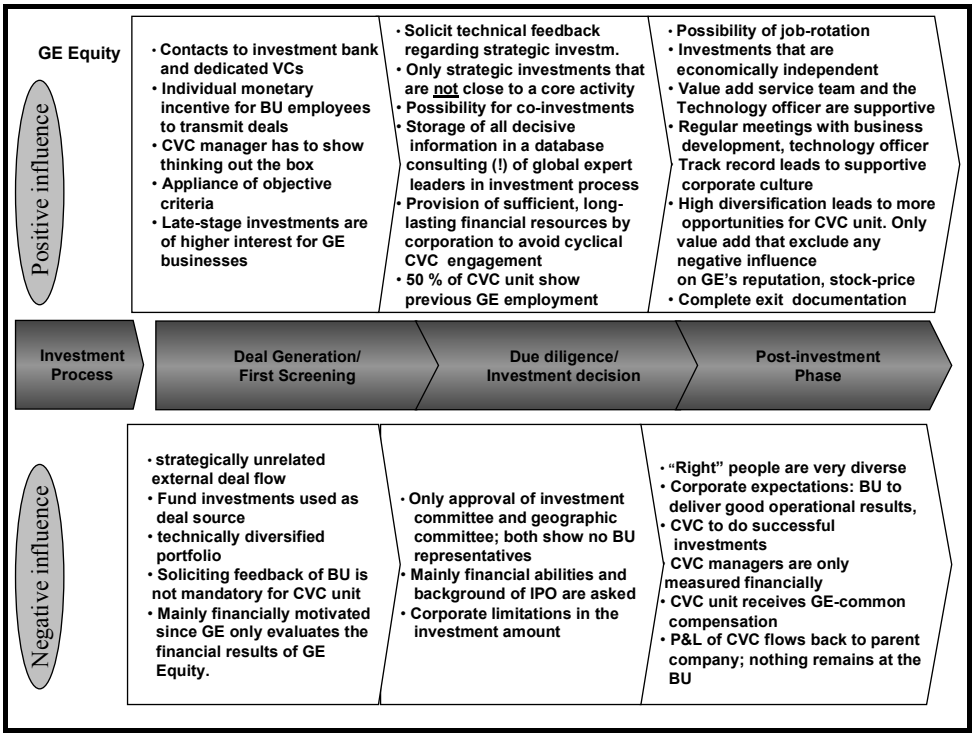
Exit Management

The following section concludes on the *exit* management of *GE Equity* and the consequences for the collaboration with a business unit. *GE Equity* appraises an investment exit at the stock exchange in the form of an IPO as more problematic than trade sales due to strong influence of the current IPO market and the related l*ock-up* period. Although in the past many *IPOs* had been performed by *GE Equity*, the interviews show a certain preference for *trade sales* due to its easy

feasibility and returns. Besides this aspect of financial convenience, the focused question of this work is to what extent the type of *exit* channel affects a business unit to collaborate? In order to avoid any buying conflicts regarding the price of an investment, the interviews show that all investments are planned to sell them to external third parties without any preemption right for business units.

Since the descriptions in the previous sections show that co-investments are done with business units, the final question that remains to be answered is how *co-investments* with business units impact the exit of this investment. In order to avoid the situation that a business unit wants to get the capital gain of an investment at an earlier point of time than *GE Equity* plans to part with a portfolio company, a detailed documentation within the co-investment contracts is indispensable. It embraces the exact time of an *exit*, the managing exit team, and the splitting of the capital gain between the business unit and the CVC unit. Also the case of *GE Equity* concludes by summarizing the interview statements.

Figure 2-29: The statements of the *GE Equity* interview



Within-case analysis

The above description of how the corporate executive board is integrated in *GE Equity* brought up that *GE Equity* enjoys wide freedom and independence of the corporate board. The strategic alignment of the CVC activities with the corporation as a whole is guaranteed by a quarterly meeting with the president of *GE*, where he approves the strategy of the CVC unit.[50] Within this frame, *GE Equity* is more or less free in their daily decisions.[51] Further, even the necessity of having the approval of *GE*'s senior-management is facilitated by a pretty flat organizational structure of only two levels between the CVC managers and the top-management of *GE*. Moreover, this keeps the way of reporting to the top management easy.

> "We are very independent, we are effectively free, and we can do (to a certain level) what we want. For the rest of decisions we have to go to the board of *GE Equity* and then to the *GE* Board. However, there are only two steps to get the top of *GE*."(Sanchez-Mollinger)

The case description gives clear indication that there is really a fundamental difference between the purposes of *GE Equity* and the business units. While the business units typically aim at issues closely related to their operational business (e.g. to follow cost-cutting aspects), *GE Equity* strives for primarily financially successful investments, related with a freedom in which technologies areas to invest. Moreover, the case shows that the CVC unit does not have any direct mechanisms in order to force the business unit to cooperate with them. Quite in contrast, they explicitly avoid any mandatory approval by the business unit along the investment process. Nevertheless, *GE Equity* may get a qualitative collaboration of a business unit in the case that a business unit wants to collaborate voluntary due to their technical interest in an investment. Looking at possible implications for the investments of this voluntary business unit collaboration shows some positive and some negative effects. The positive implication is that although there is perhaps no or little direct involvement of a BU, the start-up companies get the *corporate certification* of *GE* as an investor in

[50] The same is done in the relationship between *GE Capital* and *GE*.

[51] Decisions exceeding the daily operations need to be approved by higher levels within *GE*.

the market, which affects positively the validation of the young companies.[52] Furthermore, since the business units are not directly involved, the portfolio companies retain greater independence in their decision making processes. However, the negative side of this voluntary involvement of a business unit is that there is no guarantee of support.

Furthermore, the case description shows that the corporate culture of *GE* does not really encourage internal collaboration. A very strong "do-it-yourself" corporate culture was reported, provoking personal drive and individual action towards personal success. Additionally, the doubtlessly very American culture of "you succeed or you are out", which is only based on financial indicators, does not show a direct motivation for collaboration.

Regarding support management, the case shows that cooperation mainly rests on two pillars: first, the personal networking within the corporation, and second, the existence of a business unit's financial incentives in the form of co-investment with *GE Equity*. Due to changing contact partners, ad-hoc meetings between specific technology experts and *GE Equity* are preferred to institutionalized forums or internal fairs. However, the way that *GE Equity* gets further contacts in *GE* shows a focus on the senior management level of the business units: either the CEO of the business, or the corresponding head of the business development team. These people show the commitment that a business unit uses resources (mainly man-power and time) in order to collaborate with *GE Equity*.

In the context of support management, the internal charge of a corporate standard rate for a complete due diligence by a business unit, or the situation with long-lasting projects with R&D employees shows that the limits of goodwill are quickly reached at *GE*.[53] Interestingly, the interviews suggest that *GE Equity*'s long existence has a positive effect on the process of pushing an investment to the people of a business unit. A greater willingness on the part of the CEO of a

[52] This is confirmed in an interview with Marc Lassus, the CEO & President of *Gemplus*, which receives 26 million US$. In the interview (www.geequity.com/interviews/gem1.html), he mentioned: "*GE Capital* is a formidable partner with an excellent reputation. *GE* is a rich company, and we need rich shareholders to accompany us into the future."

[53] "Long lasting" was defined in the interviews as projects spanning more than a week that help the company to jump into another industry segment, e.g. by modification of the software.

business unit originates in their experience from the positive effects of CVC investments that come back to their business unit: capital gains. Moreover, I found in this case that there is a relationship between the image *GE Equity* enjoys in the business units and the resulting commitment of a business unit to the investment process.

> "…it helps the CEO to push it forward, as they have already seen what the capital gains could be over time. In general, the business units follow us more and more, because they believe that *GE Equity* is good for the company." (Rossi)

Finally, the above discussion of different motives for written co-investments indicates that this approach is of advantage to all involved. First, *GE Equity* can use it as a mechanism to force a business to do what they initially promised. Second, since the business unit has a financial incentive to co-operate, it 'guarantees' the investee access to *GE* service facilities. Finally, it facilitates the decision of the investment committee if the underwriting documents show a business unit's strategic involvement.

2.4.3 Intel Capital

The objective of this case is to describe the intra-organizational collaboration between the business unit and the CVC unit throughout the investment process at *Intel Capital.* First, a brief general corporate profile of *Intel* and *Intel Capital* will be presented. Second, the case will focus on describing the investment process between the CVC unit and business units, and finally within-case analysis will be carried out.[54]

Corporate profile

As of April 2002, the parent company of *Intel Capital* has revenues of US$ 26.53 billion, and a net income of US$ 1,291 billion (both in 2001). *Intel*, ranked

[54] This case study draws on transcribed interviews with Thorsten Krumm, Thomas Offner, and conversations with Sam Al-Shamma. The appendix includes an overview of the affiliations and job titles of all interviewees. Furthermore, this case is based on annual reports, public speeches, press releases and analysts' reports.

among the 100 biggest US companies, has more than 83,000 employees.[55] *Intel* had long been articulating the vision of how the industry could grow to attract new users and open up new uses for connected PCs. In the early 1990s, by officially forming the venture program *Intel Capital*, they began to back up that vision with financial commitments to innovative companies. The initiator of the program was the chairman of corporate new business development. *Intel* sees venture capital "as a tool to create buyers for products and ultimately to steal market share from rivals."[56] *Intel* realized it could benefit from nurturing start-ups making complementary products: Demand for them could spur increased demand for *Intel*'s own microprocessor products.

> "At *Intel*, much of our future success depends upon the Internet economy. However, it is not enough for us to deliver the building blocks of the Internet. Through our strategic investments, we also help to improve the technology that gets users online, remove roadblocks to online access, and make Internet content compelling." (Dr. Andrew S. Grove, Chairman, *Intel Corp*.)

Intel Capital has 350 employees worldwide who are working on CVC investments for *Intel*. Currently, *Intel Capital* manages one of the largest corporate venture portfolios in the technology segment. As of December 29, 2001, the capital under management of *Intel Capital* was US$8 billion, including over 600 companies worldwide.[57] International investments accounted for 45% of *Intel Capital's* portfolio in 2001, up from less than 5% in 1998, and it is planned that this figure will rise to fully half its deals in 2002. As Table 2-30 shows, in both 2000 and 2001 *Intel Capital* was the most active corporate investor regarding the number of deals. Last year, *Intel Capital* invested $ 350 million in 175 companies (Venture Capital Journal, 2002).

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[55] Survey is based on market capitalization, see *Handelsblatt*, 02.04.2002: "The 100 biggest US companies in 2001."

[56] See Red Herring, June 2000, p. 346

[57] The appendix includes a detailed list of the portfolio firms of *Intel Capital*.

Figure 2-30: Most active corporate investors in the first half of 2001

Name	# of deals First half 2001	# of deals First half 2000	Name	# of deals First half 2001	# of deals First half 2000
Intel Corp.	67	98	Cabletron	8	1
Cisco Systems	27	17	Motorola	8	13
General Electric	24	63	Siemens AG (1)	8	19
Comdisco	20	26	Sony (2)	8	15
Accenture	17	11	Cornling	7	1
Sun Microsystems	15	15	Compaq	6	21
Dell Computer	11	30	Deutsche Telekom	6	7
Mitsubishi	11	8	Royal Philips Electr.	6	5
Reuters	11	19	Science Application	6	1
St. Paul Cos.	11	15	Texas Instruments	6	6
American Express	6	17	Eastman Kodak	5	3
France Telecom	10	8	Lucent Technology	5	6
Singapore Tech Group	9	15	Nokia	5	11
AOL Time Warner	9	17	Nortel Networks	5	3

(1) Number represents deals done by both Siemens Venture Capital and Mustang Ventures
(2) Number represents deals done by both Sony Strategic Venture Investments and 550 Digital Media Ventures

Source: Corporate Venturing Report, August 2001

With an overall strategy to stimulate advances in computing, *Intel Capital* looks for investment possibilities and invests in promising companies according to the following profile: They make minority investments (typically < 20%) in mainly private companies. The investments are usually in early-stage companies (first- or second round financing) that get investments between $1 million to $10 million. However, they also make acquisitions of 100%.[58] As the heart of *Intel* is based on intellectual property (IP), the objective and motivation of making acquisitions is to secure the IP of a new technology. It is a matter of common knowledge at *Intel* that it is the exclusive right of *Intel Capital* to make these types of investments:

> "There are no service-level contracts at *Intel*. However, the business units know that whenever minority investments or acquisitions are in discussion, there is only one way within the corporation: *Intel Capital*." (Krumm)

[58] In 2000, *Intel* made 28 acquisitions; see interview transcript with Thorsten Krumm.

The following ranking, published in *Redherring*[59], shows that compared to their competitors *Intel* performs CVC investments quite successfully, at least concerning the financial terms 'aftermarket increase'.

Figure 2-31: *Intel Capital* is one of the top VC firms of 1999 based on the aftermarket increase in the dollar value of their portfolio IPOs[60]

Rank	Name	1999 aftermarket increase (%)	1999 aftermarket increase (bio. $)	No. of IPOs	VC under management (mio. $)	Preferred investment per transaction (mio. $)
1	Lucent Technologies	2,636.6	71.8	3	n.a.	n.a.
...						
5	AT&T Ventures	1,170.2	60.5	9	350	1-5
...						
9	Cisco Systems	869.6	35.0	5	n.a.	3-15
...						
12	Morgan Stanley Dean Witter Venture Partners	776.0	27.9	7	8,000	2-20
...						
20	Compaq Computer	621.9	28.7	6	8,300	n.a.
21	Morgan Stanley Dean Witter Capital Partners	556.5	22.4	8	8,000	20-500
...						
23	***Intel Capital***	***503.6***	***52.3***	***23***	***8,000***	***n.a.***
...						
25	Goldman Sachs Merchant Bank	380.6	29.1	12	9,000	n.a.

Source: Author, following *Redherring* magazine, June 2000

Intel Capital is a strategic investor and its decisions to invest in a company must satisfy a strategic goal: aiming to create and expand new markets for *Intel*'s products. Initially, they invested in a range of content provider companies. However, they realized that they had to expand their scope beyond their operations and product lines. Today, *Intel Capital* invests in technology areas on the computing spectrum, in support of a total end-to-end computing solution. In this sense, they invest in ecosystem companies that are building the infrastructure to enable the Internet Economy. These ecosystem companies develop technology that is sold alongside *Intel* products. Investments to promote this are: Client/Server Platforms and Technologies (32%), Networking and Communication (15%), and Design and Manufacturing Technology (9%). *Intel* further invests in content and technologies that can enhance Internet experience and content for users (44%), such as broadband services and tools.[61] While these ecosystem deals are meant to put *Intel* technology into more products, market

[59] See Redherring, June 2000, http://www.redherring.com/mag/issue80S/mag-vcfirms-80s.html

[60] The ranking is based on the aftermarket increase in the dollar value of their portfolio IPOs, from the date of the offering to the end of the year, as measured by Venture Economics.

[61] The figures represent the percentages of the total portfolio of *Intel*.

development deals aim to stimulate demand for *Intel*'s products. Not all of the venture group's investments are ultimately aimed at boosting *Intel*'s top line. With what are known as "gap-fillers", *Intel Capital* invests in companies that sell technology *Intel* needs in order to sell or produce its own products. However, there is one exception regarding the strategic relevance at *Intel*. In this sense, it is also possible that *Intel Capital* may invest in disruptive technologies that do not come under the area of any existent business unit right now at *Intel*. The aim is a very strategic one in the long-term: not to miss the access to "the decisive technology of the future" (according to the interviews). A company in that "eyes and ears" category, representing the very minority in *Intel*'s portfolio, might produce something useful in three to five years.

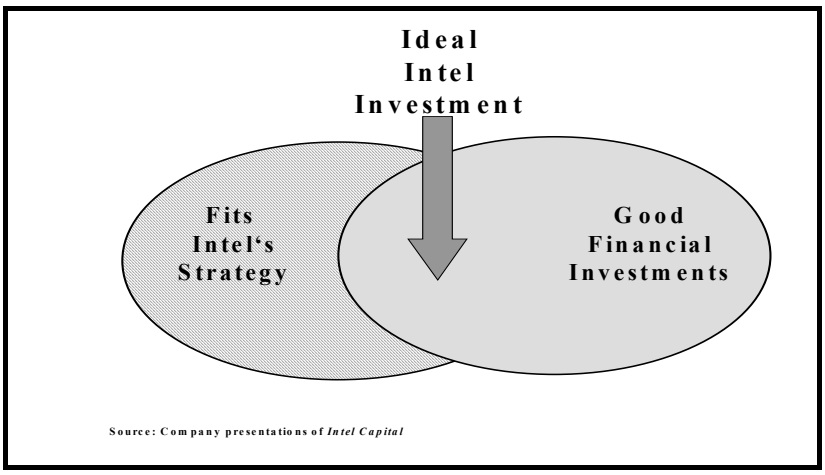
> "Regarding these deals we want to have an ear in a future segment: what is going on there? Then, *Intel*'s top management decides if it is strategically reasonable to establish a business unit in this area. (Krumm)

Although financial returns are in fact secondary to strategic objectives, the financial potential is a second integral part of *Intel*'s selection criteria, which make investments more affordable. The explanation of an investment manager shows that the financial attractiveness of a deal seems to be closely connected with its strategic relevance:

> "To be a strategic deal for *Intel* means that a certain penetration in the market is possible. That is to say, if an investment is financially not attractive, it cannot be strategic for *Intel*, as we don't have enough market penetration."

Putting all these aspects together, the ideal *Intel* investment is located in the intersection of two circles "Fits *Intel*'s strategies" and "Good Financial Investments". This is illustrated by the following graph.

Figure 2-32: The "ideal" *Intel* investment



What does this mean for the predetermination of the overall strategy of *Intel Capital*? The strategy developed is focused according to the business units' strategy, and is approved by the board of directors at *Intel*. This five-year plan mirrors the technologies that a business unit is lacking in order to follow their "road-map" strategy.

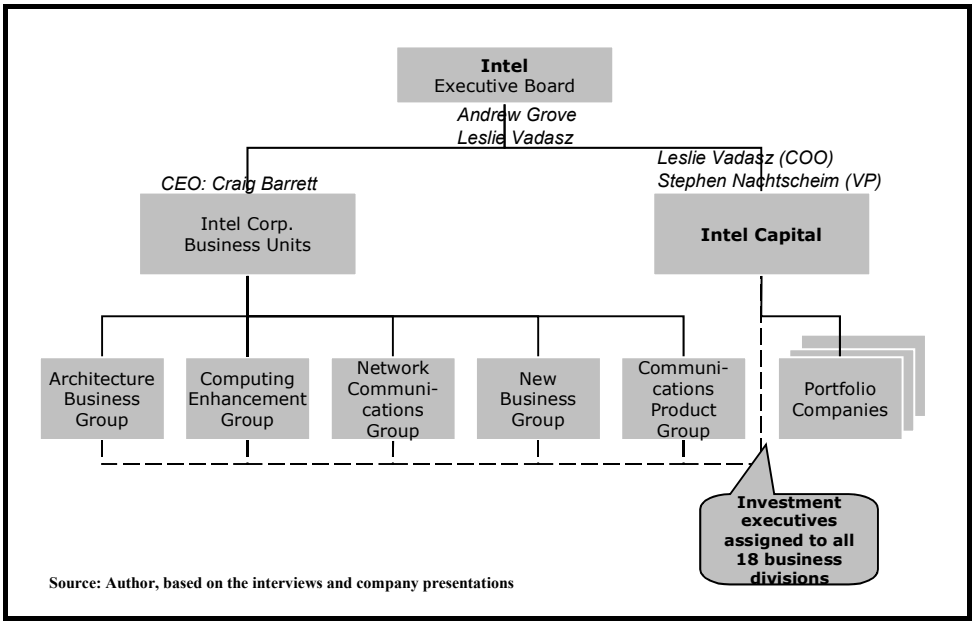
Although, the last drop in CVC activities in the first half of 2001 seriously hit the "tech giant" in terms of financial returns due to changes in the value of its venture capital portfolio. The statement by *Intel Capital*'s president shows that these diminishing returns do not mean that *Intel* is refraining from investing in venture capital:[62] "Intel is trying to keep up the pace of its venture investments", says Leslie L. Vadasz, President of *Intel Capital. Intel Capital* made more venture investments last year than ever (Venture Capital Journal, 2002). Indeed, *Intel Capital* was the most active investor in the second quarter of 2002, participating in 22 new and follow-on investments.[63]

Looking at organizational embedding within the corporation, *Intel Capital* is integrated as a 100 % legally owned unit of *Intel*, and does not represent a corporate entity in its own right, as the following figure shows.

[62] See Business Week, October 15, 2001, p. 85

[63] See www.privateequityonline.com, 07/01/2002

Figure 2-33: The organizational embedding of *Intel Capital* within *Intel*



As the structural embedding of *Intel Capital* within the corporation shows, the CVC unit is located directly under the executive board of *Intel* (Andrew S. Grove, Leslie L.Vadasz). Besides that, Leslie L.Vadasz, a founder of *Intel*, is the COO of *Intel Capital*. The interviewees at *Intel* confirmed that this high commitment *Intel Capital* enjoys by the executive board has a positive effect on the commitment of the BUs.

> "This structure gets us the commitment by the BUs, as they see that *Intel Capital* has a very high commitment by the board of *Intel*, and therefore is of highest priority regarding the whole corporate structure." (Offner)

The central embedding of *Intel Capital* within the corporation is operationalized by the fact that the corporation has the complete P&L responsibility of *Intel Capital*.[64] Further, *Intel Capital* gets its financial resources directly from *Intel*'s balance sheet. *Intel Capital* is seen as a kind of service provider at *Intel*, in charge of looking for, representing, executing and managing investments for *Intel*. The following quotation by an investment manager illustrates this:

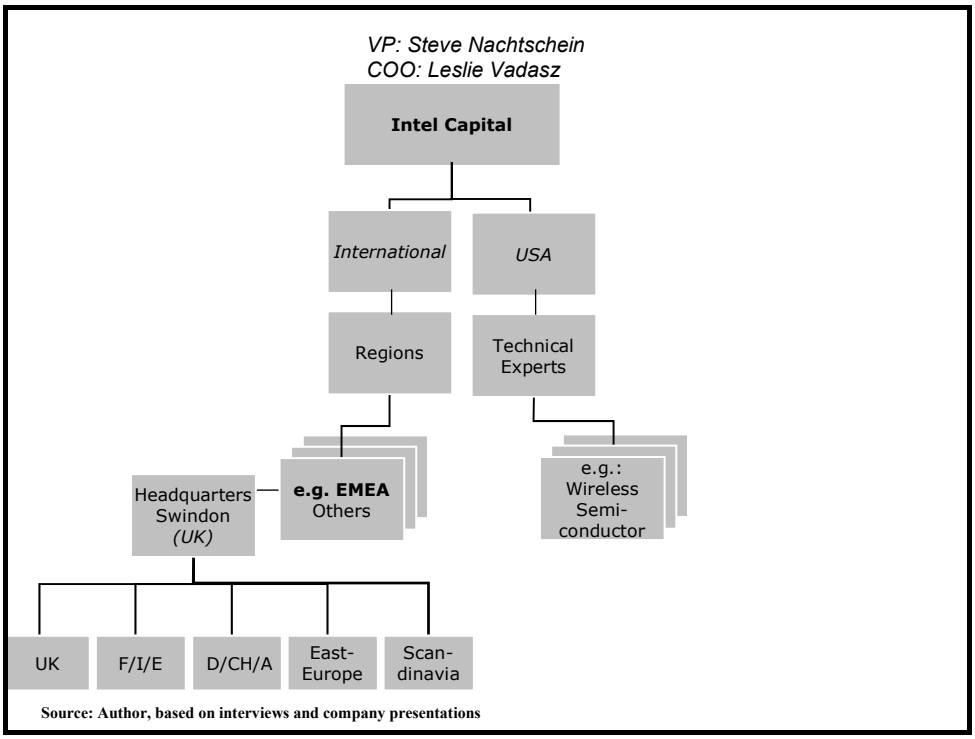
> "We investment managers are employees like anybody else at *Intel*. Fundamentally, we are nothing other than a cost center. *Intel Capital* is a strategic

[64] The balance of *Intel* is consolidated by *Intel Capital*'s P&L.

> department, a kind of service provider without profit, working for the business units of the parent company." (Krumm)

The internal organizational structure of *Intel Capital* reflects two different dimensions: *vertical* in the US, and *horizontal* in Europe (and all the other countries). *Vertical* means that *Intel Capital* has employees who are located directly in the business units. By participating in the business units' staff and strategy meetings they get in-depth insights into the strategic focus of a certain technology and make the link to *Intel Capital*. In contrast, in Europe (and all other countries apart from the U.S.) *Intel Capital* is structured horizontally. That means that an investment manager is responsible for a geographical area, including all technical areas. Regarding Europe, the horizontal structure was chosen in order to create a lean organization and to avoid overheads for *Intel Capital*. Figure 2-34 illustrates these differences.

Figure 2-34: *Intel Capital* is organized in regions and technical experts



Investment process

The corporate profile presented illustrates that *Intel Capital* invests in CVC with a strategic aim. In order to reach their strategic objectives, *Intel Capital* reported the necessity to connect business units with investment companies. As this study

aims at providing in-depth insights into how and why *Intel Capital* strives for collaboration with the business units, the following sections will explain the investment process at *Intel Capital*.

Deal Generation

With respect to the investment process, I will first explain how new investment opportunities are generated. *Intel Capital* has two deal sources: external and internal deals. In terms of the internal "deal pipeline", *Intel*'s business units themselves represent an elementary factor. As the business units are actively operating in technology markets and therefore have contacts to a wide range of new, small companies, they are supposed to transfer deal possibilities to *Intel Capital*. Further, in order to know if a business unit sees any investment possibilities, *Intel Capital* tries to keep up-to-date with the activities of the business units. In the words of an investment manager the situation is perceived as follows:

> "… absolutely, it's a purpose of *Intel Capital* to keep the business units permanently informed, as we also ask them to inform us about interesting investment possibilities they see in the market." (Krumm)

A mutual exchange of information between the CVC unit and the business unit is necessary. Therefore, the investment managers at *Intel* are invited to lectures or presentations by technical experts from a business unit in order to keep the CVC unit informed about the latest technical developments and attainments of an industry.[65] With respect to the reverse direction, *Intel Capital* brochures are distributed directly from the top management of *Intel Capital* to the business units. Moreover, the investment managers maintain brisk and informal communication with the business units in order to stay in permanent information exchange. [66] Finally, very informal platforms like social events or company parties are a mechanism for establishing or extending relationships between employees. However, there is no institutionalized formal communication platform such as an internal *Intel Capital* fair.

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[65] If this is not possible due to the geographical distribution, telephone conferences of virtually distributed presentations serve as surrogates.

[66] This could be done just by sending some e-mails, for example.

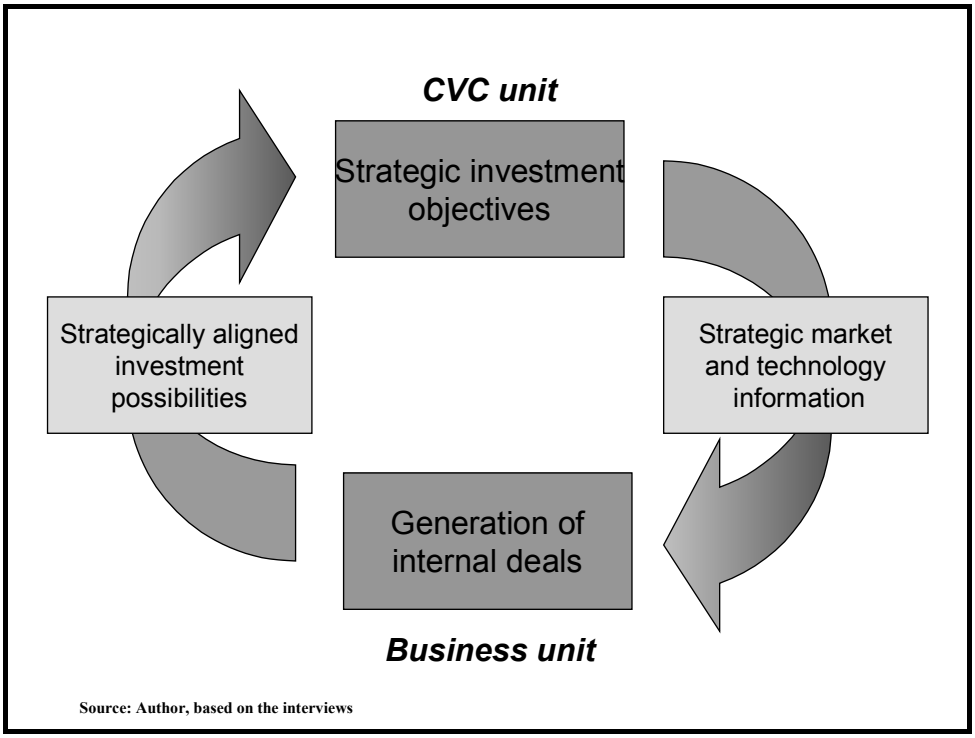
Besides the internal deal flow, *Intel Capital* actively attempts to find external investments that promise the required access to technologies necessary to fill the strategic holes in the value chain of a business unit.[67] However, the strategic alignment of the external investment possibilities with the interests of a business unit requires the investment managers to understand the strategy and applied technologies of the individual business units. An institutionalized form of this is represented by the quarterly business update meetings between investment manager and business unit. Besides this, the vertical organization structure of *Intel Capital* in the USA enables them to profit from the in-depth insights of their US colleagues working in business unit locations for *Intel Capital*.

Furthermore, incoming financing requests by street deals represent additional external deal flow. Finally, the maintenance of contacts and networks to dedicated venture capitalists or investment banks, for example, makes it possible for *Intel Capital* to co-invest alongside external VC firms. The positive effect for *Intel Capital* is that they don't have to manage every investment closely, since the co-investors direct the ventures' growth and monitor their performance.

However, the strategic aim of *Intel Capital* and the corresponding alignment regarding new deals mean that the business units get back strategic market information and know-how. Apart from the difficulties in measuring the potential strategic results, the achievement of this strategic aim by the CVC unit is fundamental for the process of deal generation: it represents the only motivation for a business unit at *Intel* to contact the CVC unit regarding promising investment possibilities they see in their operational market. This self-enforcing investment circle, consisting of the strategic investment objectives of the CVC unit and the generation of internal deals, is shown in the following figure.

[67] Examples mentioned have been the lack of a product or the lack of a technical platform, etc.

Figure 2-35: The self-enforcing investment circle



Deal Evaluation

Intel Capital applies a two-stage approval process in order to reach a decision regarding an investment possibility. This process will be explained below. Since the first screening is an analysis of the incoming business plans at *Intel Capital* by the investment manager, it acts as a funnel (according to the interviews). Since *Intel Capital* is forced to select companies that are of strategic relevance to a business unit in order to obtain this unit's sponsorship, the purpose of deal screening is that the investment manager gets an idea of the strategic implications of a deal.

Only if an investment manager came to the decision that there could be any strategic relevance regarding the concept of an investment for *Intel* does he/she contact the manager of a business unit. In intensive feedback discussions with a business the investment manager attempts to get confirmation of the strategic relevance of an investment. The investigation of the strategic relevance includes an analysis of a business idea's significance, its "USP", and the intellectual

property.[68] The purpose is to get a business unit as a sponsor for an investment, which is indispensable for the deal concept meeting with the investment committee. This investment committee, including *Intel Capital*, legal department, treasury and the general manager[69], makes the first official "go/no-go" decision in the investment process. While in the case of a negative decision an investment is not followed up, the positive decision means the transition to the next process.

At the same time, the go-ahead by the investment board represents the start of the due diligence process at *Intel Capital*. As part of the due diligence process the other business units involved deliver their technical due diligence for a company, The legal department performs the legal due diligence, and financial evaluations are supported by the treasury department. All this effort is focused on the necessary details of an investment. However, besides the official financial investment criteria,[70] no additional "must-have" criteria are applied in evaluating a company, such as minimum in revenues, sale, etc.

The advanced process includes the solicitation of a business plan and meetings with the management team of the company. Further, the exchange of non-disclosure agreements aims at securing incoming technologies at *Intel* regarding "do-it yourself" activities. *Intel Capital* is not about to risk their image in the VC market due to the illegal imitation of a technology in a business unit after completing the technical due diligence of a possible investment. An investment manager explained the situation as follows:

> "To speak plainly, observing the technology and then 'doing-it yourself' doesn't work. You need the processes to avoid it. That means you need non-disclosure agreements for a portfolio company, and internally you have to make sure that no information goes outside". (Krumm)

Putting together the involvement of the business units in the technical due diligence process, the crucial question is, how does the investment manager find the decisive people from a business unit for the technical *due diligence*? And

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[68] USP stands for 'unique selling proposition' of a company.

[69] The general manager represents the vice president of a business unit.

[70] Criteria mentioned are investments of US$2-10 million, or <20% of company stock.

further, how does *Intel Capital* keep up-to-date with the activities of a business unit necessary for the first screening? The method applied at *Intel Capital* is astonishingly unspectacular. Investment managers use the available means of communication and internal directories at *Intel*. Apart from the company telephone list, e-mail directory and Intranet, the website of each business unit is a first guideline for the investment manager in getting information and contact partners from a business unit. Second, besides the supportive infrastructure, the matrix organization of *Intel Capital*, strictly speaking the vertical structure of the CVC unit in the U.S., was reported as supporting the daily business of the investment manager. The American investment managers open doors for the European colleagues[71], since the US investment managers possess the required personal relationships in a business unit due to their focus on a certain technology.[72] One investment manager working for *Intel Capital* in Munich reported this efficient possibility:

> "But first of all, if I need sector-specific technical help, I contact my colleague at *Intel Capital* in the USA. As only "he" is responsible for one specific business unit, he can give me 'comparables' and knows all competitors. Further, he helps me to involve the business unit: first, to get access to a business unit, and second, to help me understand the strategy of a business unit. They open doors for me that I cannot open from here. They know the people in the business units and have the personal relationship to them, since they have lunch together, they play golf or have a drink together." (Offner)

Regarding further mechanisms that facilitate deal evaluation, the interviews at *Intel Capital* reveal two personal characteristics of investment managers which are supportive. First, professional background with operational experience in sales, distribution, or business models help to evaluate incoming business plans. And second, the personal candor of an investment manager to maintain and foster existent contacts and networks to business units enables him/her to get fast feedback regarding a potential investment. This is even more important since

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[71] In Europe, an investment manager is responsible for all technology areas arising from "his/her" specific region. Therefore, his/her in-depth knowledge about a certain technology is limited.

[72] This person is referred to as "focus-point" of *Intel Capital*.

informal contacts within *Intel* have been mentioned in the interviews as necessary for the later commitment and collaboration of business units:

> "With the relevant informal contacts we have, we try to establish new contacts. You look at the business plans and speak with one or two business units to get their first feedback. …, but at *Intel*, this is relatively informal. You as an employee are expected to care about your personal networks. Only with those do you also get the commitment and the cooperation from a business unit later." (Krumm)

Although the sponsorship by a business unit regarding the pre-selection of companies is required for the first concept meeting, the investment managers interviewed emphasized that they try to use the resources of a business unit as economically as possible. In order to unburden the employees of a business, they are supposed to become the "heroes of *Intel"* (interview) by capturing as much information as possible out of their own industry know-how in order to become experts themselves in a certain industry. The fact that no special information databases are available for *Intel Capital* complicates the duty of the investment managers.

> "We really should represent what we are often called, 'Heroes of *Intel*', in that we do not have to make a call to a business unit regarding each 'bagatelle', that prevents them from their operational work." (Offner)

From a general point of view, the process of getting feedback was reported to be very informal. All of the possibilities discussed above only assist the process of seeking advice within the corporation. There is no contractual basis for the search and inquiry process of a business unit available at *Intel Capital*. However, navigating in the corporation seems to be facilitated by the commitment of corporate top management regarding *Intel Capital,* as the words of an investment manager illustrate:

> "… basically, we have to ask our way through the corporation. However, as *Intel Capital* is suspended at a very high level at *Intel*, we don't have problems finding the right business unit. And it is clear in the minds of the business unit, that *Intel Capital* represents an important part of the innovation activity, and the innovation level of *Intel*. This makes a positive collaboration happen." (Offner)

Trying to find explanations for how *Intel* builds a supportive, positive environment for *Intel Capital* at the business units, the cultural analysis shows that the corporate culture of *Intel* is very active. It starts with the announcement of *Intel*'s overall corporate strategy, where *Intel Capital* represents a significant part of *Intel*'s prosperity. Moreover, it not only means the simple announcement of *Intel*'s strategy, but also that this strategy is visualized and communicated at *Intel* either on posters, pamphlets or badges. Even more important, the interviews reveal a relation between the compensation basis of the CVC managers and supportive corporate culture at *Intel*. In order to get the willingness of a business unit to collaborate, the investment managers at *Intel Capital* are not paid any carry of interest.[73] Combining the aspects mentioned leads to the specific "*Intel* culture" that supports the positive image of *Intel* Capital in the business units.

> "This makes it happen that we all act together, and that there is the opinion at *Intel* that CVC is not something that only enriches the investment managers, but rather helps *Intel* as a corporation to progress. We are all employees of *Intel*, we all have the same goal in mind: to realize shareholder value for the corporation. It would be really very difficult to get the enthusiasm of a business unit if they know they are helping you to get richer. You get additional 20 % carry, and they only get their monthly salary. Therefore, we are compensated like anybody else here at *Intel*." (Krumm)

Deal Structuring

All deal structuring aims to complete the whole documentation by the investment manager, which is required for second approval of the investments by the investment board. On the one hand, this documentation includes the finalization of the shareholder agreement (or term-sheet) that contains all equity details between *Intel Capital* and the investment. However, it must be mentioned that *Intel Capital* never occupies board seats in the portfolio company, at least observer rights. The reasons for this are first, liability issues, and second, conflicts of interest.[74] Furthermore, co-investments with business units are excluded. On the other hand, it is the business agreement that covers the strategic

[73] The compensation structure at *Intel* includes a base salary, an executive bonus (basis for the achievement of goals), and stock options. That is exactly the same for *Intel Capital*.

[74] An example of a possible conflict of interest could arise if a reasonable decision from a strategic point of view denies a positive decision from an economic point of view.

part of an investment between the portfolio company and a business unit. These 'side letters' contain the reasons, the objectives, and the resources the sponsoring business unit will provide in order to realize the value beyond equity. The purpose is on the one hand to make the expectations a business unit has regarding an investment obvious. On the other hand, it has the advantage for the portfolio company that they know *Intel*'s intention and the value add *Intel* is able to deliver; even before an investment is closed.

> "To point it out again: *Intel* only invests if we can define the strategic fit 100%; that means, what is my motivation?, what are my goals?, and which resources am I prepared to apply?" (Krumm)

While the Legal department is responsible for the legal aspects and structure of the term sheets, the Treasury unit focuses on the financial evaluation of the business model in finalizing the shareholder agreement. The operational people (frequently it is an engineer and a marketing specialist) and the vice-president of a business unit aim at articulating the corresponding business agreement. Last but not least, the US investment managers of *Intel Capital* are once more helpful regarding thorough information about markets and technologies of a business unit. Since these additionally involved personal resources are seen as service providers for *Intel Capital*, there is no intra-group cost charging.

> "Besides the overall process, we as *Intel Capital* oversee the whole process where Legal and Treasury cooperate in finalizing the financial due diligence and the shareholder agreement. The strategic part, meaning the technical due diligence and the business agreement, is always residing in the business unit. Also my colleague in the USA helps us with the development of the business agreement." (Krumm)

As far as the personal characteristics and abilities of an investment manager are concerned, this process of internal outsourcing of tasks to other departments at *Intel* explains why being an investment expert is neglected as an important attribute of a CVC manager. Nevertheless, a basic business understanding[75] seems to be required, since all employees at *Intel Capital* have an MBA.

[75] Examples of business skills mentioned in the interviews are: what is the business model? What are dependencies? Where are the bottlenecks? What is the market size?

> "We don't have to be investment experts who know we should set up special 'deal vehicles'. The investment part becomes more and more a commodity, especially in Europe, where we see quite simple investment structures." (Offner)

Investment decision

Once the whole documentation resulting out of the process of deal structuring is complete, the purpose of the second meeting of the investment board is to get the second go-ahead in the two-stage investment process. At the same time the positive outcome represents the final decision to invest in a company. Within this meeting the company is presented in detail by the investment manager in order to clarify any remaining unanswered questions. Interestingly, the final investment decision is not reached unanimously, but in a process of consent-finding. If one of the four people involved (either the representative of *Intel Capital*, Legal, Treasury, or the business unit) voted against a deal, no investment would be made in a company. If they cannot reach a decision within a time-span of three months, the investment process is canceled. After the investment sheet has been signed between the CVC unit and the portfolio firm, *Intel Capital* transfers the investment money, which originates from *Intel*'s balance sheet. Consequently, *Intel* is the owner of the shares in an investment. In general, the investment managers are in charge of coordinating the whole process of getting to a decision. What this embraces in detail is shown by the following quotation.

> "… the necessity is to get the 'important' people and the 'right' sponsor to the table. Further, you have to present the 'right' information to the CEO." (Offner)

With regard to the involvement of the business units in the investment decision, the clearly articulated sponsorship by a business unit in the business agreement is mandatory for gaining the investment approval by the investment committee. The main reasons for the existence of a sponsorship are both to signalize to the investment committee that the support by an *Intel* unit is guaranteed, but even more important, to accentuate the strategic relevance of an investment. The following two quotations illustrate the situation:

> "Absolutely every time we really need a 'sponsor' from a business unit. Without the support of a business unit, there is no strategic aspect of the investment apparent, and therefore a requirement of our investment strategy is missing. I think

> the big difference at *Intel* is that we cannot invest if no business unit is involved and verifies the strategic relevance." (Krumm)

Putting this all together, what does it mean for the overall strategy of *Intel Capital*? Although *Intel Capital* emphasizes the business unit's active involvement during the whole decision making process as a prerequisite for getting their cooperation later in the subsequent post-investment phase, it remains the investment manager who decides which deals are finally presented to the investment board. Moreover, *Intel Capital* admits to failing interesting investment possibilities in the past, since all decisions need to be approved twice by the top management of *Intel*. The following quotation confirms this:

> "Sometimes we are not able to participate in the closing, as we are not fast enough to get a decision through the corporation." (Krumm)

Portfolio and support management

Intel Capital is committed to delivering "*value beyond equity to support the long-term success of our portfolio companies".* Besides the resulting corporate certification and the facilities tied to *Intel*'s networks,[76] *Intel Capital* strives to create synergy between the portfolio companies that arise due to their international distribution.[77] In detail, *Intel Capital*'s "Alliance Program" extends to:[78]

> • **Technological assistance:** Companies may work with *Intel* labs on cutting-edge technology issues, driving the development of industry standard solutions.
> • **Insight into future trends:** *Intel* may share plans for the *Intel* architecture roadmap and perspectives on projected industry developments.
> • **Strategic relationships with other sources of financing:** *Intel Capital* works in a complementary relationship with the VC industry and other corporate investors.

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[76] See statement by Padd Holohan, CEO of *BaltimoreTechnologies*, Ireland: "In working with *Intel*, we have had insight to the company's plans for a common security architecture. Being on the inner circle has been an important source of strategic information."

[77] See statement by Zou Qixiong, CEO of *SuperData Technololgy Ltd*,. China: "*Intel* helped us make contact with companies like *Intuit*, which resulted in important licensing arrangements for us. The fact that we were associated with *Intel* increases those companies' confidence in *SuperData*."

[78] Alliance Program located on the portfolio company member protected websitex

- **Worldwide infrastructure:** The *Intel Capital* team around the world is positioned to respond locally to promising new investment possibilities.
- **Visibility and corporate association:** For many portfolio companies, the *Intel* investment may help to achieve higher visibility among customers and suppliers.

Putting these program benefits together shows that *Intel Capital* targets and extends areas of *Intel* competency to bring value to the *Intel Capital* portfolio. In realizing their mission they strive to establish a win-win relationship between *Intel* and the portfolio firm.

In this stage, one central element is the business agreements[79], since they represent the formalized initiator of the information exchange between *Intel corp*., *Intel Capital*, and the portfolio firm. While *Intel Capital*'s portfolio management and marketing departments carry out the initial processing of inquiries by the portfolio companies to the corresponding business unit, the business units themselves are responsible for the internal transformation of the business agreements. Nevertheless, *Intel Capital* remain responsible for an investment during its complete life cycle and keeps in contact with the investments. In this sense, they focus on the financial indicators of an investment like development of cash flow, burn-rate, etc., and compare them with the fixed targets dates. Regarding the pursuit of increasing the value of the portfolio companies, the task which arises for the investment manager is to control whether there is enough support by exchanging information and know-how between investment and business units. An elementary facility in measuring up to this bridge function is the control reports that document the results.

> "We only control whether the exchange of know-how between the business unit and the CVC unit works if we agree and are satisfied with this information exchange. In this sense, the control reports are applied as guidelines for us." (Offner)

Even more important, the link to *Intel*'s executive board is guaranteed since the control reports are controlled by corporate top management in a quarterly meeting. Besides the description of the actual stage of an investment, the control report includes the realized collaboration between a business unit and an

[79] These 'side-letters' are attached to the business agreements.

investment. This approach forces the investment managers to ask the business units for the transmission of certain "collaboration indicators" around the business agreement in question.

Since the above description showed that there are no formal requirements for a business unit to collaborate (e.g. the maintenance of board seats or co-investments), the crucial question that arises is how *Intel Capital* succeeds in achieving active hands-on support. While in the post-investment phase the actors involved primarily in the pre-investment phase are mainly concentrated to a controlling function, the business units themselves are in the focus of activity. *Intel Capital* tends to address people who rank highly in a business unit, especially the director since this person has the authority to decide about the resources (personal and capital), and is able to articulate and clarify the strategic value of an investment to the technical experts of his/her business unit. Moreover, since the transfer of the strategic value to a business unit is based on a flow of information, the investment manager has to provide sufficient informative input. In the words of an investment manager, this situation is perceived as follows:

> "The collaboration is very informal, since on the bottom line the business units also benefit from an investment. And it is their own push to get support in an investment. In order to maintain the flow of information, we really need somebody in the team who sees the strategic value of an investment. Therefore, we stay in close information exchange with the corresponding general managers." (Krumm)

Intel Capital attempts to channel the contact partners for one investment company in order to avoid a start up company getting clobbered over the head by a multitude of *Intel* employees. To achieve this, *Intel Capital* limits the number of people involved on the part of a business unit to one single employee[80], since a higher number of actors involved leads to no additional quality in the collaboration. However, *Intel Capital* also attempts to fall back to business unit resources in a very resource- and cost oriented way, as the critical bottleneck represents the limited time resources of a business unit to realize investment support. Since *Intel Capital* and the business unit represent two organizationally separate units at *Intel* operating autarkically in terms of cost-charging, the

[80] Only in exceptional cases are two or more persons involved.

necessity is aggravated. Moreover, as the business units do not participate in the financial returns of the equity investments,[81] their only incentive for supporting CVC remains their strategic benefits. Unfortunately, the strategic incentive of having access to new technologies is often very long-term oriented and shows no direct effects on the operational results of a business unit. That *Intel Capital* feels a certain powerlessness against this problematic scenario is illustrated by an investment manager:

> "Certainly, the employees at the business units also only have 8, 10 or 12 hours a day, and have their "own" operational goals. And in this situation, we as *Intel Capital* want to make demands on their time. In economically turbulent times, the business units are thinking very short-term oriented. This makes it hard for us to get their consciousness for CVC. You don't come into conflict with anybody, but you don't get support. That is a real problem." (Offner)

Against this problematic scenario, the announcement of the desired collaboration of the business units requires sure instinct and sensitiveness on the part of the investment managers. Moreover, metaphorically speaking, 'to foster and cultivate' this interface was reported as essential in order to keep collaboration unproblematical. Precisely speaking, 'fostering' the interface between the CVC unit and the business units means clarifying and articulating the strategic benefit of the current expense of and effort spent on CVC engagement on the long-term technology roadmap of a business unit. This challenge puts the investment manager on the spot, and is referred to by an investment manager as follows:

> "Obviously, this shows a compromise that has to be dealt with with great care. In order not to fail to appear really critical, you constantly have to look after the sponsor. What we primarily do is to analyze and to communicate, since it is important to convince a business unit. However, you have to do your homework first in order to act the role credibly. You have to make sure that the business units do not think: '*Intel Capital* cannot articulate the value proposition so why should I listen, what is my benefit'." (Krumm)

With the challenging issue of an investment manager in mind, the question is what attempts *Intel Capital* make to meet the personal characteristics of their investment managers. First, in order to understand a company's requirements,

[81] The same is true for the individual level of the employees.

operational experience in being an entrepreneur is beneficial for an investment manager. Second, since technical experts in very specific and focused market or product areas are required, *Intel* also hires investment managers outside of the company who are able to "separate the wheat from the chaff". Third, alumna *Intel* hires employees who previously worked in an operational unit of *Intel*, in order to have investment managers with a broad network of contacts distributed within *Intel*. This category represents the majority of the employees at *Intel Capital*. Besides the (moreorless) existent network of contacts, a former *Intel* affiliation enables the investment manager to know the processes and the culture of *Intel*.[82] Finally, since the investment manager has to communicate with persons with diverse characteristics located on different hierarchy levels, *Intel Capital* looks for investment managers who can add profound communication skills to the above-mentioned characteristics desired.[83]

> "Rather, the issue is to get the 'right' people and the products on board. We see ourselves absolutely as the driver of this integration process. And then you have to put everything forward to an investment; it's a matrix task over different organizations. That demands a lot of communication." (Offner)

Putting it all together makes it obvious that *Intel Capital* believe that the strategic notion makes it unnecessary to further incentivize the business units in the post-investment phase by any financial kick. The possibility of intra-group cost charging would even have a negative effect for *Intel Capital*, since they would drop in priority to the level of "any" client of a business unit. However, it also emerged that *Intel Capital* are not immune to potential conflicts that arise due to a business unit's sudden strategic change, triggered either by internal changes or by the external market. The following quotation confirms this:

> "We don't incentivize them on a cost-benefit level, but on the strategic objective. If we established a profit center, we would not be a service provider for *Intel* anymore, and we would become a client like everybody else."
> "And a strategy change, that happens. Even *Intel* changes strategy. This results in an obsolete investment decision and a loss in motivation for the business unit. The consequence is that the priority of a portfolio company changes as well." (Krumm)

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[82] Examples of this are: how are the people thinking? what is their responsibility in the firm?

[83] Precisely speaking, it is the senior management of *Intel*, the entrepreneurial management team of the portfolio firm, and the external financially oriented investor community.

Exit Management

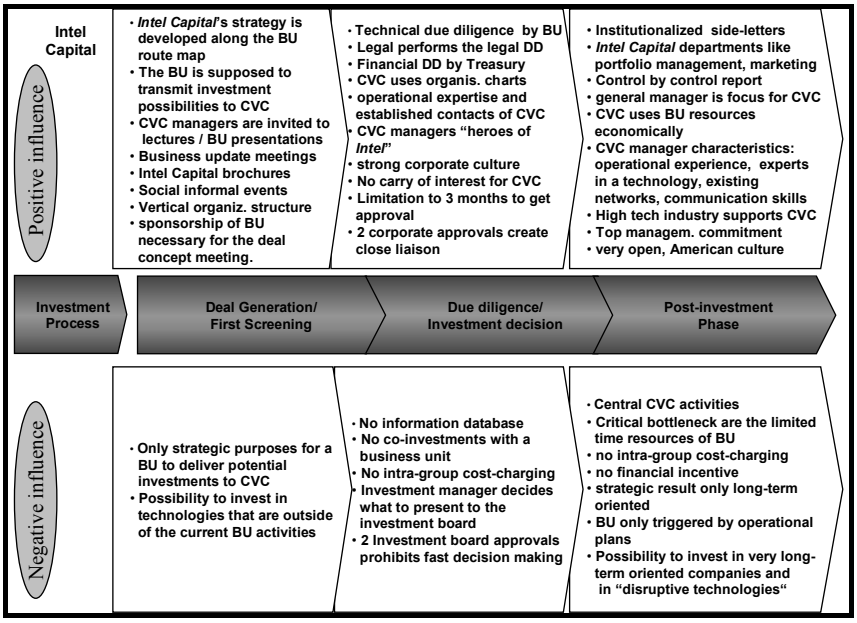
Looking for a successful exit, *Intel Capital* review market conditions for opportunities to sell all or part of their investments. Between Jan. 1 and Dec. 15, 2000, *Intel Capital* generated paper gains of $ 27 million (net profit after tax) from nine companies.[84] With respect to the corporate certification of having *Intel* as an investor, a strong influence on the IPO price was reported. With regard to a financial participation in profit and loss arising from an exit, the business units only participate indirectly in the financial returns as *Intel* shareholders. Due to the source of the invested equity, *Intel Corp*., there is no direct profit sharing. Interestingly, while the CVC unit loses its interest in an investment after exit, the involvement of a business unit sometimes even continues. This means that a business unit follows on joint-projects with an investment company which have already started and which look promising. However, an investment manager of *Intel Capital* did not report any preference for a certain type of exit:

> "I would say we are completely unemotional regarding IPO or trade sell. Selling is done as part of prudent management of a large portfolio even though strategic activities may continue with the company following a stock sale." (Offner)

Finally, Figure 2-36 summarizes the statements from this interview by characterizing them into positively and negatively perceived influence factors in three simplified stages: investment process of (1) deal generation /first screening, (2) due diligence/investment decision, (3) and post-investment phase.

[84] See Corporate Venturing Report, p. 20, October 2001

Figure 2-36: The statements from the interview at *Intel Capital*



Within-case analysis

The case-description of this phase shows that *Intel*'s '*value beyond capital'* approach implicates a necessary involvement and collaboration by the business units at *Intel*. The words of an investment manager show that even at *Intel Capital* the demand of business unit resources for longer periods (e.g. in the case of joint R&D activities or the optimization of portfolio firm products for *Intel* products) was reported to be afflicted with problems regarding the reported assignment of duties to the business units.

> "To be very honest, there are a lot of hurdles in providing *value beyond capital.*" (Al-Shamma)

In order to overcome the collaboration hurdles described, *Intel* strives for the situation that the business units see CVC as an integrated strategic tool that enables them to get access to complementary solutions and technologies. The case description shows that at the beginning of the investment process, the CVC unit requires the collaboration of a business unit in order to obtain their sponsorship regarding an investment. Since in this early phase *Intel Capital* do not feel able to immediately realize a win-win situation, the investment managers have to use persuasive power by feeding the business units with future

expectations on a potential strategic value add. In the words of an investment manager this situation is perceived as follows:

> "…unfortunately, we don't get a complete integration of the business unit in CVC activities, but more a kind of 'virtual' integration." (Offner)

Due to the awareness of necessary partnering regarding the "time to market" aspect existing in the high-tech area of *Intel*, the task of their investment managers is partly facilitated. However, the commitment of *Intel*'s senior management proved to be a crucial prerequisite. Top-management backing facilitates the awareness of the business units that they can use *Intel Capital* as a strategic tool in order to tie a partnership closer by a financial engagement.

> "…the business units have understood that with *Intel Capital* they are able to reach their own goals faster." (Krumm)

In the case description above a *strategic* issue also emerged. Since the CVC engagement is not directly taken into consideration in the performance measurement of a business unit, the investment managers run against rejection when they present a "disruptive technology" in a business unit, as these technologies challenge their persecuted strategy so far. The necessary conviction of a business unit about the potential value-added of a company for an investment manager to achieve the strategic roadmap remains uncertain. The resulting 'not invented here' syndrome originates at the senior management level in a business unit. As they follow their own R&D activities that consume huge amounts of budget, it is almost naïve to belief that they see external technologies with clear vision. Aggravating enough, emotional issues arise: the immediate termination of their own projects, the laying off of colleagues in the department, restructure of the organization of a unit, etc.

During the case description of *Intel* it came up that there are three structural dimensions that influence the collaboration between the CVC unit and the business unit in a positive way: first, due to the central structure of *Intel Capital* within the corporation, the CVC activities have the long-term commitment of the highest top management at *Intel*, Leslie L. Vadasz. In addition, communication flow to top management is very direct, since *Intel Capital* is represented in the

management of *Intel* and *Intel* is represented on the board of directors at *Intel Capital*.

Second, the absence of any carry of interest elements in the compensation structure of the CVC managers at *Intel* ensures that any competitive grudges are avoided at the business units. Finally, *Intel*'s corporate balance sheet as capital source allows a corporate wide alignment of CVC activities.

In the case of *Intel Capital* it is worth mentioning that while the term "centrally structured" CVC unit only refers to the flow of money regarding the up-and-back decision making process, the business units aim at the flow of information. The case description shows that *Intel Capital* is seen as an integrated element of *Intel Corporation*. Further, this case shows that the closer the organizational location of the CVC unit to the parent company, the easier it is to achieve strategic alignment between CVC activities and business unit.

> "The further we develop away from *Intel*, the more we are disconnected from our parent due to less incentive in the business units to help an external CVC fund. This is accompanied by the fact that the investments are abandoned by *Intel*." (Krumm)

The analysis of processes can be subdivided into two different dimensions: formal and informal processes. With 12 years of experience and an impressive deal volume, *Intel Capital* has set-up continuous and formal procedures regarding its intra-firm processes. The following short quotation makes this obvious.

> "The entire corporation of *Intel* only consists of processes. As *Intel* produces a billion chips, we know that a certain business volume requires fixed processes.
> I think we have implemented our processes very well, as we are asked over and over by other CVCs 'how is *Intel* doing CVC?'. And these processes are no different from one business unit to another." (Krumm)

In the context of informal processes, the U.S. investment managers of *Intel Capital* represent a central element in receiving knowledge about the strategic holes and needs of a business unit. Due to the location within the business units, the U.S. investment managers of *Intel Capital* are also helpful in getting the

business unit "on board" for the required support management. In the words of an investment manager, this communication interface is perceived as follows:

> "In order to exchange information when we have an investment proposal, we always contact a business unit this way. Our U.S. colleagues represent the link in the interface between the business unit and *Intel Capital*." (Krumm)

A main root for a fast and uncomplicated organization of information exchange is the corporate culture of *Intel*. The analysis of the corporate culture at *Intel* makes it obvious that much effort is made to maintain a distinctive American corporate culture that is characterized by a pronounced team spirit (e.g. distribution of *Intel* shirts, company stickers, etc.). The open corporate culture is lived in the *Intel "*constructive confrontation" philosophy.[85] Further, since all employees work in cubicles instead of having their own offices, the possibility to approach each other is facilitated. Moreover, acting on the maxim *thinking out of the box* encourages employees to be open for new ideas. Andrew S. Grove, chairman of *Intel,* asks them to be open to "inflection points" (see interviews). By this he means new, revolutionary technologies that could represent a radical shift in the former technological strategy. Finally, *Intel* sponsors an internal job rotation of highly qualified employees within the corporation. The quotation of an investment manager summarizes *Intel*'s culture quite well:

> "It is embedded in our culture to be open for ideas and to be prepared to take high risks in the decision making process. *Intel* is highly motivated to support 'good' employees. On average, we rotate every 2 to 3 years." (Krumm)

Putting all this together, shows that a strong joint corporate culture makes it unnecessary for *Intel Capital* to strive for a higher contractual institutionalization of the collaboration with the business units (e.g. in the form of collaboration agreements). One essential difference lies in the business model of *Intel Corp*. Since *Intel* does not deliver products for consumers, *Intel Capital* takes a complementary position to the overall strategy. The commercialization of the e-business solution leadership[86] of *Intel* implies the beneficial reduction of a

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[85] An interviewee explained as follows: "You are allowed to talk and discuss at any time, to everybody, independent of the level in the command chain."

[86] See www.intel.com

business unit's fear that the investment managers could deliver a technology that erases their operational core business. In fact, by helping the business units to find complementary technologies for a final business solution, the collaboration is based on more pleasant ground. In the words of an investment manager the situation is perceived as follows:

> "The complementary strategy of *Intel Capital* could be explained as follows: if you go to *DaimlerChrysler* you are interested in the end product 'car', you don't want to buy a motor. The same is true for us: our clients are not interested in a processor, they want to know the solution benefits. We as *Intel Capital* are interested in leveraging a technology in order to maximize these 'benefits'. (Krumm)

Again, it is important to note that not all of *Intel*'s investments can be characterized as complementary investments. This is shown by the description of possible investments in very long-term oriented technologies or even "disruptive technologies". *Intel* has to balance the benefits of promoting a competitive technology that uses *Intel*'s core products against the threat that the invested companies pose to other technologies than *Intel*'s. Managing these investments requires balancing financial discipline with strategic potential for the rest of the corporation. With respect to the illustrated culture of *Intel*, this investment style could be interpreted as a way to act on the maxim "*openness to inflection points*". However, how *Intel Capital* gets the internal support for this species of deals remains under discussion, since an investment decision requires the sponsorship of a business unit.

Despite the fact that the presented CVCs operate differently along the investment process, the following section centers on analyzing both the discrepancies and the similarities concerning the collaboration with the business units along investment process. The preceded analysis of the applied investment processes by the CVC's show that *deal generation, deal structuring, exit management* are only of inferior relevance regarding the collaboration of the actors in these phases. In order to facilitate the structure of this section, the investment process will be merged to three parts: (1) *deal generation/first screening*, (2) *due diligence/investment-decision*, and (3) *post-investment phase*. The section includes analyses of the CVC program's applied structure, the related processes, the actors involved and the surrounding corporate culture. Furthermore, the following section extends the three cross-case/within-country analyses of CVC programs to an international level.

2.5 Building a set of tentative hypotheses: Cross-case and cross-countrys analyses for enhanced external validity

After having analyzed each respective case on its own using case description and within-case analysis, this final section of the case study chapter turns to the comparative analyses of the six case study firms. Initially, the three German CVC programs are compared with each other to determine within-country similarities and discrepancies concerning steps of the investment process. An analogous procedure is subsequently applied to the three American CVCs. Then the section turns to comparing the within-country results across the two countries. Again, the analytical focus will be on the detection of similarities or differences concerning structure, related processes, involved actors and corporate culture of the CVC program along the investment process. Finally, this section, and, actually, the entire case study chapter, culminates in the shaping of a set of tentative hypotheses. It is these tentative hypotheses that constitute the basis for an extensive unfolding of literature in the next chapter, leading to an extension of intra-organizational collaboration theory - the ultimate aim of this study. But for now, the section reverts to the case study firms.

Cross case analysis is driven by the reality that people are notoriously poor processors of information (Eisenhardt, 1989). Therefore, investigators often come to premature and even false conclusions as a result of these information-

processing biases. In order to avoid that, the cross-case section tries to look at the data in divergent ways. The idea behind cross case searching tactics is to force investigators to go beyond initial impressions, especially through the use of structured and diverse lenses on the data. These tactics improve the likelihood of accurate and reliable theory, that is, a theory with a close fit with the data (Eisenhardt, 1989). Also, cross case searching tactics enhance the probability that the investigators will capture the novel findings that may exist in the data.

I will start with the analysis of commonalities and distinctions regarding the *general characteristics*. Probably the most obvious distinction can be seen in the *industry areas*. Besides that the three companies operate in quite different industries, the companies also show sharp differences in the number of related operational departments.[1] At the same time this leads to different scales regarding possible *investment areas.* While *T-Venture* and DVC are mainly limited to investments related to their relative narrow core industries, *SVC* enjoys a greater variety regarding the possible investment focus.[2] Looking at the *existence* of the German cases makes clear that all three companies belong to the established CVC's in Germany (*SVC*: 1999; *DCV*: 1997; *T-Venture*: 1997). Despite the similar 'official' foundation years, *Siemens* shows the longest experience in CVC activities since they already in 1984 started with *Techno Venture Management*. However, during this time, the German cases accumulated different *numbers of investments*. In this sense, *SVC* with its 70 investments doubtlessly is the most active CVC, followed by *T-Venture*'s 55 investments and *DCV* with 21 investments. Further common characteristics can be seen looking at *CVC locations*. The pure differences in number of locations[3] it is more interesting that each CVC has its head quarter in the same city as the parent company. Moreover,

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[1] *DaimlerChrysler*: Automotive; *Deutsche Telekom*: TIMES markets; *Siemens*: Energy, Transport, Industry, Information & Communication, Medical, Lighting.

[2] As the case description shows, there are exceptions possible regarding deals that are out of the technological range of the parent company.

[3] Precisely speaking, *T-Venture*: Germany 4, USA 2; *SVC*: Germany 1, USA 2, Israel 1; *DCV*: Germany 1, USA 1. Also, worth to mention is that *DCV* is not represented at the American headquarter of Daimler Chrysler, Auburn Hills.

all three CVC are represented in the heart of the start-up scenery: Silicon Valley. This ranking sequence continues with regard to the number of employees.[4]

All German companies pursue after a mix of financial and strategic *objectives*. However, while *SVC* primarily focuses on the objective *enhancement of innovation*[5], *DCV* mainly aims at *leveraging strategic assets*[6]. Interestingly in case of doubt, both CVC's prefer to have financially attractive investments. In contrast to that, for *Deutsche Telekom* the maximization of financial returns officially is the main element for any CVC activities.

Pursuing these different CVC purposes, the German companies structured their CVC unit different. While the investment activities at *DaimlerChrysler* can be characterized as "centralized with integration in business units", *T-Venture* can be subsumed more appropriately as "centralized CVC activities with less/no business unit involvement". However, both CVC units have the exclusive sovereignty within the parent company to accomplish venture investments and do not struggle with uncoordinated parallel investments by a business unit. In contrast to that, *Siemens* maintain manifold CVC activities that distributed within the corporation.[7] I define this CVC engagement as "decentralized with central coordination."[8] Despite of these sharp structural differences, in all three cases the CVC activities are performed (*T-Venture*, *DCV*) or at least coordinated (*SVC*) by a legally separate subsidiary of the parent company in the form of a limited liability company (GmbH).

The corresponding superior corporate department of the CVC unit provides an interesting indication of the character of CVC activities. *DCV* is assigned to the *M&A department* of Daimler Chrysler that in return falls under *Corporate*

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[4] In this sense, T-Venture accounts 55 employees, *SVC* 25 and *DCV* 13 employees.

[5] In this category falls utilization of external ideas, and window on technology.

[6] The *utilization of technology, capacities, channels, customers* and the *long-term enhancement of core capabilities* can be mentioned as examples. However, totally irrelevant for *DCV* is to Secure or enhance future demand for their core products.

[7] Deciding that its corporate divisions should focus on their core businesses, on October 1, 2001, *Siemens* was moving to roll out all of its venture capital programs and pool it as *Siemens Venture Capital* in order to be able to act with "one voice" in the market and guarantee consistent investment selection standards.

[8] The most prominent activities are the one of *Mustang Ventures* and *Siemens Business Services*.

Development. Since *Deutsche Telekom* aspires to financial objectives and *Siemens* to strategic aims, it is even more interesting that *T-Venture* is organisationally attached to *Production and Technology* and *SVC* is integrated in *Corporate Finance.* Independent of this inconsistency invest all CVC units corporate money.

Speaking about structural aspects combines the internal aspect how the CVC unit itself is organisationally structured. While *SVC* shows the most sophisticated approach with its *matrix organisation* in three *business areas* and four *cross-sectional functions*, *DCV* and *T-Venture* show no internally fragmented sub-divisions. In addition, while *T-Venture* pursues a partition of the investment team in *investment directors* responsible for a number of *investment managers*, *SVC* and *DCV* has no further segmentation in this sense. However, none of all seem to be completely satisfied with its current structure, since all of them already started reorganisation efforts. While *DCV* plans to implement internal *competence centers, SVC* merges its corporate-wide venture activities into one central unit. And also *T-Venture* tries to align its venture activities closer to the pillars of *Deutsche Telekom* by contacting defined hubs within the pillar as first contact partner, who delegates the further processes within the pillar.

The following paragraphs turn to the influence factors of the investment process. This procedure, starting with the deal *generation/first screening,* is congruent with the above structure regarding the American Cases. Here too, the most obvious difference appears in the institutionalized approval gates along the investment process. In this sense, while *Siemens* follows a two-stage process, neither *T-Venture* nor *DaimlerChrysler* need two approvals for an investment decision. Since they call together their investment-/steering committee only once, both companies show a single-stage process.

The first important similarity is the illustrated attitude regarding internal deals. Due to higher business unit incentives and partly existing contacts, the German CVCs prefer internal deal possibilities alongside the *deal generation.* Another important similarity regarding *deal generation/first screening* is the fact that there is no active involvement of a business unit regarding the German CVCs, since only the investment manager or the whole CVC unit (e.g. at *SVC*) reaches a decision. However, the deeper purpose of this sorting out-approach in all cases is

the unanimous consciousness to save business unit resources regarding deals that fall out of interest either for financial or strategic reasons. But, in doing the *first screening*, the development stages of prospective incoming deals are considered regarding its implications on the incentive of a business to collaborate, as well as on support possibilities. In doing so, all three companies focus on seed/early stage companies, since there is the prevailing opinion that the willingness of a business unit originates in more influence possibilities in forming a start-up company after the interests of a business unit.

Although all German CVCs attempt to consider the aspect "closeness to a business" when attaching incoming deals to an operational department, nonetheless, there are sharp differences regarding investment managers' efforts to get an idea about relevant - and interesting deals for a business unit. Doubtlessly, *T-Venture* and *SVC* are the more active examples in this sense. While *T-Venture* and *SVC* participate at *New Business Development* meetings where *strategic search fields* are defined, rely the investment managers at *DCV* only on their personal experience with past deals when categorizing incoming deals in "potential rejection" or "similarly accepted" by a business unit.

Another difference appears regarding the mechanisms in order to locate the relevant persons in a business unit. Besides the existing contacts of the investment professionals, the *venture units* at *Siemens* and the defined *hubs* at *T-Venture* represent central elements. Since at *DCV* there are no contact partners defined, the investment managers have to limit themselves to organisational auxiliary (e.g. organigram) and the personal business unit contacts. However, the reorganisation of *DaimlerChrysler* in *competence centers* and the set-up of a database pretend to define contact partners in a business unit for *DCV*.

Turning to the analysis regarding the *due diligence/investment decision,* the case descriptions of the German cases show that the involvement of the business units get a more active character when doing the due diligence. There is consensus that employees on a very operational level most appropriate regarding the required technological feedback. However, while the positive feedback by a business is welcome at all German cases, the positive due diligence-feedback is mandatory only for *DCV* and *T-Venture*. Since *SVC* is well aware that this hides the danger to invest in competitive companies of a business unit, they never have invested in

the case of a negative feedback so far. Finally, only *DCV* asks for a second, external evaluation in order to maintain certain objectivity regarding internal generated deals due its perspicuous enthusiasm.

However, apart from the character of the *due diligence* evaluation by the business unit, in the case of *SVC* and *DCV* investments are made only in complementary or niche markets. No investments are done in substitutive/competitive deals regarding current business unit activities since competitive deals do not allow any nurturing- and technical support possibilities. In exceptional cases, the business units of *Deutsche Telekom* are supposed to flexibly refocus their current strategy due the investments of *T-Venture* that represent a real threat of business unit technology.

Another important difference appears regarding the involvement of the business unit in the investment decision. Apart from the differences in the mere number of involved persons in the *investment/steering committee*[9], the *composition of the committee* shows that only at *T-Venture* a direct business unit involvement is guaranteed. Neither at *SVC* nor at *DCV* there is any direct vote possibility for the operational units.[10] Nonetheless, try both companies to have at least an indirect cross sectional link by representatives of corporate departments like e.g. *corporate technology* or *corporate R&D.* It has to be mentioned, that *DCV* was the only company with a flexible composition of the actual steering committee, depending on booming industry topics.[11]

Before concluding this analysis of *due diligence/investment decision*, an interesting similarity represents the link to the *post-investment phase*. In none of the German cases, a finalized *commercial- or collaboration agreement,* specifying the support for a start-up, is mandatory for an investment decision. However, the advantageous flexibility and speed have to be balanced against the

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[9] In the case of T-Venture (three members) and *SVC* (two members in the case of the steering committee) the number of involved persons is relatively small compared to the steering committee of *DCV* with seven representatives.

[10] This statement remains true both regarding the Siemens Venture board and the Corporate Steering Committee.

[11] E-business and Information Technology are examples of the mid 90's, mentioned in the interviews.

uncertainty regarding a business unit support. With respect to the investment decision-making, there is to say that *SVC* is the only company that enjoys the corporate guarantee of having feedback within two days by the *corporate steering committee.*

The above detailed case description made it obvious that different methods are applied in order to facilitate the co-operation between the CVC unit and the business unit alongside the *post-investment phase*. In this sense, while all companies agree that the quality of personal networks and the personal chemistry of the involved persons are decisive for the effectiveness of the collaboration, there are clearly marked differences in the made endeavours. Looking at the institutionalised communication platforms, *SVC* (*Siemens Venture Days)* as well as *T-Venture (T-open)* actively stimulate a cross-sectional exchange between the CVC unit and the business unit. In contrast to that, *DCV* shows no comparable institutionalised activities. Although existing contacts of the investment manager and his knowledge of the corporation have been mentioned as critical, there are astonishing differences regarding the origin of the investment manager. The team of *DCV* mainly consists of affiliates of the corporate training program (*International career partnership program*). *SVC* also hires 2/3 internally out of *Siemens*. The opposite is true for *T-Venture*: 60% of the investment manager formerly maintained external positions out of *Deutsche Telekom*.

The case descriptions of the relevant actors and contact partners along the support-management reveal that in the case of *DCV* and *T-Venture* the investment manager remains the realizing and deciding person, while the business unit only act on an informative- and consulting level. As soon as the collaboration agreement is finalized at *SVC*, the investment managers maintain control functions regarding the active business unit involvement. These approaches have consequences on the number of overseen investments per investment manager. While *SVC* ranges on the upper extremity with five deals per manager, *DCV* represents the lower extremity with only three investments per manager. Somewhere in the middle is *T-Venture* with four investments per investment manager.

Another interesting difference appears regarding the approach of contacting a business unit along the post-investment phase. One the one hand-side, *T-Venture*

as well as *SVC* coordinate their post-investment activities by preferring senior management contact in a business for guaranteeing their following support. Quite in contrast, *DCV* prefers a "bottom-up process", since it is expected to be more efficient and faster compared to the "top-down process".

The collaboration between the business unit and the CVC unit is further related with the *incentive systems* of the business units to engage in CVC. This is even more interesting since all CVCs invest provided corporate money which is not of ultimately interest of a business unit.[12] Astonishingly, the German CVC's do consistently not provide any direct financial incentives for a business unit. Therefore, only strategic aspects like *window on technology or a win-win situation* remain from an incentive point of view. Moreover, no company considers the engagement of a business unit with respect to CVC activities, since performance evaluation of a business unit is only based on operational results.

The analysis of incentive system is closely related with the possibility of co-investments with an operational department. This approach is followed in the case of *T-Venture* and *SVC*, whereby the *Siemens* case shows very limited interest of the business unit due to different time-horizons between typical business unit- and CVC activities. However, it has to be mentioned that in the course of the reorganisation efforts at *SVC* and *T-Venture* try to implement a financial incentive for the business unit also.[13] *DCV* refrains completely from similar possibilities. The same cluster appears regarding the occupation of board seats by a business unit. While *DCV* completely neglects this approach, *SVC* (in case of co-investments with business units) and *T-Venture* are positive against this possibility. However, all companies refrain from intra-group cost charging.[14]

Moreover, the illustrated corporate culture surrounding the German CVC programs shows incisive differences. Besides the fact that all CVCs struggle with

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[12] In the case of T-Venture there are slight differences since they invest money of different funds. However, the source of capital remains corporate finance.

[13] Since 10/2001, *SVC* centrally manages the CVC activities of business unit money. T-Venture tries to emphasize its fund-in-fund investment and maintains an affiliate fund model.

[14] It has to be mentioned that *SVC* does it exceptionally in the case of legal- and tax-departments, and T-Venture regarding long-term projects the *technical expert circles* of *Telekom*.

a *not invented here-syndrome*, *DCV* seems to be negatively affected by the corporate culture of a "very traditionally managed engineering company" (see interview). This situation is aggravated by the differences between product life cycles of cars (~7 years) and CVC investments (~2years). Similar findings came up in the case description of *Siemens*. In contrast, *T-Venture* benefits from the dynamic and innovative TIMES market, which moderates the not invented here-syndrome on the side of the business units. Therefore, it may come as a surprise that *T-Venture* is the only company, where CEOs of the parent company control *synergy reports,* formalizing the strategic "win-win" situation between the business unit and the investments.

Finally, in order to conclude the cross-case analysis of the German CVCs, sharp differences in the number of exits have to be mentioned, with *T-Venture* on the upper extremity (eight exits until 2001) and *Siemens* and *DCV* (one resp. no exit until 2001) on the bottom. While all companies do IPO's, *DCV* and *T-Venture* highlight trade sales, since it represents an interesting possibility for their operational units to become invested in start-up companies.

The following paragraphs turn to an analogous discussion of the collaboration between the CVC unit and the business unit regarding the American CVCs. Firstly, I will explain the most obvious differences. The illustrated cases show strong distinctions regarding their time of existence. While *Intel* (founded in 1990) and *GE Equity* (founded in 1995) represent established CVC's, *Motorola* as a central CVC unit (founded in 1999) is the younger actor.[15] This fact results in the number of investments each CVC has done: while *GE Equity* and *Intel Capital* (375 resp. 350 investments) represent the more active investors, *Motorola* has to limit itself to 31 companies. A similar sequence follows regarding the number of established offices. *Intel Capital* with 22 offices and *GE Equity* with 10 representations are represented worldwide, while the 3 offices of *Motorola Ventures* seem to be unobtrusive. The same can be maintained regarding the employed investment professionals: both *Intel* and GE have app. 150 employees, the corresponding number of *Motorola* is noticeably smaller. It may not surprise that these differences have effects on the awareness of CVC

[15] However, it has to be mentioned that *Motorola* does minority investments since 1992.

activities within the group. The longer e.g. *Intel Capital* is in operation, the easier it is to justify CVC activities within the corporation and to get the necessary enthusiasm within the business units.

An important difference that influences any CVC activities within a corporation is the objective that each corporation tries to realize with CVC investments. While all companies follow a mix of financial and strategic objectives, there are astonishing differences in attaching value to the single sub-objectives. In this sense, *GE Equity* first of all looks for solid financial investments, and supplements this by strategic objectives, but only if its possible. Despite of knowing to loose perhaps a collaborative attitude by the business units, *Motorola Ventures* operates similarly since they prefer primarily financial investments in dubious cases. On the other side, *Intel* prefers strategic investments, since *"the focus on strategic benefits leads to smart investment decisions"* (L. Vadasz). Interestingly*, Intel Capital* was the only company of the three US cases, where the CVC strategy is developed in collaboration with the business units along their *strategic route-map*.

Consequently, the discrepancies in the motives can also be found in the applied structure of the CVC program within the corporation. Although all three American CVCs pursue their CVC engagement in a centrally embedded unit within the corporation, discrepancies appear concerning the legal affiliation in the parent company. While in the case of *Intel Capital* it is a 100% department of the corporation, and not a legally independent company, *Motorola* goes a slightly different way with its CVC unit which falls under *Corporate Headquarter*. In contrast to that, *GE Equity* is a 100 % legal subsidiary of GE Capital, that in turn is a subsidiary of GE Corp.

Speaking about structural aspects of a CVC unit also includes the dimension of the internal structure of the CVC unit. While *GE Equity* and *Motorola Ventures* follow a two-dimensional matrix organization, *Intel* goes a slightly different way. While in Europe they follow the 'horizontal' organization structure in geographic areas, in the U.S. they rely on a 'vertical' organization structure along technology areas. Moreover, *Intel Capital* in the USA is the only case where one investment manager is located and working directly within each business unit.

It may come as no surprise that the discrepancies in the followed structure leads to differences in the support of the business units during the investment process. Therefore, the differences and similarities between the three US-cases will be analyzed in the following paragraphs. Apart from the existing "approval gates", this analysis will also give a clarification of the influence factors on each of the investment stages.

In general, the most obvious difference in the three American is the analyzed structure of the investment process. While *Intel Capital*'s and *GE Equity*'s approach can be characterized as a two-stage investment process, *Motorola Ventures* investment process is based on a one-stage approach, since they only need one official approval from the approval board in order to proceed along their process.[16] However, the analysis of the "approval gates" reveals strong distinctions in the level of the business units-involvement. While *Motorola* and *Intel Capital* need a *support* or a *sponsor* in a business unit regarding potential deals, *GE Equity* represents the lowest level with no direct, mandatory involvement of the GE businesses to reach an investment decision. On the other side, *Intel Capital* requires a *sponsorship* of a business unit for the first *concept deal meeting* of the *investment board*, and later on, a positive technical evaluation for the final meeting of the *investment board.* Since *Motorola Ventures* only exceptionally refers to a business unit in doing the *due diligence*, they are located in the middle of this spectrum. Although a formal business unit support regarding an investment is not mandatory before presenting a potential deal to the *approval board*, they won't invest if they do not have an interested business unit.

Nevertheless, all companies show similar patterns regarding the *post-investment* involvement of a business unit. In all three cases, the corresponding businesses of the corporation move from a mainly *informative/consulting* support along the pre-investment phase to a more *realizing/deciding* quality of involvement in the post-investment phase. Most obviously, *Motorola Ventures* and *Intel Capital* 'go one step back' (see interview) as soon as the collaboration between the start-up and the business unit is initialized.

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[16] In this thesis, a two-stage investment process is defined by two independent approvals of a convoked investment/steering committee (independent of the composition).

If we turn to the analysis of the influence factors on *deal generation/first screening,* one sharp difference can be determined. Regarding the source of deal flow, it emerged along the case description that only for *Intel Capital* as well as for *Motorola Ventures* the corporate business units represent the preferred mode of deal flow. The investments that come directly from or with the help of a business unit seem to promise a better collaboration in the following investment process. However, there are sharp differences regarding the influence factors on this investment phase. While *Motorola Ventures* emphasize their central structure within *Motorola* as a facilitator to have a corporate-wide overview regarding investment possibilities, *Intel Capital* rather applies to procedural mechanisms like participation at the business units' *updates meetings.* In contrast to that, *GE Equity* primarily relies on contacts to investment banks and dedicated VCs. Moreover, *GE Equity* was the only company that applies monetary incentives on an individual level in order to increase the internal *deal-flow*.

In following their investment objectives distinctive discrepancies in the targeted *investment models* are obvious. An important difference influencing the interest as well as the support-possibilities by a business unit is the *investment stage*. While both, *Motorola Ventures* and *Intel Capital,* are focused on early stage investments, *GE Equity* primarily strives for late stage investments and buy-outs. On the one hand side, *Motorola* as well as *Intel* evaluate their collaboration- and influence possibilities higher in still very young companies.[17] In contrast to that, *GE Equity* prefers late stage investments, representing more interesting cooperation partners for their business units.

There are further marked similarities regarding the targeted *investment areas*. The targeted investment areas in all three U.S. cases represent industries that are "close" to the core businesses of the corporation.[18] However, the crucial question is: are the investment areas complementary or competitive in presence of the core businesses of the parent company? In the sense that *Intel* pursues in delivering business solutions, they invest mostly in complementary technologies that are

[17] In the meanwhile, represents a given stock amount in a young company a higher percentage of the whole company value.

[18] While *Intel Capital* invests in microprocessors/internet-, *GE Equity* is especially active in financial and e-commerce innovations. *Motorola* is interested in the wireless market.

expected to enhance their business applications for PCs. The same is true for *GE Equity*, since they only invest in business areas that are not competitive to GE businesses. Since *Motorola*'s investments need to align to the business unit, thus complementary investments are also their preference.

The analysis of the formal incentive structures shows another distinction. While *Intel Capital* and *Motorola Ventures* do not apply any *intra group cost charging*, *GE Equity* is charged a corporate rate by the involved businesses for accomplishing CVC activities.

The above illustration of applied mechanisms for localizing and detecting the corresponding technical experts shows that in general it is an astonishingly unstructured process that can be characterized best by "asking through one's way". However, differences regarding the applied technical infrastructure emerge. While *GE Equity* attaches high importance to their existing information database, *Intel Capital* rather refers to corporate organization-charts, the home page of a business unit, or, last but not least especially in Europe, the U.S. investment managers of *Intel Capital*. In contrast to that, *Motorola Ventures* 'only' relies on the contacts of their colleagues along specific technology areas. However, emphasis on upper echelons in the hierarchy level when contacting business unit is best-practice in all U.S. cases (e.g. *general manager* of a business unit (*Intel Capital*), *global expert leaders* (*GE Equity*).

In the final paragraphs of the across-case analysis of the American CVC, similarities and differences regarding the *post-investment* phase will be analyzed. Significant discrepancies appear regarding the effects of the central structure of a CVC program. On the one hand, *Motorola Ventures* and *GE Equity* emphasize the preponderating advantages of corporate-wide support possibilities, the independence of any business unit changes, and finally the conformity regarding corporate investment style. On the other hand side, *Intel Capital* primarily reported insufficient support or *not invented here syndrome* supported by a central CVC unit. However, *Intel*'s top-management commitment for CVC seems to moderate the negative effects regarding the business unit collaboration.

The above illustrations show the consistent opinion that the *personal characteristics* of CVC managers are critical such as broad personal contacts within and outside of the corporation. Astonishingly, there are significant

differences in the modes that are used in order to get the best appropriate investment professionals regarding a feasible and qualitative intra-firm collaboration. While *Motorola* mainly hires CVC managers outside *Motorola Inc*., *Intel* attaches importance to former business unit affiliates with operational experience in *Intel's* technology and broad networks of existent contacts at *Intel*. Since *GE Equity* strongly beliefs that a financial background is necessary for successful CVC activities, the main part of their managers is hired out of GE's *M&A department* comprising sophisticated financial skills and existing contacts. Further, none of the American CVC's had developed *compensation models* for coming up systematically with the personal incentives of their CVC managers. All of the companies "only" provide a corporate usual base salary, without the payment of *carried interest* common in private equity.[19]

A central aspect along the *post-investment* phase is the existing *incentive structure* for a business regarding CVC engagement. Interestingly, on the one hand, both *Motorola Ventures* as well as *Intel Capital* turn down the possibility of co-investments with one of the involved business units. There is unanimity that "thinking in shares" and doing operational businesses are two scenarios that do not fit together. On the other hand side, *GE Equity* even favors the "trick" to co-invest with a business unit as the most efficient mode to get an efficient collaboration of the business units.[20]

Therefore, what are the remaining possibilities that are used in the American cases to incentivize the operational business units? *Motorola Ventures* invests in companies that allow an increase in sale revenues by implementing the acquired technology in the *Motorola* product. Completing the "strategic holes" in the value chain represent the incentive to collaborate for the business units of *Intel*. Investments in complementary products stimulate the eco-system of the business units.[21] In contrast to that, *GE Equity* merely points out the potential *window on technology* of its strategic oriented investments. Unisonous, all CVC units

[19] Only *Motorola* provides a 1 % bonus supplement to the base salary.

[20] However, it remains a corporate-internal co-investment (a kind of "visual internal transfer posting"), so that *GE Equity* externally remains the sole investor.

[21] Ecosystem means the suppliers, customers, and developers. Complementarity means, having a product makes a person want another.

evaluate the existent incentives as insufficient for an effective business unit engagement. Since the only trigger of the business units remains their operational results, it is even more astonishing that in no company the CVC engagement of a business unit is considered in their *balance-score card*. A final matter of interest along the *post-investment phase* is the difference regarding the possibility of having *board seats* in the portfolio company. While *Intel Capital* neglects board seats in a portfolio company, *Motorola* as well as *GE Equity* have executives sitting in the boards of the investment companies, pursuing for better control and stimulation of the business unit's collaboration.

Analyzing the persons addressed by the CVC managers to transmit the inquiry of a start-up to a business unit shows that in the *post-investment phase* all CVC firms focus on persons who rank higher in the business units' command chain. All CVCs agree that a higher ranked contact partner more efficiently coordinates and controls the collaboration of a business unit during the post investment-phase. However, while the investment managers at *Motorola Ventures* attempt to keep personal contacts to the senior management of a business unit, *Intel Capital* and *GE Equity* institutionalized special teams in order to help the CVC manager pass support-requests of an investment through the corporation.[22]

Another important difference exists regarding the institutionalized documents the CVC unit refers to along the provision of "value-added services" for a start-up company. In this sense, while *GE Equity* only stresses the necessity to fix the exit details (concerning the kind and the time of the pursued *exit*), *Motorola* and *Intel Capital* refer to *commercial agreements and side letters* that include all incurred support liabilities. However, even between *Motorola* and *Intel* a significant difference exists. While a finished *commercial agreement* at *Motorola* is not formally mandatory for the actual investment closing, at *Intel Capital* the *side letters* go together with the investment agreement. Interestingly, *Intel Capital* is the only company that also controls the collaboration results in their *control reports.*

[22] The '*portfolio management team'* in the case of *Intel*, or the '*value-add service team'* in the case of *GE Equity*.

Moreover, there are significant differences regarding the *corporate cultures*. While *Motorola* and *Intel* can be characterized as companies that are open for any novelties, GE presents it as a very safe-oriented company. The consequence is quite obvious: For *Motorola* and *Intel* it is easier to find business units' engagement for "risky" CVC activities than it is in the case of GE. However, all American CVCs see a long, positive track record as favorable for a supportive corporate culture. The longer they are in operation, the better they succeed in finding the business units' collaboration.

If you look at the applied mechanisms in order to avoid upcoming problems in the support management, different approaches emerged. Both *Motorola Ventures* as well as *GE Equity* only select companies that "stand on their own feet" in order to position themselves more independently from any renege regarding a support facility of a business unit. Since the characteristic of "economically independent" companies is hard to realize due to the preferred early stage investments of *Intel Capital*, they attempt to use the business units as economically as possible. Approaching the critical bottleneck of limited business unit resources requires a deliberate approach and sensitiveness by their investment manager, overall regarding investments that are outside of the current business unit interest (competitive or 'disruptive' technologies).

Last but in no case least, interesting differences appear regarding the pursued favored exit-channel. While *Motorola Ventures* takes the most independent position regarding any *exit* preferences ("*Any exit can be good or bad; it all depends on the current market"*), *GE Equity* and *Intel Capital* are more focused regarding this aspect. While *GE Equity* prefers *trade sales* or *buy-out*, *Intel Capital* aims to generate liquid funds, either by an *IPO* or a *trade sale on cash*.

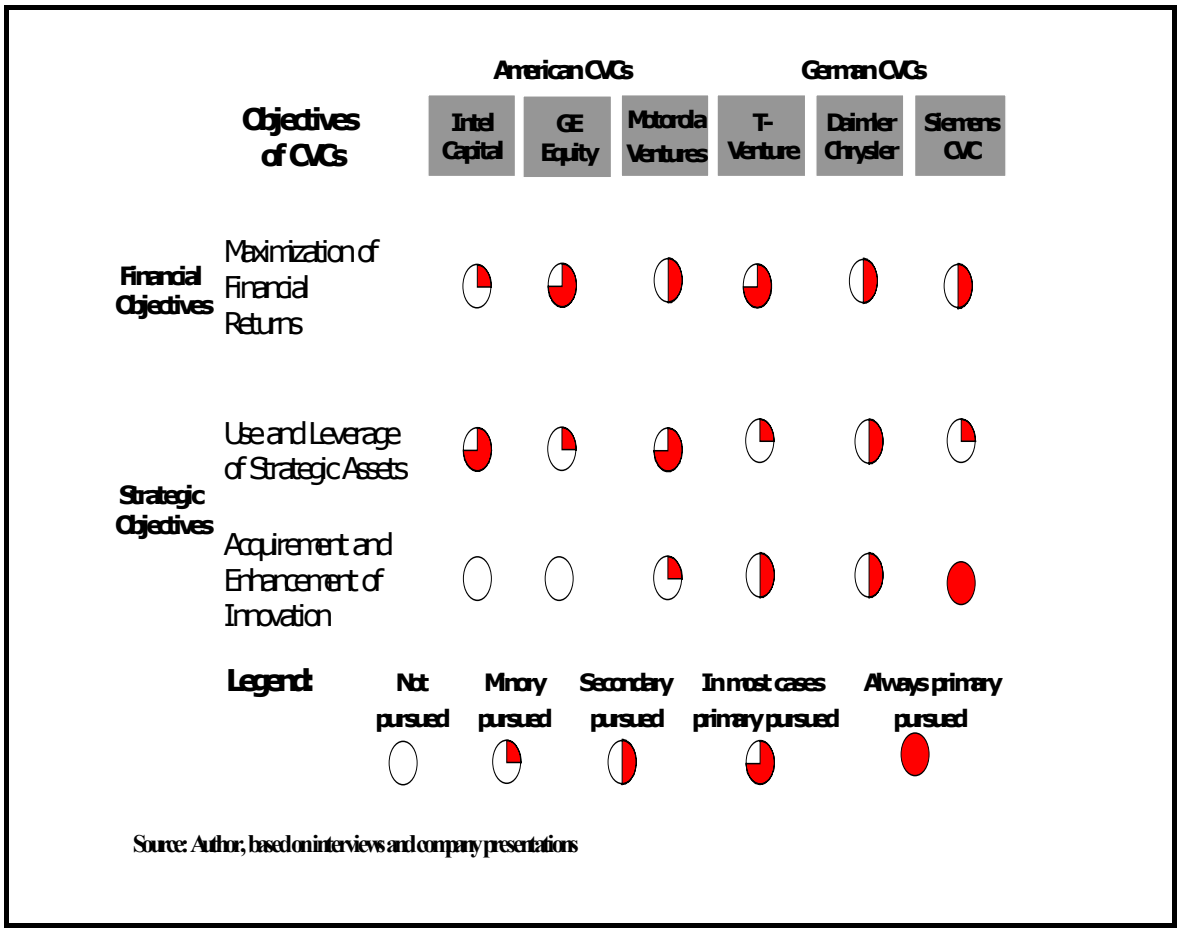
As the cases have now been compared to the country contexts, the remainder of the analysis concentrates on a cross-country comparison. This analytical step is important because one purpose of this study is to find out whether the specific collaboration mechanisms lead to international patterns. Therefore, it is essential to examine whether the similarities regarding the collaboration patterns that have been determined in the cross-case within-country analysis also apply for a cross-country comparison. The rationale for such a comparison is that if similarities can be found in both country samples there is a higher level of probability –

though no certainty - that these collaboration patterns are not merely the result of one specific country environment but of general validity.

The most obvious differences between the US and the German CVCs appear regarding the *length of existence* of the companies. The cases selected for this study confirm the supposition that the US are the more mature CVC players. Looking at the corresponding foundation dates shows that while American companies already started their CVC activities in the beginning of the 90s, the German actors entered the field only at the end of the 90s. Besides the higher technical experience with this type of investments, all US CVCs highlighted the length of existence as an important mechanism that facilitates the collaboration with a business unit, since the business units get own experience which potential advantages CVC activities could have. Furthermore, it can be seen in the higher number of investments in their portfolio, as well as a higher amount of committed capital under management by their parent company.

The above analysis shows that the pursued objectives represent a critical element when structuring a CVC program. Although all CVC units refer to the cooperation of corporate departments, not all CVCs in this thesis follow a combination of strategic and financial goals. The exceptions are *GE Equity* on the American- and *T-Venture* on the German side. This stands in hard contrast to earlier research that recommends for CVC programs a combination of both financial and strategic goals (Gompers and Lerner, 1998; European Commission, 2000). However, if the both objectives are followed, the strategic objectives preponderate. But, there is a difference when speaking about strategic objectives. While *Motorola* and *Intel* emphasize the growth in sales *(leverage of strategic assets)*, *SVC* and *DCV* put more emphasis on the issues *window on technology, intra-preneurship, and utilization of external ideas to stimulate core R&D.* These objectives can be summarized under the category of objectives "*enhancement of innovation"*. However, in dubious cases regarding the strategic potential, the vast majority of companies (except *Intel Capital*) favour investments that show a fundamental financial base and that promise financial returns. Figure 2-37, which summarizes the differences/similarities regarding the objectives of the analysed cases, shows that the differences in the pursed objectives between the German and the American CVCs are not significant.

Figure 2-37: Differences and similarities regarding the objectives of the analysed cases



In line with the objectives, while all financially motivated CVCs follow their investments activities in a centralized unit with no integration of business units, (e.g. *GE Equity*, *T-Venture*), mainly strategic investors show centralized CVC activities with integrated business units (e.g. *Intel*, *Motorola*, *DaimlerChrysler*). This pattern is held up in the case of the German and American companies. However, there is the exception of *Siemens*. *Siemens* is the only company in this study that coordinates decentrally authorized CVC activities with a centrally embedded CVC unit. These analyzed patterns support the assumption that the structure of a CVC program follows its objectives.

However, while in the case of the American CVCs the centralized units represent corporate divisions that are either organized under corporate top-management headquarter (*Intel Capital* and *Motorola Ventures*) or a corporate subsidiary (*GE*

Equity), all German CVCs are legally separated in the form of a limited liability company.[23] This is associated with certain independence and autonomy regarding legal rights and management duties. Besides accounting policies[24], the legally separate form doubtlessly strengthens the impression that CVC is something outside the core activities. Moreover, while *Intel Capital*, *Motorola Ventures* and *GE Equity* are organisationally tied directly to corporate top-management, the German subsidiaries are attached to corporate divisions (*DCV*: M&A; *SVC*: Corporate Finance; *T-Venture*: Production and Technology). Although this is not related with differences in the commitment of the corporate headquarter, it may influence the collaboration of a business unit.

When speaking about structure, another important dimension is the internal structure of the CVC unit. All American CVC units follow an internal matrix structure along the two dimensions technology and geographic area. However, the cross-country analysis shows that no German CVC has implemented this segmentation in geographic and technologic areas, rather follow a hierarchy organisation of investment directors and investment managers. However, the fact that all German companies are currently in the phase of internal structural reorganisation shows that they recognized room for improvement.

The fact that the involvement and collaboration of a business unit takes place along the investment process makes it indispensable that the cross-country analysis regarding similarities and differences also extends to the investment process. From a general point of view the existing approval gates show striking differences between the two countries. While the majority of the American CVCs follow a two-stage investment process (as *GE Equity* and *Intel Capital*), where two approvals of an investment committee are necessary, *T-Venture* and *DaimlerChrysler Venture* only once have to refer to a central investment committee in order to invest in a start-up company.

In order to be in line with the above structure, in the following paragraphs I will analyse similar and different patterns in the stage of the *deal generation/first*

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[23] However, all German LLC companies are 100% owned subsidiaries of the parent company.

[24] While the American CVC units directly invest from the corporate balance sheet (concerning the cash-balance), in the case of the German subsidiary companies, the actual financial result of the GmbH is consolidated only at the end of the year.

screening of the investment process on a cross-country level. A striking similarity comes up regarding the sources of deal flow. While, all six companies show internal as well as external deals, there is the unanimous opinion in all companies that the internal deals represent a better basis for an efficient collaboration process with the business unit later in the investment process. The reasons are that contacts already exist, that a business unit knows the technology in detail, or simply due to a certain pride of a business unit, since these deals represent their "baby". Moreover concerning *deal generation*, both *GE Equity* as well as *SVC* and *T-Venture* indirectly invest in parallel funds in order to increase the deal flow and to gain deeper knowledge about VC investing.

The analysis of the phase of *deal generation/first screening* is closely related to the topic of the preferred investment stage, as there are critical repercussions between the development stage of an investment and the possibilities to support, to collaborate, and to control a portfolio company. In general, it has to be mentioned that there are striking differences between the 'publicly accessible' data of *Venture Economics* and the information I got in my interviews. The data I collected in Venture Economics are summarized in the appendix of this study. However, in the following I will refer to the information I got in my interviews.

An interesting similarity between the American and German CVCs is that, apart from *GE Equity*, meanwhile all corporations preferably follow early stage and first growth round companies, since these companies represent better control and collaboration possibilities for the CVC itself as well as for the business unit. On the one hand side, the invested amount represent a higher percentage in these relative young companies, on the other hand side, early stage companies are easier to direct (actively or passively) in the favorable sense of a business unit. In contrast to that, late stage investment show already more application and selling possibilities for a business unit.

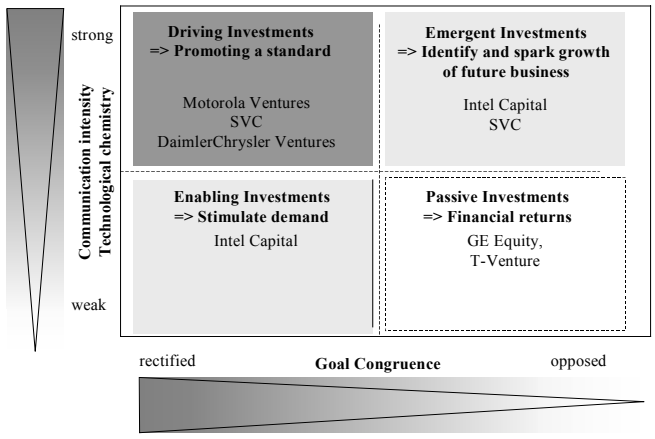
Moreover, in the context of *deal generation/first screening*, it is even more interesting to see that in all American cases the first involvement of a business unit is initiated, while all German CVC still refrain from involving a business unit. This striking difference appears since, on the one hand the American CVCs need a positive sign/note of a business unit in order to proceed in the investment process, be it - as in the case of *Intel* - by having a *sponsor* of a business unit, or

by a more informal business unit *support* as in the case of *Motorola*. This is done to ensure that only strategically relevant companies are further traced. However, being well aware of the danger of strategic miss-investments, on the opposite of that, all German CVC refrain from any involvement of a business unit, since the CVC unit first wants to verify the financial indicators as a pre-condition for any further evaluation of a company. That approach is based on a confirmedness to use business unit resources only in cases where there is a legitimate interest of a CVC unit.

Following the outlined structure, the cross-country analysis turns to the phase of *due diligence/investment decision* of the investment process. However, while all six companies show an involvement of a business unit in accomplishing the due diligence, the scattered pattern regarding the character of that involvement is maintained in the cross-country analysis. While only in the case of *SVC*, *DCV* and *Intel Capital* it is seen as mandatory that the *due diligence* is performed by the business unit, at *T-Venture*, *Motorola Ventures* and *GE Equity*, the business unit only sporadically participates in the due diligence, when a operational unit is explicitly asked by the investment managers to perform it. However, independent of whether the business unit's feedback on technical matters is mandatory to represent a deal at the corresponding investment committee, the vast majority of companies would not invest if there would be any informal negative comments on the technology of a company. The exception represents *GE Equity*.

The emerged pattern of the within country analysis, that the strategic investors focus on complementary- and niche markets, proves true in the cross-country analysis. In this sense, *SVC* and *DCV* as the German representatives, and *Intel* and *Motorola* as American CVCs mainly invest in companies that do not represent direct competitors or have substitutive technologies of a business unit. In contrast to that, both mainly financial investors, *GE Equity* and *T-Venture*, also invest in companies that could represent a threat to the current technology of a business unit. Figure 2-38 categorizes investment approaches along the affected dimensions “communication intensity” vs. “goal congruence”

Figure 2-38: Investment approaches along the affected dimensions “communication intensity” vs. “goal congruence”



Source: Author, based on Chesbrough (2002)

However, following a specific investment model represents a tightrope walk for a company. With respect to the business unit collaboration, there is a dilemma regarding investments in companies that follow a similar technology of a business unit. While these deals promise a broad common understanding and an overlap in the technical language between an investment and a business unit, similar technologies represent a the same time a high threat for a business unit. Better and more efficient technology could mean that a business unit is asked to re-focus and change their technological strategy, or even to stop the current business activities.

Regarding the ways how the CVC unit gets in contact with the business unit of interest, it emerged along the cross-country analysis that knowing the corporation and having personal networks are indispensable for an efficient intrafirm navigation of the CVC managers. Therefore, the vast majority of the CVC units hire their investment managers out of corporate sources, meaning employees who have been working before in other business areas of the parent company. The exceptions represent *Motorola Ventures* and *T-Venture*, since these companies emphasize the financial know-how of the externally hired resources. But, regarding the mechanisms used in order to find the corresponding contact partners, there are also striking differences. Apart from the meetings between the investment manager and the technological experts, interestingly enough, the "newer" German actors additionally have institutionalised communication

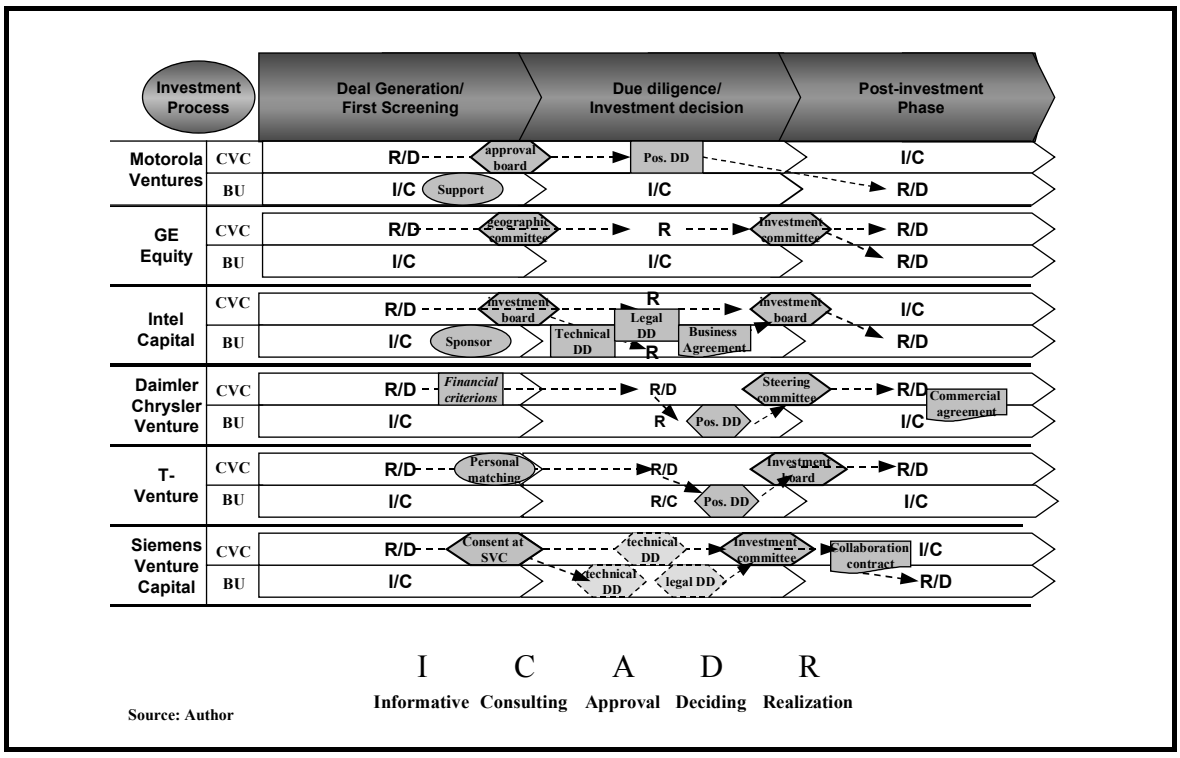
platforms within the corporation in order to stimulate and expand the communication regarding CVC activities. In the American companies there is nothing like the German varieties of e.g. *Siemens Venture Days* or the *T-Open*. Moreover, the German CVCs doubtlessly show stronger institutionalised efforts in order to streamline the finding and communication process. In this sense, it is worth mentioning the efforts of *T-Venture* (*defined hubs*), *SVC* (*venture units*), and DVC (*experts cycles*/*competence centers*).

The cross-country analysis leads to the final *investment decision*. However, striking differences reveal looking at the composition of the investment committee that represents the last approval gate in the investment process. While in the American investment committees no cross-sectional perspective is maintained due to only corporate top-management representatives in the deciding-board, the German CVCs try to involve the business units either directly in the investment committee (*T-Venture*) or at least indirectly via representatives of corporate technology departments (e.g. *DCV* and *SVC*). Interestingly, while all American strategic investors attempt to finalize a document (e.g. *side letters, commercial agreements*) that defines the later support before the final investment decision, no German CVC shows effort in this sense; they feel confident that this would hamper and delay a fast investment decision.

The above within case analysis of the German and the American investment processes made it obvious that there are also striking differences regarding the level of involvement (in the sense: informative / consulting / approval / deciding / realizing) from a cross-country perspective. On the side of the American cases, it is worth mentioning that while the business units get involved on a realizing and deciding level, the investment managers retreat themselves as main actors along the post-investment phase. In contrast to that, the German investment managers remain involved on a deciding level along the whole investment process, while the business unit remain on an informative- and consulting level. This circumstance is directly reflected by the number of investments that one investment manager has to care about. In the American cases, these numbers are higher than in the German cases (e.g. GE with five and *Motorola* with even seven investments per manager; in contrast to *DCV* with three, and *T-Venture* with four investments). These differences in the trend of maintained involvement

level (realizing /deciding) regarding the CVC unit and the business unit are summarized in figure 2-39.

Figure 2-39: Differences in the trend of maintained involvement level regarding the CVC unit and the business unit



Another interesting similarity in the post-investment stage relates to hierarchy levels of the contacted persons within a business unit. The vast majority investment managers, regardless of their country origin, prefer and focus on persons at the business units who maintain to higher positions in the corporate command chain. They seem to be more appropriate to control the collaboration process and to provide the required resources. The only company of this study that violates this pattern is *DCV*, since their preferred "bottom up-process" would be more effective for a faster support. However, despite of the cross-country pattern, the American CVCs have the advantage that they can rely on special institutionalised teams that support the transformation of the value added during the post investment phase. In this sense, while the investment manager of e.g. *Intel Capital* can refer to the *Portfolio Management Team* and *GE Equity* to the *Value Added Service Team*, nothing similar has been reported on the side of the German CVCs.

Finally, in order to conclude the analysis of the post-investment phase, the similarities and differences regarding the *incentive systems* have to be analysed from a cross-country perspective. When speaking about the investment managers' incentives, it has to be mentioned that the common US pattern of no "carry of interest" payment is not maintained in all the German cases. Especially *SVC* and *T-Venture* (at least with its carried variations) are the outliers. Figure 2-40 summarizes the findings.

Figure 2-40: The findings of compensations schemes and its rationales

Incentive compatibility requires corporate and hybrid compensation schemes for CVC managers

	Objectives	Compensation Scheme	Rationale
Daimler Chrysler Venture	• Enhancement of innovation	• Base salary + Bonus based on corporate performance	• Defeat in war of talents carries long-term risk
T-Venture	• Financial returns	• Base salary + Bonus based on strategic goals+ Carry of interest	• Compensation opposed to financial objectives
Siemens Venture Capital	• Enhancement of innovation	• Base salary + Bonus based on strategic goals+ Carry of interest	• Fund size demands competitive compensation • Central fund has carried interest, Business Unit staff has corporate compensation
Intel Capital	• Leverage of strategic assets	• Base salary + Bonus based on corporate performance	• General compensation already performance oriented • Intel Capital lost several senior executives to competitors
GE Equity	• Financial returns	• Base salary+ Bonus based on corporate performance	• Overall corporate success affects the investment mangers • GE Equity struggles with this deficiency
Motorola Ventures	• Leverage of strategic assets	• Base salary + Bonus based on corporate performance	• Emphasis of CVC as something of Motorola's core activities • Job-market lead to an excess supply of managers

Source: Author, based on interviews

Turning to financial incentives on the side of the business units apart from strategic incentives, leads to the possibility of co-investments with a business unit. There is striking similarity that mainly financially motivated investors provide co-investment to their business units; in the sense, *GE Equity* as the American example and *T-Venture* with its fund in fund investments as the German example have to be mentioned. All of the mainly strategic investors, independent of their country origin, do not show this possibility. Regarding the feasibility of taking board seats, there are less similarities apparent along the cases. While *Motorola Ventures* and *GE Equity* absolutely see this possibility, *Intel Capital* completely refrains from it. The same scattered picture exists

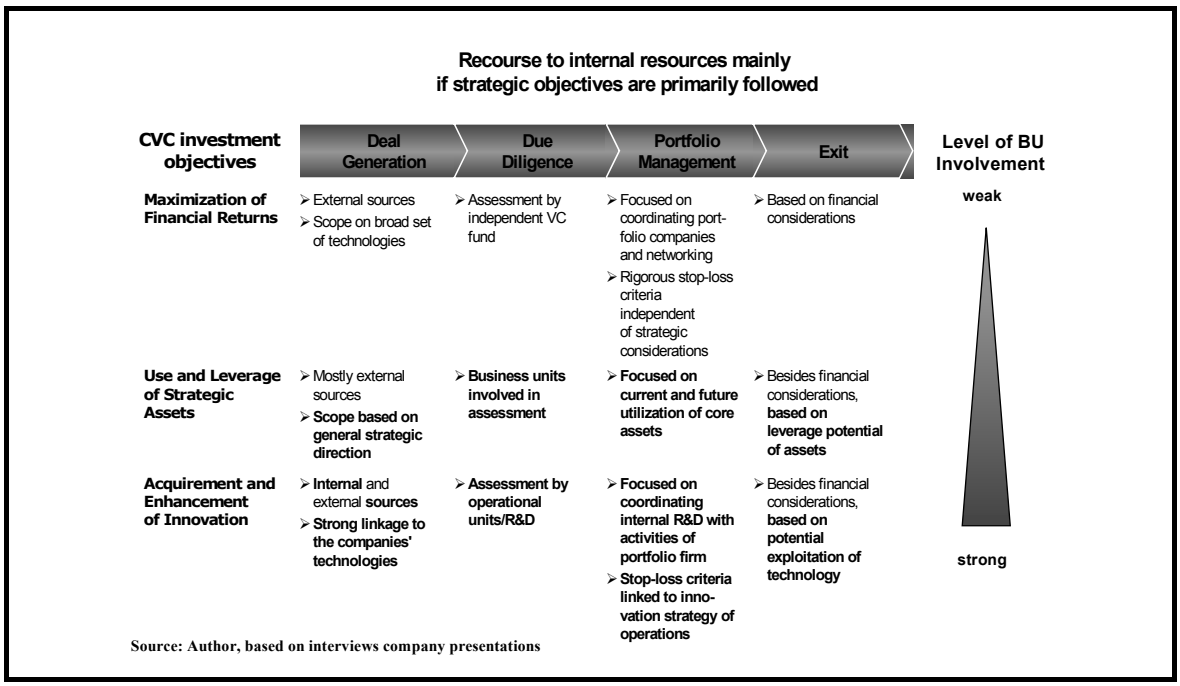
regarding the German cases. While *T-Venture* and *SVC* reported the possibility of board seats, *DCV* keeps out of that. However, with the exception of *GE Equity*, there is the unanimous opinion across the countries that cost-charging would not represent any value added regarding the collaboration with a business units. Quite on the contrary: it would only complicate the actual collaboration basis to a business unit.

Regarding the applied mechanisms in the collaboration process with a business unit one additional difference between German and American companies has to be reported. All American CVCs emphasize the necessity to invest only in companies that "stand on their own feet economically" and do not completely depend on the support and facilities of the corresponding investor. In doing this, CVC unit positions itself more independently of the future support of a business unit. This could be the reason why all American CVCs explicitly denied seed investments. Interestingly enough, no German CVC mentioned this approach. Moreover, it is worth mentioning that *Intel Capital* is the only American and *T-Venture* the only German actor that reported any control regarding the preceded collaboration. *Intel*'s *control reports* and the *synergy reports* in the case of *T-Venture* represent fundamental elements with regard to that approach.

Finally, in order to conclude the cross-country analysis along the investment process, potential patterns in the preferred exits strategies have to be mentioned. In general, regarding the number of already performed exits on a cross-country level, the German CVCs doubtlessly represent the less experienced companies. However, besides the fact that the financial investors, i.e. *GE Equity* and *T-Ventures*, acclaim the possibility of trade sales, no obvious pattern emerged. Moreover, the explicitly mentioned importance of generating cash by pursuing an exit (either by an IPO, or a trade sale on cash) was not mentioned in any German case.

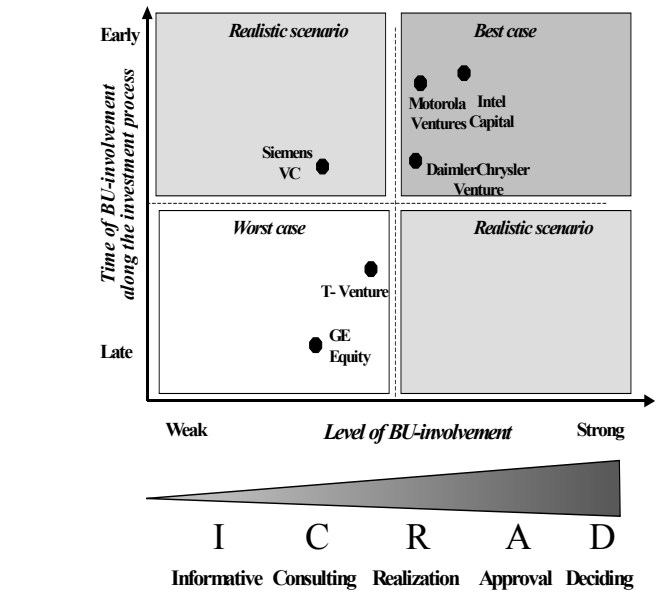
Summarizing the findings of the analysis of the investment process, it can be recorded that the involvement of business unit follows the objectives of a CVC program. In detail, while in the case of financial objectives the lowest level of business unit involvement can be realized, the strategic objectives show a higher level of involvement. Figure 2-41 summarizes the findings.

Figure 2-41: Involvement of BU in the investment process follows objectives



Moreover, while the strategic motivated CVC-companies recourse more intensive on internal resources than financial motivated CVCs, they also involve their business units at an earlier point of time along the investment process. More intensive means that business units are involved on a deciding-, approval-, and realizing-level in contrast to informative- and consulting-input. In this sense, *GE Equity* and *T-Venture* involve their business units later than all mainly strategic motivated CVC's. Figure 2-42 illustrates that.

Figure 2-42: Investment process shows significant differences regarding the point of time and the level of BU-involvement



Source: Author, based on interviews

Having analysed the similarities and discrepancies in the investment process from a cross-country perspective leads to the surrounding corporate cultures. While more or less all companies mentioned the positive influence of their long experience, since the publicity of the favourable CVC activities on the side of the business unit is critical, further discrepancies emerged. On the one hand side, it is almost needless to say that all American companies can be characterised as very open, curious about and thrilled by any technical novelties. Doubtlessly, this facilitates any CVC activities within the internal corporate structures. On the other hand side, the well-known *not-invented here syndrome* is enhanced by the German corporate culture as they can be characterized as very traditionally managed and hierarchically organised corporations which stretches the cultural gap between the culture of a CVC unit that is similar to start-up and the underlying parent company.

Based on the six contextual case descriptions this section now closes summarizing the findings of this study's analyses, i.e. in-depth within and cross-cases analyses as well as across the two countries. The summary is presented by formulating preliminary key findings that lead to a set of tentative hypotheses. They are tentative because they still have to be confronted with the literature for

further refinement and because the theory extension, built on the tentative hypotheses, will eventually have to be the subject of large-sample quantitative testing.

The above discussion has demonstrated that many collaboration problems and the mechanisms to overcome them are similar, if not outright identical, for CVCs in the United States and in Germany. Although the international dimension of American and German CVC has been applied both for the selection and the analysis of the cases, in the cross-country analysis no significant differences in the collaboration between the CVC unit and the business unit emerged. Independent of that, the analysis allows me to draw six preliminary conclusions. First, in order to reach efficient collaboration the structural embedding of the CVC unit has bridge the gap between independence of operational processes and the feasibility to refer to business unit resources. Second, the concrete involvement of the business units in the investment process strengthens their interest in CVC. The earlier this takes place in the investment process, the higher is their interest to collaborate. The character of this involvement has to change from an initially consulting/informative level to a realizing/deciding level. Third, the investment focus, strictly speaking, the stage and the competition area of the investment, has significant influence on the collaboration process of the business unit. Fourth, the applied coordination mechanisms follow mainly informal mechanisms. Therefore, the better the internal networks of the CVC personal are, the easier is the coordination of CVC. Fifthly, the motivation of the CVC managers and the business units has to be considered in appropriate incentive systems. Although an aligned CVC compensation is best for a smooth collaboration, it hides the danger that CVC mangers are attracted by the compensation of dedicated VC. Therefore, hybrid incentive systems have to be installed. And finally, while top management commitment facilitates the provision of resources, it does not directly support the daily collaboration between the CVC unit and the business unit.

Hypothesis related to the characteristics of the CVC unit

Tentative hypothesis # 1a:

The more the CVC objectives incorporate strategic objectives, the more willing are business units to collaborate with the CVC unit.

Tentative hypothesis # 1b:

The more strategically focused a CVC program is, assuming everything else being equally, the less is the temptation of the CVC unit to favour financial investments (or: the higher is the probability that the CVC unit prefers strategic investments).

Tentative hypothesis # 2:

The more strategically motivated a CVC unit is, the more involved are the business units in the investment process.

Tentative hypothesis # 3:

The more the CVC unit is structurally positioned within the corporation as a core activity (i.e. by its legal form), the higher the willingness of a business unit to collaborate.

Tentative hypothesis # 4a:

There is an interaction between the investment stage of a CVC unit and the willingness of the business unit to collaborate, such as late stage investment lead to more collaboration willingness in business unit, that prefer application or selling possibilities, while early stage investments lead to more collaboration willingness in business units that look for R&D possibilities and spill-over effects.

Tentative hypothesis # 4b:

The earlier the investment stage of a CVC unit is, the more are the provided possibilities for a business unit to control/influence an investment that is favorable for the business unit.

Tentative hypothesis # 4c:

The later the investment stage of a CVC unit is, the less are the provided possibilities for a business unit to control/influence an investment that is favorable for the business unit.

Tentative hypothesis # 5:

The more a CVC unit invests in companies that have been internally generated by a business unit, the higher is the willingness of a business unit to collaborate due to a limited "not-invented here syndrome".

Tentative hypothesis # 6a:

The higher the exposure of a CVC unit is to invest in substitutive technologies, the less the willingness of a business unit to collaborate.

Tentative hypothesis # 6b:

The more a CVC program pursues after financial objectives, the higher the higher the exposure to invest in substitutive technologies.

Tentative hypothesis # 6c:

The more a CVC program invests in substitutive technologies, the higher the capability of the CVC unit to collaborate.

Tentative hypothesis # 6d:

Both the relationship between substitutive investments and the capability as well as the relationship between substitutive investments and the willingness of a business unit to collaborate are mediated by the technological communication overlap between investments and business unit.

Tentative hypothesis # 7a:

The more CVC mangers previously maintained positions in other business units of the corporation, the more efficient he is in finding the right contact partner of a business unit.

Tentative hypothesis # 7b:

The relationship between the previous maintenance of other business unit positions and the CVC managers' efficiency in finding the contact partner is mediated by the number of existent internal contacts he has in a corporation.

Tentative hypothesis # 7c:

The relationship between the previous maintenance of other business unit positions and the CVC managers' efficiency in finding the contact partner is mediated by the quality of internal contacts he has in a corporation.

Tentative hypothesis # 8a:

The more there is distributional justice of compensation between the CVC unit and other business units, the higher the willingness of business units to collaborate.

Tentative hypothesis # 8b:

The more strategic aspects are considered in their performance measurement of the CVC unit, the stronger is their strategic focus.

Tentative hypothesis # 8c:

The more strategically motivated a CVC company is, the more similar is its compensation system to the "corporate" compensation (base salary and bonus based on corporate performance).

Tentative hypothesis # 8d:

The relationship between the distributional justice of compensation and the business units' willingness to collaborate is moderated by the CVC manager's effort to gain collaboration, such that the distributional justice of compensation has less impact on the collaboration between the CVC unit and the business unit.

Tentative hypothesis # 9a:

The longer a CVC program exists in a corporation, the higher the willingness of a business unit to collaborate.

Tentative hypothesis # 9b:

The relationship between the length of a CVC program and the willingness of a business unit is mediated by a higher number of contacts the CVC unit has to operational units. At the same time the relationship between the length of a CVC program and the willingness to collaborate is positively mediated by trust.

Tentative hypothesis # 9c:

The relationship between the length of existence of a CVC program and the willingness to collaborate is mediated by a higher number of internally generated deals by business units.

Hypothesis related to the governance mechanisms of the CVC-BU relationship

Tentative hypothesis # 10a:

The higher the overall communication that takes place between the CVC unit and all the business units, the higher the efficiency of the CVC mangers in finding an appropriate business unit.

Tentative hypothesis # 10b:

The higher the overall communication that takes place between the CVC unit and the business units, the higher the number of contacts between the CVC unit and the business unit.

Tentative hypothesis # 11a:

The more collaboration- and support agreements already exist at the investment decision, the higher is the capability of the CVC in the later collaboration.

Tentative hypothesis # 11b:

The earlier the collaboration- and support agreements are finalized along the investment process, the easier it is for the CVC unit to achieve.

Tentative hypothesis # 12a:

The more supportive infrastructure (databases, service-teams, competence centers) for the CVC unit exist, the higher is the CVC units' capability to collaborate focused on a informative/consulting level regarding post-investment deals.

Tentative hypothesis # 12b:

The more supportive infrastructure (databases, service-teams, competence centers) for the CVC unit exist, the higher is the CVC units' capability to collaborate focused on an realizing/deciding level regarding pre-investment deals.

Hypothesis related to knowledge sharing

Tentative hypothesis # 13:

The higher the number qualitative relationships between the CVC and the business unit, the greater the level of knowledge exchange between the CVC unit and the business unit.

Tentative hypothesis # 14:

The greater the amount of knowledge exchange between the CVC unit and the business unit the higher is their willingness to collaborate.

Tentative hypothesis # 15:

The relationship between the exposure to substitutive technologies and the willingness of a business unit to collaborate is moderated by the quality of contacts, such that the exposure to substitutive technologies have less impact on the willingness of a business unit to collaborate.

Tentative hypothesis # 16a:

The better the quality of the existing relationships between the CVC unit and the business unit, the less important are contractual control (i.e. control- or synergy reports) or agreements for the collaboration between the CVC unit and the business unit.

Tentative hypothesis # 16b:

The relationship between the quality of the existing relationship and the importance of formal governance mechanisms is mediated by trust; although it makes formal control mechanisms less important, in no way it becomes dispensable.

Tentative hypothesis # 16c:

There is a curvilinear relationship between the overall collaboration efficiency of a CVC unit and the number of interacting persons in the CVC network.

Hypothesis related to the characteristics of the business unit

Tentative hypothesis # 17:

The more the structural imperatives of the business unit allows a cross sectional perspective along the investment process, the higher is the willingness of a business unit to collaborate.

Tentative hypothesis # 18:

There is a curvilinear relationship between the time of business unit involvement and the willingness of a business unit to collaborate, such as a very early business unit involvement avoids investments in strategically irrelevant deals and leads to a higher number of internal generated deals. However, the earlier a business unit is involved, the higher the number of transferred investment proposals that are finally not invested.

Tentative hypothesis # 19a:

The more BU- involvement arrives at a realization/decision level, the higher is the capability of a BU to collaborate with the CVC unit.

Tentative hypothesis # 19b:

The earlier the BU-involvement arrives at a realization/decision level, the higher is the capability of a BU to collaborate with the CVC unit.

Tentative hypothesis # 19c:

The more the BU-involvement arrives at a realization/decision level, the more consulting/informative gets the involvement of the investment managers.

Tentative hypothesis # 19d:

The more the CVC-involvement arrives at a consulting/information level, the higher is the capability of a CVC unit to oversee a higher number of post-investment deals.

Tentative hypothesis # 19e:

The more the CVC-involvement arrives at a consulting/information level, the higher is the capability of a CVC unit to focus its resources/effort on the pre-investment activities, where overall financial abilities are asked.

Tentative hypothesis # 20a:

The more an investment comes to the post-investment phase, the more are BU-people contacted who are at a higher hierarchy level (i.e. senior management of a business unit).

Tentative hypothesis # 20b:

The more the contacted persons represent senior management, the higher is the capability of a BU to authorize and approve the required BU-resources, or to control the BU –involvement, or to solve occurring problems in the post-investment phase.

Tentative hypothesis # 21a:

The more incentives for a business unit exist regarding CVC activities, the higher is their willingness to collaborate with the business unit.

Tentative hypothesis # 21b:

The more financial gains of CVC investments go back to a business unit, the higher is their incentive to collaborate with the CVC unit.

Tentative hypothesis # 21c:

The more for a business unit usefully strategic gains of CVC investments go back to a business unit, the higher is their incentive to collaborate with the CVC unit.

Tentative hypothesis # 21d:

The more a business unit is involved in the advisory boards of an investment, the higher is their incentive to collaborate with the CVC unit.

Tentative hypothesis # 21e:

The more (intra-company accounted) co-investments exist between a business unit and a CVC unit the higher is their incentive to collaborate with the CVC unit.

Tentative hypothesis # 21f:

The relationship between the existent incentives and the willingness to collaborate is moderated by the quality of network-contacts, such that existent incentives have less impact on the willingness of a business unit to collaborate.

Tentative hypothesis # 21g:

The relationship between the financial incentives for a business unit and the higher willingness is moderated by the aspect of organizational learning that is apparent for the business units in CVC activities, such that the incentives have less impact on the willingness to collaborate.

Hypothesis that are related to the characteristics of the corporation

Tentative hypothesis # 22a:

The more the corporate culture is open for technical novelties, the higher is the willingness of a business unit to collaborate with the CVC unit.

Tentative hypothesis # 22b:

The relationship between the open corporate culture and the willingness of a business unit to collaborate is mediated by the "not invented here-syndrome".

Tentative hypothesis # 23:

The more top-management commitment of the corporation for CVC activities exists, the higher the willingness to collaborate.

This set of tentative hypothesis is the result of exploratory case-based research. At this point, the hypotheses are still at a stage of being interrelated, i.e., they are not free of overlap, and they are certainly not mutually exclusive. Therefore, they do not yet lend themselves to large-sample empirical testing. They are in need of further refinement. This refinement takes place in the following chapter which sets out by unfolding the relevant literature and thus aims at developing an extension of internationalization theory.

3 Theoretical perspectives: toward an integrated theory of intra-organizational collaboration between CVC unit and business units

This chapter aims at refining the findings of the case study chapter. It does not constitute a break from the previous chapter, it rather represents a continuation of the process of case-based research. As pointed out in the discussion of the methodological foundations of this study (section 2.1), case descriptions and analyses should ideally be 'theory-free', allowing the researcher to capture the richness of the cases without bias. Only after tentative hypotheses have been drawn from the cases the literature should be unfolded (Eisenhardt, 1989). It is an essential component of case-based hypotheses formation and theory extension that the tentative hypotheses be juxtaposed with conflicting and similar theoretical findings. Thus, the tentative hypotheses can be challenged, corroborated and, eventually, refined in such a way that together they serve as an extension to theory - i.e., in this study, an integrated theory of intra-organizational collaboration.

Although there is very little earlier research on the relationship between CVC unit and business unit, it can be reasonably assumed that this relationship is critical for explaining how value is added to portfolio companies and to the corporation as a whole. Therefore, first the corporate venturing literature is reviewed in chapter 3.1 with a focus on successful and failed corporate venturing activities due to reasons that are related to the internal relationships surrounding corporate venturing activities. This is done in order to build a solid basis for the juxtaposition of the further theory with the tentative hypotheses.

In the following sections 3.2 to 3.4, the pertaining theoretical frameworks are reviewed. For each theory, the development and key concepts are summarized, and the theories are confronted with the case findings of this study. The first set of theory, resource-related theory, looks at the creation of value through the selection, creation and combination of tangible and intangible resources. Therefore, section 3.2 confronts the resource-based view and the knowledge-based view (including organizational learning theory) of organizations with the case findings. Due to the breadth of this literature, this section will focus on

several of the most prominent theoretical approaches. Since the case description showed that not all required resources are given within one unit and that the efficient creation of value requires joint activities between different organizational units, section 3.3 turns to a discussion of exchange-related theories. This includes the social capital theory and the network theory pertaining to the role of lateral communication and cooperation between operational divisions. The collaboration across the organization involves that the relationships need to be governed. Section 3.4 presents some thoughts on how different governance mechanisms and modes will affect the outcome of resource exchange in intra-organizational relationships. Agency theory and social exchange theory offer support for the refinement of the tentative hypotheses.

Each theory section will be structured as follows. It begins with a short description of the development and reasons for the origination of the theory. This is followed by a definition of the theories as found in the literature. It includes definitions of the main components of the theory, including the main dependent and independent variables. Next, the main empirical applications and findings of each theory are presented. The actual confrontation of each theory with the case study results will not include a discussion of all tentative hypotheses. Rather, the tentative hypotheses and examples from the case section will be discussed only when they are relevant to a given theoretical framework. Next, the extant criticism of a theory will be more specifically confronted with the case findings. Finally, each theory concludes with illustrations of the theory's advantages and shortcomings with regard to this study.

Table 3-1 gives a summary of the theories that are used in this study. More specifically, it shows how each theory conceptualizes the "firm", how the notion of intraorganizational relationships is approached, and what the proposed main motives are for firms in terms of how to manage intra-organizational relationships. Finally, it shows how the theory is applicable to this study.

Figure 3-1: Summary of the theories that are used in the study

Theory (Chapter #)	Reasons for application in this study	Conceptualization of the firm	Notion of intra-organizational relationships	Main motives for firms in managing relationships
Extant corporate venturing literature (***Chapter 3.1***)	Corporate relationship is critical when building a **solid basis for the theory confrontation**	Institutional pressure, Resource acquisition and combination, Social Network,	The proximity to a corporation offers advantages and disadvantages	Maximizing potential advantages while minimizing disadvantages
Resource-based view ***(Chapter 3.2.1)***	**Availability of resources:** selection, combination and creation of value	Bundle of resources	A means to acquire or gain access to resources	Building sustainable competitive advantage through new resource combination
Knowledge-based & Organizational learning theory ***(Chapter 3.2.2)***	**Availability of resources:** selection, combination and creation of value	Concentration on firm specific knowledge	A means to acquire information and generate knowledge	Building the firm's knowledge base, the basis for competitive advantage; Problems of knowledge transfer
Social Capital ***(Chapter 3.3.1)***	**Resource exchange aspects:** common, aligned action, effective exchange	Social actor embedded in a network of social relationships	Consists of structural, behavioral, and cognitive elements	Gaining benefits from relationship; factors that facilitate knowledge transfer
Network theory ***(Chapter 3.3.2)***	**Resource exchange aspects:** common, aligned action, effective exchange	Bridging the gap between authority and hierarchy	Characterized by strength/number of network ties and position of actors	Exploitation of intra-firm advantages by combining existing knowledge nodes
Agency theory ***(Chapter 3.4.1)***	**Governance modes and –mechanisms** that affect the outcome of a relationship	Nexus of contracts within the firm	Principal-agent ties	Minimizing agency risks and costs
Social exchange theory ***(Chapter 3.4.2)***	**Governance modes and –mechanisms** that affect the outcome of a relationship	Consists of dependence and power; importance of personal comittment	Voluntary activity between two actors based on personal obligation and gratitude	Consequences, actual or anticipated, for the realization of their respective goals

Source: Author

3.1 Confronting extant corporate venturing literature with the case findings

Previous researchers have examined several factors that are important for success in corporate venturing programs. However, as illustrated in chapter 2.2.2, corporate venture capital represents one type of venturing activity. Therefore it is reasonable to examine the literature about successful and failed corporate venturing programs with a focus on the internal relationship between the CVC unit and the parent's business units. This also aims at justifying the selection of theories that are chosen for this study.

As a sub-form of corporate venturing, CVC programs must create the conditions that support interdependent, collaborative work taking place between the CVC unit and the business unit. The major difference between individual and corporate venture is the proximity of the corporate venture to its parent organization. Exactly this proximity of CVC to its parent company offers both advantages and disadvantages. On the positive side, strategic linkages to the firm's capabilities and resources are found to enhance the likelihood of new products success (Nord and Tuchker, 1987). The proximity offers access to resources, which might be difficult to imitate or substitute by outside ventures. Legitimacy provided by the parent's brand, opportunities for synergy

exploitation, and financial backup are examples of such benefits. On the negative side, institutional conflicts between CVC activities and mainstream operations, including strategic conflicts, administrative conflicts, cultural clashes, and reward issues are explained foremost by institutional theory.

The literature overview about corporate venturing is organized in three sections along the major characteristics of the relationship between the parent and the corporate venture. The first section (3.1.1) looks at literature that focuses on *institutional pressure* originating from the relationship to the parent company. This discussion includes strategic, administrative, culture, and reward issues. Literature that looks at *complementary resource acquisition* and *knowledge relatedness* is analyzed in section 3.1.2 within this chapter. Finally, the overview of corporate venturing programs concentrates on *social networks* (3.1.3), since recently especially the outcomes of social networks in innovative settings have especially been in the focus. As a summary of the chapter, it will be presented if and how the factors might influence each other. The existent lack of findings must be discussed with regard to their relevancy for this study.

3.1.1 Institutional pressure

By the time managers reach the top management level, they have developed a highly reliable frame of reference to evaluate business strategies and have resourced allocation proposals pertaining to the main lines of business of the corporation. By the same token, their substantive knowledge of new technologies and markets is limited, and their ability to manage a venture with fundamentally different needs from mainstream units may be limited (Burgelman, 1985). Subsequently, conflicts arising at three different levels are discussed: conflicts arising between the venture unit and mainstream operations, at corporate level, and on middle manager level.

Conflicts between new ventures and mainstream operations are seen to include strategic conflicts, administrative conflicts, culture clashes, and finally performance measurement and reward issues. Researchers have pointed out that a mismatch of structures, systems, and processes often characterizes the relationship between the venture unit and the rest of the corporation. Sykes and Block (1989) point out that corporate venturing is often managed similarly to

mainstream activities despite their differing requirements. For example, they show that decision processes of corporate venturing programs in the investment process are often not streamlined in order to avoid becoming lengthy and protracted. However, they miss in giving details how these hurdles could be overcome in order to have efficient and fast decisions along the approval processes for an investment. Another difficulty in the relationship between venture and corporation is represented by the inconsistent time frames. While operating divisions are under constant pressure for returns on investment, corporate ventures often require significant time spans before becoming profitable (Biggaddike 1979). Kanter (1985) argues that due to the inherent uncertainty, knowledge intensity, competition with alternative courses of action, and the boundary-crossing nature of new venture divisions, venture units need visionary leadership, 'patient' money, planning flexibility, team continuity, and inter-functional cooperation. Kanter et al. (1990) find that a tension exists between corporate strategy and corporate venturing. To achieve synergies it is argued that there would be a need for active management of the interface between the corporation and the venturing unit. However, although Kanter et al. refers to the relationship between the CVC unit and the business unit, she does not provide further insights into how to manage the interface between the two parties.

In a large firm studied by Burgelman (1985), strategic conflicts, including domain and synergy issues, seemed to emerge whenever the new business activities had the potential to overlap with the business of the division. In the case that CVC activities would also attract discontinuous and disruptive innovations, a defined integration of the business units regarding CVC activities was even more important since enormous resistance on the side of the mainstream activities can be the result (Bower and Christensen, 1995, Mason and Rohner, 2002). These findings are similar to what I found. The domain and synergy issues emerged in the interviews with the business managers when they evaluated an investment of a CVC unit as a threat to their current technology. This includes the discussion of building up internally "disruptive technologies" vs. "sustaining technologies." However, I argue that this hurdle can be limited:

the more a CVC unit invests in complementary[1] investments, and the more investment managers neglect investments that embody a substitutive technology (tentative hypothesis # 6c). Although Burgelman (1985) does not consider the relationship between potential technological overlap and resulting knowledge exchange[2] and learning possibilities, I argue that technological overlap increases the capability of a business unit to collaborate since it provides a common language necessary for organizational learning (tentative hypothesis # 6c). Backholm (1999) found that the administrative processes of the corporation facilitate the functioning of the complex workflows in the operating system but hinder the functioning of the new venture division. Similarly, Mason and Rohner (2002) found in their study that the most cited barriers in innovation processes are conflicts between departments in terms of their differences in thinking and the lack of structural fit in organizational terms. Hill (1994) emphasized the role of corporate management of the firm to adopt the appropriate internal organizational arrangements in order to produce superior performance through diversified activities within the firm. These organizational problems emphasize the need for CVC programs to cooperate and share a common language with other organizational units, and emphasize that a successful launch of new technologies by a corporation may require a new organizational structure. But these findings lack in giving further insights how the organizational structure could look. I found that the more a CVC unit is organizationally embedded as a core activity within the parent's structure, the higher might be the willingness of a business unit to collaborate (tentative hypothesis # 3).

At the corporate level, Burgelman (1985) observed that rules and regulations, as well as reward systems led to frictions. While the corporate structural context may require extensive approval processes, the venture unit requires fast and streamlined decisions. Administrative conflicts also include the unwillingness of

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[1] I define complementary investments by using two indicators. (1) complementarity of resources and capabilities, and (2), complementarity of products and resources. Both indicators refer to a business unit's operational business. This operationalization covers both the complementarities in resources and capabilities in product and service offerings (Amit and Zott, 2000).

[2] In this work, knowledge acquisition was operationalized using three indicators. The measures cover knowledge acquisition regarding (1) market trends, (2) competition, and (3) technology. These items were adopted from Yli-Renko et al. (2001).

other departments to share resources with the venture unit or the unwillingness of the venture unit to use the policies and systems of the established organization. Moreover at the corporate level, cultural clashes are possible because of the more chaotic and start-up nature in comparison to the more stable units of the organization. Problems in terms of performance measurement and reward issues may arise, because it is often misleading to measure the performance of CVC activities in the same way the performance of an established business is measured (Burgelman and Sales, 1986; Kanter, 1985, 1988, 1989; Sykes and Block, 1989).

Regarding the top-management level, Miller, et al. (1991) found that while top management involvement can help to ease some problems of corporate ventures, its influence may not be positive in all cases. Too much top-management involvement is expected to lead to lengthy decision processes. This is somewhat different to what I found. The case descriptions show evidence that a required approval of corporate top-management does not lead to lengthy decision processes. But even more important for this study is that if corporate top-management shows commitment for CVC activities by their concrete involvement, the willingness of business unit is higher to collaborate (tentative hypothesis # 23).

Hornsby et al. (1993) argued that five organizational characteristics support intrapreneurial activity. These organizational factors include management support, autonomy/work direction, rewards/reinforcement systems, time availability, and organizational boundaries. While this study gives no further details about the single characteristics, there is research about what level of autonomy should exist in the corporate venturing units, and how that level of autonomy may be achieved. Siegel et al. (1988) find that ventures with more autonomy are more successful, since they are able to reach fast decisions. Unfortunately, they do not consider how more autonomy affects the collaboration of related operational units. While Hitt et al. (2000) concludes very generally that for a firm to fully realize value from hierarchical governance the correct organizational structure and control systems must be in place, he lacks in giving further insights in how these organizational structure and control systems should be designed. In contrast, this study argues that the more a CVC unit is structurally positioned within a corporation, the higher is the willingness of a business unit to collaborate (tentative hypothesis # 3).

Burgelman (1983) argues that middle managers have the ability to start autonomous strategic initiatives by conceptualizing strategies for new business areas and providing resources for such activities. However, Backholm (1999) found that managers of the middle management level in mainstream units feel uncomfortable, if the venture unit is evaluated with fundamentally different criteria. He found that the lack of legitimacy inside the organization results from the same reason why the venture exists: promoting divergence. With regard to this study there is to say that Burgelman's finding (1983) supports the findings of this work. In the case description it emerged that the more the investment process arrives at the post-investment phase, the more the senior-management of a business unit gets in focal point, due to their ability both to authorize required business unit resources, as well as to solve occurring problems in the post-investment phase (tentative hypothesis # 20a and # 20b).

To summarize, institutional pressure emerges at the corporate level, on middle manager level, and between the venture unit and mainstream organizations. The arising issue of interest will be how institutional pressure could be limited by following the recommendations given in the upcoming theory.

3.1.2 Complementary resource acquisition and knowledge relatedness for resource combination

After having discussed institutional pressure pertaining to corporations, the considerations and ideas of this section focus on the availability of resources, and the nature of the resource-exchange between units. Different scholars have argued that there is a significant potential for exploiting complementarities within the firm (see for example, Laamen, 1998; Dougherty and Hardy, 1996; Rothwell, 1989). However, exploiting economies of scope involves the sharing of resources between two or more businesses (Hill 1994). While studies analyze different corporate level areas of complementarities, they all neglect specific needs of the single business units (for example, marketing, management bureaucracy, attracting finance, financing growth, or coping with patents). Mason and Rohner (2002) find that the relationship between the parent organization and the new corporate venture is characterized by three key activities: resource availability, collaboration to solve problems and to connect innovations with existing businesses, as well as fusing innovation with meaning

in a corporate strategic context. Further, they find that keeping the venture program connected to the parent firm's strategy, and integrated with R&D, M&A and Corporate Development as essential when creating a viable structure for business R&D through CVC.

Resource acquisition constitutes a major theme in entrepreneurship (Starr and MacMillan, 1990). It is argued that in distinction to external ventures, corporate ventures have access to competencies of the corporation, which can give ventures a competitive advantage (for example, Barney, 1991; Mc Grath et al., 1994). Internal corporate ventures can often weave together pieces of technology and knowledge, which exist in separate parts of the organization and which would otherwise remain unused (Burgelman, 1993). While I acknowledge the possibility of piecing together technology and knowledge, Burgelman gives no further insights into how we get access to these resources, and how to overcome the resistance of business units to share required resources.

In addition to Hill (1994), this study finds that divergence leads also to significant potential for exploiting complementarities between the corporate venturing unit and the parent firm. However, there is an interaction between the focused investment stage of a CVC unit and the willingness of a business unit to collaborate, such as late stage investments lead to more willingness to collaborate in business units, that prefer application of selling possibilities, while early stage investments lead to more collaboration willingness in business units that look for R&D possibilities and spill-over effects (tentative hypothesis # 4a).

Resource combinations and operational routines are relatively idiosyncratic, the new combinations of resources may help firms develop enduring differences in resource profiles and consequently a sustainable competitive advantage. So a substantive and desirable outcome of close parent-venture relations is the generation of valuable new resource combinations, specific to firm, which it alone may exploit.

With this concluding remark on the above discussion of the 'resource acquisition and combination', it is now warranted to tie together the findings of this section. The section has shown that there is significant potential for exploiting complementarities for resource combination and acquisition represented in

venturing activities. However, all mentioned studies fail in giving further insights in how we get access to theses resources and we create incentives for business units to share them by considering resource and knowledge related theoretical issues.

3.1.3 Social network

Kanter (1985) argues that the best innovations are often interdisciplinary or interfunctional in origin. However I found that the venture manager has usually a limited formal access to sources of power, influence, or authority. Therefore, it seems that the creation of informal social network might be a way to obtain resources. Svendsen (1998) suggests that the venture staff has to have the ability to build and utilize informal networks to be able to gain access to the parent organization's competencies. Legitimacy is one of the key regulators in resource accumulation in firms. A key strategy that firms use is to use the human and social capital as the basis for establishing the firm's legitimacy and for building exchange relationships (Coleman, 1990; Ostgaard and Birley, 1994). One mechanism discussed in the literature for resource acquisition is to co-opt resources that are currently being underutilized (Pfeffer and Salanick, 1978; Burt, 1980, 1983). However, while this is argued to be the most flexible and easiest way to gain access to underutilized resources, it came up in my interviews that the resources, which the CVC unit requires, are everything else than underutilized. Quit in contrast, one critical bottleneck of a successful collaboration is the scarce resources of the business units, which are indispensable in order to maintain the ongoing process (zu Knyphausen-Aufseß, 1995).

It appears that two-way relatedness in terms of potential for mutual economic gains is a necessary condition to build a stable network structure (Larson, 1992). However, I found that some of the problems associated with corporate venturing activities may result from mainstream units not recognizing any significant potential gains for them. Most of the studies on corporate venturing have neglected the need for mutual gains (overall for participating units) and focused on potential economic gains for the overall firm.

Many scholars have found that critical to discontinuous innovation, entrepreneurial activity, and new venture success is often a high degree of internal partnering (for example, Mason and Rohner, 2002; Yli-Renko et al., 1999; Tsai and Ghoshal, 1998). Benefits from internal cooperation include acquiring knowledge about markets and technology, as well as to gain visibility and legitimacy. I further argue that cooperation may aid in monitoring the environment and access to technologies, which could provide entrance into new markets. Any entrance in a market, if the innovation is not completely appropriable, or is easily imitable or substitutable, is likely to require access to complementary assets in order to retain profit potential. Teece (1996) argues that the parent firm is likely to own some of the required complementary assets, thereby increasing the appropriability of the innovation.

Rice et al. (1998) found that informal networking was critical in all cases they observed. Network contacts include R&D, M&A, Corporate Development, and different operational business units (Mason and Rohner, 2002). They helped to give early validation to the value of the technology and provided access to scarce resources. Indeed, this is somewhat similar to what I found. The better the informal contacts and relationships are that a CVC manager maintains to business units, the easier is the access to business unit's support and resources. But this study attempts to extend these findings by asking for the why and how of the mentioned relations.

However, the effects of formal and informal networks may not be solely positive. Yli-Renko et al. (1999) found in their study a negative relationship between the external relationship quality (in terms of social capital) with customers and learning as a result of over-embeddedness. Therefore, a question that has to be further analyzed in this study is: Does concentrated network ties lead to a reduced ability to alter venture strategies, thus reducing the ability to follow opportunities, and harness internal and external innovation in changing market conditions?

Floyd and Woolridge (1999) argue that the position of the managers in social networks influences their ability to influence the corporate venturing process. Unfortunately, they do not give applicable devices of where and how the CVC managers should be optimally positioned within their networks in the firm. This

study pursues in closing this gap by giving detailed information where the CVC unit should be structurally located within the parent corporation.

Moreover, the relationship between the parent company and the CVC unit seems to have various effects on the resulting resource exchange and on the value creation by "enhancing innovation". While Quinn (1985) found that too close cooperation in the early definition phase can result in lower innovativeness, Sykes and Block (1989) argue that close cooperation in the growth phase helps in the resource acquisition. In the integration phase close cooperation can help to overcome the reject reaction (Kanter, 1988). The confrontation of this changing effect of close cooperation is not fully supported by the findings of this work. I found that a close cooperation between the CVC unit and the business unit is thoroughly positive along the entire investment process. While a close cooperation in the pre-investment phase positively stimulates the generation of internal deal possibilities, close cooperation in the post-investment phase is positively related with a fruitful achievement of the post-investment support management.

To summarize, the overview of corporate venturing literature focused on three major characteristics of the relationship between the parent and the corporate venture: institutional pressure, complementary resource acquisition/knowledge relatedness, and social network. While, studies exploring the antecedents to venture-parent relationship attributes are rare (e.g. Tsai and Ghoshal, 1998), there is no study that focuses on the relationship between the CVC unit and the involved business units. The collaboration between CVC units and business units within the context of CVC activities requires organizational arrangements that enhance cooperation between these two separate units. This collaboration may in turn increase the value added by the CVC to its investments. The literature review highlights the need to remove obstacles and provide incentives in order to coordinate more effectively the collaboration activities of these economically "independent" business units, which is critical in order to transfer and share skills, resources, and corporate facilities.

The major hurdles of collaborative relationships seem to be related to the availability of resources, the nature of the resource-exchange between units, and the efficiency of governance mechanisms of such exchange. The literature to be

enfolded for the confrontation with the preliminary hypotheses will therefore comprise these three aspects. The following chapters aim at constructing an integrated theory of intra-organizational collaboration. One of the crucial question will be: What can we learn from the case studies and prior research that pointed to the design of the organizational structure of corporate venturing programs which promotes intensive cooperation between the CVC unit and the business unit?

3.2 Confronting resource related theories of relationships with the case findings

One of the objectives of this study is to explain how the corporation could be set-up best regarding an access to corporate resources and concerning an exchange of resources between the CVC unit and the business unit. The access and exchange of resources is even more important since corporations are supposed to maintain a wide range of resources, but at the same time they need to know where the resources are located within the firm. Further, if properly set–up, the access to and exchange of resources could serve as an incentive for the business unit to collaborate with the CVC unit. Thus, the first set of theory looks at the creation of value through the selection, creation and combination of tangible and intangible resources. Therefore, in section 3.2.1 the resource-based theory of the firm is discussed. Chapter 3.2.2 confronts aspects of the knowledge-based theory and the organizational learning theory of organizations, since both theoretical streams are closely related.

3.2.1 Resource-based Theory of the Firm

First, I will begin with a short description of the development and reasons for the origination of the resource-based view. Also, important definitions of this theory for this study's purpose are presented. In general, access to resources is one important reason to enter into collaboration. One of the key perspectives of this analysis still represents the resource-based theory of the firm. This theory, which goes back to the seminal work of Penrose (1959), conceptualizes the firm as a collection of productive resources and views firm growth as a process of using these resources to exploit the firm's "productive opportunity" and of increasing the firms' resource base. Penrose defined productive opportunity as "the

collection of all possible productive possibilities entrepreneurs can identify and are willing and able to pursue" (1959:31). Because productive opportunities are unlimited, the firm's growth is only limited by the existing resource base and the competence of management to exploit the resource base.

Penrose's ideas did not receive much attention before Wernerfelt (1984) introduced the term "resource-based" in his characterization of firms as collections of resources rather than sets of product-market positions. He defined resources more broadly as anything which could be thought of as a strength or weakness of a given firm. This approach includes those tangible and intangible assets which are tied semipermanently to the firm. Examples of resources are brand-names, in-house knowledge of technology, employment of skilled personal, trade contracts, efficient procedures, capital, etc. Notable to this definition is that it includes weakness, while many other researchers (for example, Lado et al. 1992; Barney, 1991) focused on only those elements, which are potentially rent yielding. The inclusion of weakness supposes that the access to resources may also be related to disadvantages or costs for the firm. At the same time, Rumelt (1984:557-558) suggested that "a competitive advantage is determined by the firm's unique resources that are handled by the management".

Broader in scope than Penrose (1959) or Wernerfelt (1984) defined Barney (1991) resources as all assets, capabilities, competencies, organizational processes, firms attributes, information, knowledge, and skills controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness. According to this framework, resources are not productive on their own. There is a distinction between resources and knowledge. While resources can be considered as tangible and intangible assets possessed by the firm or accessed through relationships (Wernerfelt, 1984), knowledge is an ingredient that helps to get higher value from the resources (Penrose, 1959). While Hofer and Schendel (1978) concretizise resources into financial, physical, technological, reputational, and organizational resources, Grant (1991) just expands its definition to personal-related resources.

In the present study, the term resource will be used in line with Barney's (1991) definition to encompass all tangible and intangible assets, including capabilities, competencies, and organizational processes that are strategically relevant in the

relationship between the CVC unit and the business unit. According to Barney (1991) and zu Knyphausen-Aufseß (1995), resources must be valuable, rare, imperfectly imitable, and without strategically equivalent substitutes, in order to sustain long-term competitive advantage.

After having introduced the resource-based view, the main variables and their relationship are now represented. Because of environmental uncertainty, the firm-specific resources and capabilities are considered as a more sustainable basis for competitive advantage than product-market positioning (Grant, 1991). In his conceptual paper, Barney (1991) presents the two key axioms of the resource based view: (1) resources are distributed heterogeneously across firms, and (2) these productive resources cannot be transferred from one place to another without costs (i.e. resources are "sticky"; for example Priem and Butler, 2001). Thus, the essence of the firm's strategy lies in the ways that existing resources are used and in the means to acquire or internally develop additional resources (Wernerfelt, 1984).

What are the main empirical applications and findings of the resource based view? Although some of the earlier research papers on the resource-based view have focused largely on the internal resources of the firm, in more recent research the resource-based view has been applied to the analysis of inter-organizational relationships of firms (Hamel, et al., 1989; Hitt et al. 2000) and in the new venture process (for example Bruno and Tyebjee, 1982).

In the resource-based view, the fundamental argument for alliance formation is that firms try to create and appropriate value in inter-firm relationships by leveraging superior resources they possess with complementary resources (Stein, 1997). In this aspect, the resource-based view highlights the role of resource complementarities influencing the alliance formation and performance (Das and Teng, 2000; Hitt et al., 2000; Eisenhardt and Schoonhoven, 1996; Hellmann, 2001). Das and Teng (2000) recognized resource complementarities as one of the key drivers of alliance formation and performance. While there is the relatively large and rapidly growing literature applying the resource-based view to strategic alliances formation and to alliance performance (e.g. De Meyer, 1999; Chung et

al., 2000), there is little empirical research applying that perspective to corporate venture capital (e.g. Maula and Murray, 2000).

Next, a confrontation of the extant criticism of the resource-based view is represented.[3] The resource-based view has received criticism for its conceptualization of resources. This conceptualization led researchers to evaluate the theory as a static theory (Teece et al., 1997), neglecting product markets (Priem and Butler, 2001), and having limited prescriptions for managers due to path-dependent and unique resources (Conner, 1991). The resource-based view has also been criticized for being excessively focused on internal resources with the unit of analysis being a single firm and neglecting the environmental context in which a firm operates (Dyer and Singh, 1998). This criticism has led to the development of the "relational view" extension to the resource-based view focusing on the sources of competitive advantage residing not solely from firm-level resources but from difficult-to-imitate capabilities embedded in dyads or networks of firms (Dyer and Singh, 1998; Lane and Lubatkin, 1998).

To what extent are these interorganizational findings transferable to the internal relationship between the CVC unit and the business unit? Acknowledging the criticism towards the resource-based view, I argue that the resource and capability development is important for the collaboration between the CVC unit and the business unit. Given the focus on the internal collaboration between the CVC unit and the business unit, on the one side, this study refers to resource acquisition as the access by a business unit to resources like sale-orders or production-orders of the portfolio firm possible by the CVC investment. On the other side, it also pertains to the CVC unit's access to resources a business unit holds. The direct application of the presence of various kinds of resources to the context of this study is that while the financial resources are administered by the CVC unit, the technical and human resources are mainly held by business units. In terms of the nature of the resources, the case description illustrates, that the main resources that are exchanged between the CVC unit and the business unit represent intangible resources rather than tangible resources. Access to non-material resources is related to operational complementarities in the product

[3] A much broader overview of the recent 'resource-based' critique is provided by zu Knyphausen-Aufseß (1995, chaps. 1.2, 1.3, and 2.2; 1993).

markets between the business unit and the portfolio firms. Based on the resource-based theory, the confrontation with the case findings of this study shows support for tentative hypotheses # 1a and 1b: strategically oriented corporate venture capital programs are more likely to induce a transfer and combination of resources between the CVC unit and the business unit aimed at developing new value creating products or activities. The strategic position compared to financially oriented CVCs therefore positively influences the capability and willingness of the business unit to collaborate. The key notion in the resource-based view of the firm is that a firm's competitive advantage is based on its resources. But unfortunately, this theory's key notion does not provide further insights into how the CVC units knows *where* the resources reside in a corporation and *how to find access* to them. Tentative hypotheses # 10a, # 13, and # 21c attempt to meet this challenge.

The mentioned criticisms concerning "static theory" and "path-dependency" seem to represent a double-edged sword. On the one side, "path-dependency" of a business unit conceals technical resources in a certain area which may be important to evaluate a specific technology. On the other side, path-dependency reduces the willingness of a business unit to exchange their resources. While the resource-based view regards the potential resources as existent and static, the CVC unit pursues in its intra-firm collaboration an increase of the corporation's resource exchange, not only linking the CVC unit and business unit resources with one another, but also by bringing in new resources through the portfolio firms. This positive aspect of CVC activities of bringing in different kinds of new resources to a business unit (for example, product development, increase in sales order, access to resources of the portfolio firms) should be strengthened and highlighted both by the CVC managers as well by the corporate top-management as advantageous (tentative hypotheses # 1a, # 13, # 23), since a successful resource-exchange requires a collaborative attitude of the business units against CVC.

Moreover, the aspect of "path-dependency" is transferable to the business units. It limits the "horizon" of possible resources and technologies a business unit is interested in. Following this theory, the strategy of the CVC unit to increase the collaboration willingness of the business unit should focus on expanding the resource pool possibly resulting from complementary investments. These

investments support the 'eco-system'[4] of a business unit by stimulating an exchange process of resources between the business unit and the CVC unit or by mediating ditto between the business unit and the investments (tentative hypotheses # 14, # 21a, # 21c). Thus, business units might enter relationships in the expectation of creating superior value through the combination of complementary resource capabilities (Zajac and Olsen, 1993). The complementarities can be related in resources and capabilities, products and services, or some other dimension. The key determinant of complementarity is whether the success of one player is positively related to the success of the other player (Brandenburger and Nalebuff, 1996).

In the previous literature, several authors have developed typologies of complementarities in order to explain the motivation of entering in a cooperation with a partner (Dyer and Singh, 1998; Lane and Lubatkin, 1998; Stein, 1997). According to Dyer and Singh (1998), there are four potential sources of competitive advantage: relation-specific assets, knowledge-sharing routines, complementary resources and capabilities, and effective governance. Regarding the context of CVC, especially the synergy argument between the portfolio firms of a CVC unit and the business unit is discussed. Rotwell (1983) argues that while small firms have advantages in innovative activities, large firms have resource-based advantages. Amit and Zott (2001) found that, "complementarities are present whenever having a bundle of goods together provides more value than the total value of having each of the goods separately." Direct competition is minimized when both parties can signal value-adding, complementary resources that are not direct substitutes for one another. At the same time, the incentives for interaction for the purpose of value creation are maximized.

Confronting this theoretical recommendation with my work supports my findings. The cases showed, indeed, that the higher the "evaluated return" of a business unit of an exchange with complementary investments is, the higher is their willingness to collaborate. Transferring these theoretical findings into an

[4] The eco-system of a business unit includes all aspects of demand and supply: e.g. suppliers, buyers, and deliverers.

applicable guide-line for the CVC unit means: in order to strengthen the business units' collaboration, a CVC unit should not invest in direct substitutive technologies of a business unit, because this could represent a threat for the business unit's technologies and economic success (tentative hypotheses # 6a, # 6c).

However, the decision to collaborate in order to seek access to complementary resources is not straight forward: two actors only collaborate in order to get access to resources that they do not have themselves, "when the hazards of the cooperation can be held to a tolerable level" (Powell et al., 1996). For a collaborative, trusting relationship to develop, the collaborating parties need to be convinced of the ability, benevolence, and integrity of each other. When trust is present, the collaborating firms are more likely to engage in frequent and open interaction. Unfortunately, the resource-based view does not explicitly consider the aspect of trust. This issue will be further analyzed in the forthcoming chapters about social capital (section 3.3.1) and agency theory (section 3.4.1) that are the base for the analysis of the resource exchange and governance mechanisms of relationships.

In summary, the resource-based view describes what kind of resources the business units are interested in. While in inter-organizational constellations there is the necessity to exchange resources, in the intra-organizational exchange of this work it is initially not clear what finally will be exchanged. Regarding the business units the interviews showed that their exchange only comes true if the CVC brings the business unit together with appropriate start-up companies, which represent potential for any resource-exchange. There are two reasons why it is difficult to apply the resource-based theory to this study: first, the exchanging parties are "forced" to collaborate although the beneficial outcome is uncertain. Second, the relationship between the CVC unit and the business unit is only a mediating relationship between the business unit and the start-up company. The resource-based view in this study fails to give insights into the prerequisite of any resource exchange, as e.g. trust. Further, if a CVC unit would strictly follow the resource based-view they might have to limit their investments to only complementary deals, since complementary deals are supposed to offer the broadest basis for any resource exchange. At the same time however, focusing on complementary investments results means not necessarily the

optimal level of technical communication overlap between the CVC unit and the business unit. Investments that are very similar (or almost substitutive) are out of the horizon of the resource-based view (tentative hypothesis # 6c). But what are the effects and implications of similar deals on the willingness and the ability of a business unit to collaborate? Since this discussion is strongly related to knowledge exchange and organizational learning it will lead us the knowledge-based view of the firm which is in the heart of the following section.

3.2.2 Knowledge-based Theory of the Firm and Organizational Learning

The knowledge-based view of the firm developed from the resource-based view, and is often considered as an extension of the resource-based view. There is general agreement in the literature that Nelson and Winter's (1982) evolutionary theory, Prahalad and Hamel's (1990) work on core competencies, as well as zu Knyphausen-Aufseß' (1995) organizational capabilities, and Teece et al. (1997) dynamic capabilities framework all representing streams within the knowledge-based view.[5]

Prior research in the field of the knowledge-based view considers knowledge as the strategically most significant resource of the firm (Grant, 1996). Its proponents argue that heterogeneous knowledge bases and capabilities among firms are the main determinants of sustained competitive advantage and superior corporate performance (Decarolis and Deeds, 1999; Kogut and Zander, 1993). Therefore, knowledge is often conceptually distinguished from information by defining knowledge as processed information. For example Huber (1991:89) notes that information refers to "data that give meaning by ambiguity, equivocality, or uncertainty", while knowledge refers to "more complex products of learning, such as interpretations of information, beliefs about cause-effect relationships." However, although the later definition will be used in this study, the terms "information" and "knowledge" are far from unambiguous, and therefore are often used interchangeably (Huber, 1991).

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[5] Zu Knyphausen-Aufseß (1995) provides a very broad discussion about "what are organizational capabilities" in chapter 2.2.2. Eisenhardt and Martins (2000) further developed the concept of dynamic capabilities.

Many researchers have proposed analyzing the knowledge along various dimensions. The most commonly used dimension is codifiability, or the distinction between tacit and explicit knowledge (Arrow, 1994; Nonaka, 1994; Nelson and Winter, 1982). Other dimensions include observability, complexity, and whether knowledge is independent or embedded in a system (Winter, 1987). Table 3-2 summarizes some dimensions characterizing knowledge.

Table 3-2: Dimensions of knowledge characteristics

Dimension	*Explanation*	*Proposed by*
Tacit-explicit	Can you express the knowledge with symbols?	Arrow, 1994; Nonaka, 1994; Nelson and Winter, 1982
Not teachable-teachable	Can the knowledge be taught?	Winter, 1987; Grant, 1996
Not articulated-articulated	Is the knowledge articulated in symbols?	Winter, 1987
Not observable in use-observable in use	Can you learn the knowledge by observation	Winter, 1987
Complex-Simple	How much and what kind of information is required to characterize the item of knowledge?	Winter, 1987
An element of a system-independent	Is the knowledge dependent on other related knowledge?	Winter, 1987
List-like structure – architectonic structure	Is the knowledge maintained in the form of a list?	Hedlund & Zander, 1993
Specific - generic	Is the knowledge specific to a narrow domain?	Autio, 1995
Not understandable - understandable	Can the knowledge be easily understood?	Wright, 1996

The distinction between tacit and explicit knowledge has been the basis for the emergence of the knowledge-based view of the firm (Kogut and Zander, 1992), and is critical for explaining the imitability of knowledge, the transferability and mechanisms for the transfer of knowledge across individuals (Grant, 1996). Tacit knowledge is linked to the individual, and is very difficult to articulate. While tacit knowledge identifies “knowing how”, explicit knowledge covers “knowing about” (Grant, 1996). The knowledge-based view argues that because tacit knowledge is difficult to imitate and relatively immobile, its transfer between people is slow, costly and uncertain (Kogut and Zander, 1992). For instance, Inkpen and Dinur (1998) report that amount of knowledge transfer is negatively related to the tacitness of knowledge. Similarly, Simonin (1999) found that tacitness, complexity of knowledge, and cultural and organizational distance (mediated by knowledge ambiguity) were negatively related to knowledge

transfer. However, tacit knowledge can constitute the basis of sustained competitive advantage (Grant, 1996; Gupta and Govindarajan, 2000; Kogut and Zander, 1993).

Researchers generally agree that an organization's knowledge resides in its individuals, structural routines, as well as culture (Argote, 1999; Starbuck, 1992; Nelson and Winter, 1982). The knowledge-based view of the firm depicts firms as repositories of knowledge and competencies that are key resources of firm (Kogut and Zander, 1996; Spender, 1996). According to this view, the "organizational advantage" (Ghoshal and Moran, 1996) of firms over markets arises from their superior capability in *creating, accumulating and transferring* knowledge (Nahapiet and Ghoshal, 1998). Knowledge *creation* and innovation result from new combinations of knowledge and other resources (Cohen and Levinthal, 1990; Kogut and Zander, 1992). The *accumulation* of knowledge constitutes a driving force in the development and growth of firms (Penrose, 1959; Spender and Grant, 1996), because knowledge acquisition opens new "productive opportunities" (Penrose, 1959) for the firm and enhances the firm's ability to exploit these opportunities. Knowledge *transfer* might happen through *organizational learning* which has often been viewed as the process through which existing intellectual capital is combined, exchanged and applied through the assimilation of new knowledge into the existing knowledge base (Cohen and Levinthal, 1990; Teece and Pisano, 1994; Autio et al., 2000).

Although *organizational learning* begins with individual learning, it is the outcome of complex, team-based activities (Grant, 1996). In other words, learning on an organizational level does not only depend on individuals' abilities to learn, but also on the integration of skills and know-how among individuals. This is consistent with Simon's (1991:125) observation that: "although all learning takes place inside human individual human heads; an organization learns in two ways: either by the learning of its members, or by ingesting new members who have knowledge the organization didn't previously have." New individual knowledge is transformed into organizational knowledge only when it is shared and is assimilated into organizational routines, documents and practices (Cohen and Levinthal, 1990). Similarly, Steensma (1996) has argued that learning takes place when information is exchanged across the inter- and intraorganizational boundaries of a firm.

Although in organization and management research organizational learning has been characterized in a variety of ways (see for example, Cyert and March, 1963; Levitt and March, 1988; Rosenberg, 1982; Crossan et al., 1999), and a variety of definitions of organizational learning have been proposed, a common notion in various definitions involves the two modes of learning, that is, *exploitation* and *exploration* (Cohen and Levinthal, 1990; Levinthal and March, 1993). *Exploitation* involves the refinement and incremental improvement of *existing* knowledge, skills and processes, whereas *exploration* involves the research for *new* knowledge skills and processes. In other words, organizational learning is a dynamic process in which the parties continuously update their knowledge base and potentially exploit the newly gained knowledge.

The concept of *absorptive capacity* has been shown to be among the most important factors influencing organizational learning (Cohen and Levinthal, 1990; George et al. 2001, Lane and Lubatkin, 1998; Van den Bosch et al., 1999). Cohen and Levinthal (1990) first defined *absorptive capacity* as the firm's ability to (1) recognize the value of new external information, (2) to assimilate it, and (3) to apply knowledge to commercial ends. In contrast to the focus on *how* to acquire knowledge inside the firm, interorganizational relationships, alliances, and networks have often been mentioned as means to acquire knowledge outside the firm (Eisenhardt and Schoonhoven, 1996; Steensma, 1996).

In this study, I follow Huber (1991:89) who showed that organizations not only hold specialized knowledge, but also that an "organization learns if any of its units acquires knowledge which it recognizes as potentially useful to the organizational units", and that "an entity learns if, through its processing of information, the range of its potentials is changed." For this study this definition is of special utility, since it shows a relationship between the acquisition of knowledge by learning and the recognition of its usefulness for a business unit.

To what extent is this theoretical discussion around the knowledge-based view applicable in order to support the developed tentative hypotheses of this work? Huber's (1991) definition of organizational learning is consistent with this study. This work shows that the more useful knowledge is transferred to and acquired by the business unit, the more they might respect the usefulness of CVC investments. However, the cases show that many of the valuable innovation and

learning seem to emerge only in the post-investment phase by the actual collaboration between the business unit and the start-up company or by the implementation of the new technological knowledge in the produced products. But, this increases the BUs' willingness to collaborate (tentative hypothesis # 14). Further, there is consistency regarding the view of individual knowledge repositories. Knowledge was reported to be inherent in individual employees of the business units as well as in single investment managers. Regarding the business units, the know-how of single technical experts is necessary to get access to the required information. The same is true regarding the CVC unit, since the structure of the interviewed CVC teams showed a division in certain technical areas.

Furthermore, within the knowledge-based literature, it has been pointed out that building resources and capabilities suffers from time compression diseconomies (Dierickx and Cool, 1989). This notion goes back to a major hurdle mentioned along all interviews that the CVC units have to overcome. Since the business units are very focused on their operational activities, they fail in getting free resources that can specifically take care about the necessities of the CVC unit. Unfortunately, this time restriction results in paying little attention to the possibilities emerging out of CVC activities. Therefore, I argue that the more commitment corporate top management shows for CVC, the more the business unit will try to provide resources in order to participate in CVC activities in an expected manner (tentative hypothesis # 23). But this commitment has to include corporate top-management placing additional resources (in the form of time and employees) at the disposal for business units especially concerning CVC engagement. Further, the cases showed the same is true regarding a corporate culture that is open for technical novelties which is also dominantly stimulated by corporate top management (tentative hypotheses # 22a, # 22b).[6] Especially *Intel Capital* is an appropriate case example, which may be characterized by an open corporate culture, supportive for technical innovations.

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[6] This issue of the relationship between technological evolution and industry structure has had considerable implications for the establishment of competitive advantages. A broad overview of the role of technology and innovation for strategic management theory is provided by zu Knyphausen-Aufseß (1995, chap. 2.5).

As mentioned above, for learning to occur in a corporation, the actors have to be actively involved. The collaboration asks for an explicit involvement of the operational units throughout the different stages of the investment process. In this sense, business units should not only participate in the evaluation of investment opportunities but also in the support of the portfolio firm (tentative hypothesis # 17). This is even more important since the involvement of the business units in the investment process represents a way of *exploring* a new technological field and to learn the rules of an industry (Keil and Laamanen, 1995; Roberts and Berry, 1985). At the same time, an early involvement increases also the *exploitation* of the business unit's knowledge (tentative hypotheses # 19a, # 19b). The advantage for the CVC unit is that market and technological knowledge already exists in the business units when doing the due diligence, and does not have to be built from scratch by the CVC unit. At the same, the CVC unit should be aware that an early involvement of the business units in the investment process also entails a higher number of transferred deals to business units, which are finally not invested (tentative hypothesis # 18).

But, the remaining question is: what is the business units' incentive to be involved in the investment process? Organizational learning as a kind of knowledge exchange can also be analyzed from an incentive-related perspective. Indeed, numerous studies have identified learning and knowledge acquisition as important motivations for entering inter-organizational relationships (Badaracco, 1991; Häkansson, 1990; Hamel et al., 1989; Kogut, 1988; Keil and Laamanen, 1995; Keil, 2000). The more and the earlier the business units have been structurally involved in the investment process, the higher was the incentive of a business unit to collaborate. This suggests that the relationship between the time of involvement in the investment process and the willingness to collaborate is mediated by the learning effect obtained by the business unit. Therefore the knowledge-based view supports tentative hypothesis # 14. However I found, that organizational learning asks for an appropriate quality of business unit involvement. Therefore, business units should not only be involved just on an 'informative or consulting level'; quite in contrast the business units should be involved on a 'deciding- and realizing level', since this kind of involvement maximizes their learning motive (tentative hypotheses # 19a, # 19b, # 21d). In return, while organizational learning increases their willingness to collaborate, it decreases the necessity of financial incentives (tentative hypothesis # 21 g).

Therefore, this finding goes somewhat beyond the findings of McNally (1997) or Winters and Murfin (1988) who reported the learning motive also for corporate venture capital.

Confronting the various definitions of the organizational learning theory with the corresponding knowledge of the business units shows that the theoretical differentiation of Cohen and Levinthal (1990) in *exploitation* and *exploration* is consistent with my findings. While the *exploitation* of knowledge dominantly takes place in the pre-investment phase by requesting business units' knowledge feedback, the *exploration* of knowledge is more related to the post-investment phase. The case description showed that an involvement of a business unit in the pre-investment phase mainly aims in *exploiting existing* business units' know-how for the due diligence process; an involvement in the post-investment phase pursues more a collaboration of a business unit with the portfolio firms in order to *explore new* knowledge. *Exploring* new knowledge through frequent contacts of the business units to portfolio firms means 'learning about new markets', 'learning about new technologies', and 'learning about new disruptive technologies'. These learning areas have been analyzed as especially important in high velocity environments,[7] since real time information is necessary to monitor the rapid evolution of new markets and spot new technological trends early, as there is little time to react to arising trends (Brown and Eisenhardt, 1997; Eisenhardt and Schoonhoven, 1990). Through the collaboration between the CVC unit and the business units, the business units can learn about the strategic, market, and technological potential of the portfolio firms' technologies (tentative hypothesis # 21c).

According to the theory, when selecting investments, the CVC unit has to be alerted to bring sufficient *new* know-how to a business unit, in order to make knowledge valuable. In this sense, CVC activities can serve as a form of 'market intelligence' that supports the strategy process of a business unit. The 'market intelligence' is not limited to emerging business areas, rather it can also function to monitor developments that affect the current businesses of the corporation.

[7] Examples of high velocity environments are e.g. the information- and communication sectors

Therefore, in this work the aspect of *exploration* is represented by the objective 'enhancement of innovation', and the aspect of *exploitation* is typified by the investment goal 'leverage of strategic assets.' However, the cases showed an interaction between investment stage and the two aspects of exploitation and exploration, such as late stage investments lead to more collaboration in business units that prefer 'leverage of strategic assets',[8] while early stage investments leading to more collaboration willingness in business units that look for 'enhancement of innovation'[9] (tentative hypothesis # 4a).

The theoretical suggestion that the *exploitation* and the *exploration* of knowledge represent the same strong incentive to increase the collaboration willingness of a business unit is not supported by my findings. Quit in contrast, interesting differences in getting the willingness of a business unit to collaborate were found dependent on the type of targeted 'market intelligence'. While the findings suggest that the investment objective 'enhancement of innovation' represent a bigger hurdle in finding the business units' collaboration, the investment goal 'leverage of strategic assets' facilitates the access to a business unit. The potential increase in sales or a security for future demand represents a more direct incentive for the business unit to collaborate (tentative hypothesis # 21b) than to learn something about new technologies in the market. Only the exploitative 'leverage of strategic assets' represents a possibility to generate immediate cash for the business unit. Since the possibility for immediate cash generation is quite limited regarding the explorative 'enhancement of innovation,' it results in lower willingness of the business unit to collaborate. The investment goal 'enhancement of innovation' was found to feed signals about changes in the core business of business units, and therefore decreases the willingness of a business unit to collaborate (tentative hypotheses # 21a, # 21c). While the aspect of 'enhancement of innovation' is applicable to the cases *T-Venture* and *Siemens Venture Capital*, the aspect of 'leverage of strategic assets' was more important for *Intel Capital*, *Motorola Ventures, GE Equity* and *DaimlerChrysler Venture*.

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[8] Examples are application or selling possibilities.

[9] Examples are R&D possibilities and technological spill-over effects.

Moreover, this study shows that learning of 'disruptive technologies' (see for example, Bower and Christensen, 1995; Christensen, 1997) encounters major hurdles regarding the willingness to collaborate. The cases show, that especially if a CVC unit invests in very substitutive technologies the issue arises, whether CVC investments could even represent a threat for the current business unit activities. However, this strategic direction has to be decided by corporate top-management, in order to show their commitment for these 'disruptive' investments against business units (tentative hypotheses #1a, #6a and # 23). Only if a corporation decided to stay out of this problematic scenario of aiming in bringing 'disruptive technologies' to the corporation, the business units should be intensively involved in CVC activities. Besides an involvement in the first screening of deals, this should involve the process of reconciliation of business units' 'strategic holes' and the investment areas of the CVC unit (tentative hypotheses # 17, # 19 a, # 19b).

However, any kind of learning, either explorative or exploitative, supposes that there is a flow of knowledge between the CVC unit and the business unit. But the critical question is what determines the amount of generated and exchanged knowledge in the relationship between a CVC unit and the business unit? Organizational theory suggests that the generation of new knowledge is maximized under the following conditions (for example Autio et al., 2000). Again, in order to make the subsequent paragraphs more readable, I will directly confront the suggested conditions with my case findings.

(1) *In domains close to the domain of existing knowledge*. Cohen and Levinthal (1990) posited that the more similar prior knowledge is to new knowledge, the easier the absorption of the new knowledge due to technological communication overlap. The underlying rationale is the increased "absorptive capacity" of the "recipient" which the learning of tacit and embedded knowledge requires (Lane and Lubatkin, 1998). The knowledge-based theory's suggestion to invest in domains that are close to the domain of existing knowledge is somewhat additional to the findings of the resource-base theory. While in the case of portfolio firms that represent a complementary technology, the willingness of a business unit to collaborate was found to be high, interestingly the willingness decreases the more substitutive the targeted investments are (tentative hypothesis # 6d). The

higher level of substitution increases the possibility that an investment may represent a threat for the current business activities of a business unit, since a business unit is forced to change its own routines and procedures (tentative hypothesis # 6a).

(2) *In conditions under which there are existing routines.* Organizational learning is supposed to be reinforced in all the activities of a firm and, over time, becomes increasingly calcified in organizational practices (Barkema and Vermeulen, 1998; Cohen and Levinthal, 1990). However, the case descriptions show that the work of CVC managers in connecting themselves with a business unit takes place not in a manner of routine. In other words, existing routines are not supportive in getting the willingness of the business units to collaborate in order to generate new knowledge, rather the connection happens through personal networking driven by individuals. Therefore, this aspect suggested by the organizational learning theory is somewhat different to my findings that the more informal relationships and social networks exist between the CVC unit and the business unit (tentative hypothesis # 13), which in return decreases formal routines of governance mode (tentative hypotheses # 16a, # 16b), the higher is the willingness of a business unit to exchange knowledge. Further, the recommendation of this theory to make implicit know-how through existing routines explicit is only rarely followed by the analyzed cases. In this sense, only a small number of CVC are currently in the process of establishing any tools (e.g. in the form of a common CVC database) that allow the access to jointly learned processes and insights based on prior investments.

(3) The adoption of new knowledge involves not merely the learning of new*, but the unlearning of the old knowledge* (Bettis and Prahalad, 1995; Nonaka, 1994; Hedberg, 1981). Acquiring new experiential knowledge involves new ways of thinking which face strong inertial forces to continue in old patterns. This circumstance points to one of the major hurdles which a CVC manager has to overcome. The illustration of the perceived *"not invented here syndrome*"[10] in the case description shows, that this

[10] DaimlerChrysler is an appropriate case example to illustrate the "*not invented here syndrome.*"

'unlearning-process' of existent knowledge, embodied in a certain production technology, seems to produce problems. Especially for externally generated deals the *"not invented here syndrome*" was found to be even stronger (tentative hypothesis # 5). It could be related with the difficulty of overcoming individual, social pride and egoism that may be related with the abandon of the current technology. Further, the rejection could be rooted in a fear of a change of existent production ways or even the end of a whole business unit. However, the unlearning process is facilitated if there is sufficient commitment of the top-management for CVC activities (tentative hypothesis # 23). Further, the more the culture of a corporation reflects openness and curiosity for new technologies and technical know-how, the higher the willingness of a business unit to unlearn existent procedures (tentative hypothesis # 22a, # 22b). Unfortunately, the CVC managers themselves seem to be very limited in their ability to influence the openness that exists between the business unit and the CVC unit; this task falls back on the corporate top-management.

(4) *In conditions where organizational assimilation and subsequent retrieval of the knowledge occurs in an intense and repetitive manner* (for example Grant, 1996). This theoretical suggestion supports different findings of this work. More in detail, the more there is social interaction[11] between a CVC unit and business unit, the higher is the business units' willingness to collaborate with the CVC unit (or the start-up company) in order to assimilate new knowledge (tentative hypotheses # 10a and # 10b). Moreover, the aspect of intense and repetitive manner is also consistent with tentative hypotheses # 9a and # 9b, in that the longer a CVC unit operates within an organization, the higher their effectiveness in collaborating with the business units is. Another advantage of an open corporate culture is its increased likelihood for repetitive and intense communication, and therefore the organizational assimilation and subsequent retrieval of knowledge (tentative hypothesis 22a).

[11] In this work I use three indicators of social interaction. 'Frequency of interaction', was adopted from Sapienza and Gupta (1994). 'Closeness of the relationship' and 'Knowledge of investor's people on personal level', were adopted from Yli-Renko et al. (2001).

Summarizing the theoretical discussion shows that inside and outside sources of knowledge are critical to organizational learning, to the development of a firm's competencies, and the innovation process (von Hippel, 1988). Further, we learnt under what conditions the generation of knowledge is maximized. But even more important is the question, how does the theory help us to understand how these different "knowledge-repositories" within a corporation are connected? In order to avoid a "search-transfer problem" of intraorganizational knowledge, social interaction is a key driver of organizational learning according to empirical research (Nahpiet and Ghoshal, 1998; Cohen and Levinthal, 1990; Yli-Renko et al. 2001). Through a high level of interaction, knowledge and ideas are shared, and common meanings are developed. Brown and Duguid (1991) stress the role of "communities of practice" in providing common structure and meaning for the transfer of knowledge and experience. Confronting this theoretical discussion with my findings shows that this is capable in explaining the tentative hypothesis # 10b. Further, the higher the overall social communication between a CVC unit and the business unit was, the more knowledge was exchanged between both, resulting in a better intraorganizational collaboration (tentative hypothesis # 13).

While empirical studies showed that intraorganizational relationships are viewed as essential for learning processes (for example, Spender, 1992; Doz and Shuen, 1995), the remaining question becomes what types of learning take place in relationships? According to Doz and Shuen (1995), intraorganizational relationships are fundamental for five *types* of learning: (1) *environmental*, (2) *task*, (3) *process*, (4) *skill*, and (5) *goal learning*. To what extent are these findings applicable to this study?

Indeed, the collaboration between the CVC unit and the business unit reflects all five learning types. In terms of *environmental learning* this study shows that the business units often have problems in understanding and adapting the environmental circumstances of the CVC investments and the start-up area concerning their way of thinking. Especially, overall in the very beginning of the existence of a CVC program this was reported as being problematic. However, the longer the CVC unit was in place (tentative hypotheses # 9a and # 9b), and the more the CVC managers have formerly worked in other business units of the company (tentative hypothesis # 7a), the easier was the process of bringing these

"different environments" (see *Intel* interview) of business unit-style and CVC/start-up style together.

Also, *task* and *process learning* are transferable to this study. A reasonable belief, why the CVC unit sometimes has to wait an unacceptable time for business unit feedback, could be that the business units do not really understand the process of CVC investing as something that requires fast decisions by the CVC managers. The interviews show that the more a CVC unit followed a well-structured investment process, including structural imperative tasks a business unit has to deliver, the easier was the collaboration since it supports that the business unit learns about their tasks and the investment process (tentative hypothesis # 17).

In contrast to that, the aspect of *skill learning* is only very limited applicable to this study, since the collaboration of the CVC unit and the business unit does not aim at learning the technical skills of each other. Quite in contrast, the interviews show a clear separation in financial-aspects, representing the skill area and responsibility of the CVC manager, and in product-aspects, which is the skill domain and responsibility of the business unit.

However, especially the learning type of each other's *goal* characterizes best the kind of learning the CVC unit and the business unit undergo in their collaboration process. The case descriptions provided evidence that the business unit not lacks understanding the overall CVC objectives. At the same time the collaboration process requires that the CVC managers need to consider and understand that the primary goal of a business unit is not related to any CVC activities. I found that the more the CVC managers show organizational experience through their previous work in other operational units of the corporation, the better they were able to 'smooth' the collaboration process. The more the CVC managers maintained other positions in the corporations, the more knowledge has been accumulated about the corporation's decision-makers, processes, and existent goals within the business units. This underpins the important role of the investment manager in increasing the willingness of a business unit to collaborate (tentative hypotheses # 7b and # 7c). Further, the process of goal-learning is facilitated the more the CVC unit follows strategic goals that provide the business units with strategic relevant information for current operational areas (tentative hypothesis # 1a).

However, Doz and Shuen's (1995) findings implicitly assume that the new knowledge, the "window on technology", is transferred to and diffused in the business units. There are only few studies that explicitly provide hints about the mechanisms and processes through which learning takes place. The *diffusion of knowledge* within organizations has been explored as a critical element that defines the level of learning (Levitt and March, 1988). Since the business units' knowledge required by the CVC unit differs with each investment and due to the fact that the required knowledge is also very specific to a certain employee, the conversion of tacit into explicit knowledge mentioned by Nonaka (1994) by simply codifying it in a database is not applicable to this study. This difficulty may explain why *GE Equity* was the only company that actively refers to a "CVC database" that includes all information about past investments. Nevertheless, the more supportive infrastructure (e.g. in the form of a database) exists, the higher is the CVC unit's capability to collaborate along the investment process (tentative hypotheses # 12a, # 12b).

But, even more important for this study is the reference in the theory concerning factors that influence the *transfer of knowledge.* Although much of the literature has examined this aspect in the context of interorganizational boundaries, they are also applicable to the intraorganizational perspective of this study. One major hurdle in knowledge transfer is the "stickiness of knowledge", which is rooted in the subsequently presented *characteristics of the transfer situation* (Szulanski, 1995):

(1) The knowledge source is reluctant to share crucial knowledge for fear of losing ownership, a position of privilege, or of not being adequately rewarded for sharing hard-won success.
(2) The source of knowledge is not perceived as trustworthy or knowledgeable (Arrow, 1971).
(3) The lack of motivation of a recipient to accept knowledge from an external source and to engage in activities to utilize the knowledge.
(4) The lack of prior related knowledge to exploit outside sources of technology. The stock of prior related knowledge determines the "absorptive capacity" (Cohen and Levinthal, 1990).
(5) The lack of "retentive capacity", that is the maintenance of new knowledge by extending its full use (Glaser et al., 1983).

(6) A 'barren' organizational context due to formal structure and systems, sources of coordination and expertise and behavior framing attributes of the organizational context.
(7) Finally, an arduous relationship between the source and the recipient of the information.

To what extent are these results applicable to the explanation of the findings of this thesis? Since the case descriptions showed that the majority of required knowledge by a CVC unit along the investment process extends from the business units (i.e. information about internal deal possibilities, results about the due diligence, etc.), I refer to the business units as the *source* of information and the CVC unit as the *recipient*. The first mentioned characteristic of the transfer situation, the (1) *fear of losing ownership* or position of privilege on the side of the business unit, explains why business units are often not willing to transfer the knowledge in the expected way. The business unit fears that the knowledge about a new technology could threaten the existence of their current operations. Furthermore, this theoretical insight illuminates why a higher exposure of a CVC unit to invest in substitutive technologies is related with less willingness of a business unit to collaborate (tentative hypotheses # 6a).

(2) In order to make a valid statement regarding the aspect of *trust*, first we need to clarify what trust means. Morgan and Hunt (1994) conceptualized trust as existing when one party has confidence in an exchange partner's reliability and integrity. This definition of trust is consistent with the findings of this study, in the sense that the more the CVC unit and the business units mutually trust each other, the more likely an exchange of specific know-how between the CVC unit (including the portfolio firms) and the business units is (hypotheses # 16a). Trust is an important issue both when the CVC unit transfers the business plans to the business units for doing a technical due diligence, as well as when the business units transfers "their" technical know-how to the CVC unit. However, since the corporations do not have any "non-disclosure agreements" for the knowledge exchange between the business unit and the CVC, it is not reasonable to believe that lack of trust characterizes the relationship between the business unit and the CVC unit. At the same time it is important to mention that although formal control mechanisms become less important by trust, in no way it becomes dispensable (tentative hypothesis # 16b).

(3) The *lack of motivation* by a business unit for CVC activities seems to represent one of the biggest problems a CVC program has to overcome, since often the business units are not compensated appropriately for their effort related to a knowledge transfer. One reason for the limited motivation seems to be related to limited incentive systems (tentative hypothesis # 21a). These weak incentives have to be overcome by the transfer of more incentives to a business unit: either by providing the business unit with more strategically relevant information (tentative hypothesis # 21c), by financial returns that go to the business unit (tentative hypothesis # 21b), or by an intensified involvement of business units in the advisory boards of portfolio firms (tentative hypothesis # 21d).

(4) The characteristic of *prior related knowledge* of the theory is partly consistent with the view of my model. While the theories' assumption is applicable regarding complementary deals, it is not transferable regarding substitutive investments (tentative hypothesis # 6d). While complementary deals are eventually situated in industry areas distant from the organizations' core, substitutive deals are supposed to range in areas very close to the core activities of the corporation, followed by an increased capability of the business units to collaborate (tentative hypothesis # 6d).

(5) Interestingly, in the context of *lack of retentive capacity* the case studies draw a different picture. Quite in contrast, the interviews showed that the CVC unit is able quite well to use the information they received from the business units in order to proceed the investment process.

(6) In turn, the component of a *barren organizational context* is consistent with the view of this study. In addition, I argue that the more the CVC unit is structurally positioned as a core activity of a corporation with low levels of hierarchy and authority, the higher the willingness of the business units to transfer knowledge (hypothesis # 3).

(7) The final consistency with the results of this work emerges regarding an *arduous relationship* that might hinder the knowledge transfer. Again, the better the personal relationships between the investment managers and the business unit people are, the higher the amount of knowledge exchange (tentative hypothesis #

13), and hence, the higher the collaboration willingness of a business unit is (tentative hypothesis # 14).

Taken together, these and other studies of knowledge transfer (Simonin, 1997; Capron, 1999) indicated that knowledge transfer is affected by knowledge characteristics and by the relationship between the business unit (sender) and the CVC unit (recipient). Especially in the intraorganizational context, the tacitness (Inkpen and Dinur, 1998), complexity, and ambiguity of knowledge (Simonin, 1999) reduce knowledge transfer between the CVC unit and the business unit. However, transferring knowledge is in no way an efficient approach in *integrating knowledge.* Therefore, the issue of knowledge integration will be analyzed subsequently.

The theory that views the firm's primary task as integrating the specialized knowledge of the multiple individuals suggests that even with goal congruence, achieving effective coordination can be problematic (Hill, 1994). However, there is a strong need to coordinate the cooperation of otherwise independent divisions so that sills and knowledge can be transferred and shared (Hill, 1994). Bringing the assumption of goal congruence together with my study's findings shows that there is a strong relationship between CVC units' and business units' goal congruence in strategically oriented investments and the willingness of the business unit to collaborate. Therefore, this component of the knowledge-based view is consistent with tentative hypothesis # 1a. However, similarity in goals is a necessity but not a sufficient condition for a successful coordination of the CVC unit and the business unit. To what extent are theoretical implications helpful concerning knowledge integration? Grant (1996) points to four coordination mechanisms for integrating specialized knowledge:

(1) *Rules and directives*: These 'impersonal' approaches to coordination involve 'plans, schedules, forecasts, rules, policies and procedures, and standardized information system' (Van de Ven et al., 1976). As recognized by Demetz (1991:164) direction is a "low cost method of communication between specialists and the large number of persons who are specialists in other fields." Such rules and directives are seen to provide a means by which tacit knowledge can be converted into readily comprehensible explicit knowledge (Grant, 1996).

(2) *Sequencing*: In the literature 'sequencing' is seen as probably the simplest means by which individuals can integrate their specialist knowledge while minimizing communication and continuous coordination is to organize activities in a time-patterned sequence, such that each specialist's input occurs independently (Nonaka, 1994; Thompson, 1967).

(3) *Routines*: While these 'relatively complex pattern of behavior' (Winter, 1986:181) can be interpreted as simple sequences, their interesting feature is seen as their ability to support complex patterns of interaction between individuals in the absence of rules, directives, or even significant verbal communication (Grant, 1991).

(4) *Group problem solving and decision making*: While all of the above mentioned mechanisms seek efficiency of knowledge integration through avoiding costs of communication, some tasks require more personal and communication-intensive forms of integration (Galbraith, 1973; Grant, 1991). Reliance upon high-interaction, non-standardized coordination mechanisms increases with task complexity (Perrow, 1967) and task uncertainty (Galbraith, 1973; Van de Ven et al., 1976).

Generally, the knowledge-based view recognizes high costs of consensus decisions given the difficulties of communicating tacit knowledge. Hence, efficiency in organizations tends to be associated with maximizing the use of rules, routines and other integration mechanisms that economize on communication and knowledge-transfer. Problem solving and decision-making by teams is reserved to unusual, complex and important tasks (Grant, 1996).

Having these insights about knowledge integration, the crucial question is: to what extent is this consistent or contradictory to the results of this study? Undoubtedly, the arising tasks in the collaboration between the CVC unit and the business unit can be characterized as 'unusual, complex and important tasks' (Grant, 1996). Interestingly, the findings of this theory correspond only partly to what I found. Regarding the collaboration process between the CVC unit and the business unit, *rules and directives* are only applicable to the extent that the involvement of a business unit follows defined structural imperatives along the investment process (tentative hypothesis # 17). These knowledge integration mechanisms are more relevant for the investment standards of the CVC unit and

its reporting instructions to corporate top-management. Putting aside the 'collaboration agreements' and 'control reports' that are partly used, the relationship between the CVC unit and the business unit is predominately managed by informal governance mechanisms, such as trust or personal relationships (tentative hypotheses # 16a, # 16b).

Similarly, *sequencing* does not represent a helpful possibility in organizing the relationship of interest in this work. Since, already by definition it minimizes any communication between two actors, it would be directly opposed to increasing the recognized low level of communication between the CVC unit and the business unit (tentative hypothesis # 10a).

Somewhat more appropriate in explaining the collaboration between the CVC unit and the business unit are *routines*, since they support complex pattern of interaction between the involved actors. Regular meetings, internal fairs, or routines in the investment process that take place between the CVC unit and the business unit are often apparent in the case descriptions. These mechanisms are found to be useful concerning the knowledge integration between the CVC unit and the business unit (tentative hypothesis # 10b).

Almost absent in this work is *group decision making*, since the business units are generally not part of the investment committee, executing and responsible for the final investment decision. However, I found that a more frequent involvement of business units on a decision-making level leverages the integration of knowledge and the willingness of business unit to collaborate (tentative hypotheses # 19a, # 19b).

Overall, these theoretical suggestions appear to represent important ways to overcome the challenges of knowledge integration created by the existence of different knowledge and different modes of knowing. In this sense, the mentioned mechanisms have enormous power to improve and impede knowledge integration (Pettigrew et al., 2001). Since all mentioned mechanisms for knowledge integration are necessitated by the differentiation of individuals' stocks of knowledge, all depend upon a common way to express knowledge for their operation. The importance of a common knowledge is that it permits

individuals to share and integrate aspects of knowledge which are not common between them (Grant, 1996).

In the knowledge-based theory, different types of common knowledge fulfill different roles in knowledge integration. First, a *common language* is fundamental to integration mechanisms that rely on verbal communication between individuals. Second, *all forms of symbolic communication*, and familiarity with the same databases enhance the efficiency and intensity of communication-based knowledge integration. Third, the level of sophistication that communication-based modes of knowledge integration achieve depends upon the extent of *commonality in their specialized knowledge.* Fourth, tacit knowledge can be communicated through the establishment of *shared understandings,* like common cognition schema, metaphor and analogy between individuals (Spender, 1989; Nonaka and Takeuchi, 1995). Finally, shared understanding facilitates coordinated activity, but effective knowledge integration requires each individual being aware of *everyone else's knowledge domains* (Thompson, 1967).

Summarizing the purpose of knowledge integration, the organizational learning literature claims the higher the level and sophistication of common knowledge among the involved actors, the higher is the level of knowledge integration by more efficient communication. In the case that a CVC unit focuses on similar or even substitutive technologies regarding the current business unit activities, the theoretical requirement of a *common language* base is given (tentative hypotheses # 6c, # 6d). Regarding other forms of *symbolic communication*, the suggested use of common databases is congruent with the findings of this work. The more supportive infrastructure exist that the business unit and the CVC unit refer to (e.g. common deal-flow database), the more efficient is the collaboration (tentative hypotheses # 12a, # 12b). However, in the context of the *commonality of specialized knowledge*, this work draws a different picture. Instead of striving for a basic commonality of specialized knowledge of the business unit and the CVC unit, quite in contrast, the actors aim at evading this necessity by the definition of technically separated responsibilities along the investment process (tentative hypotheses # 19a-19e). Moreover, the *shared understanding* among the business units of CVC activities as a useful "tool" for the corporation's economic success is positively related with the willingness of a business unit to transfer

knowledge (tentative hypotheses # 22b, # 22b). The maintenance and diffusion of shared understandings falls back to the top-management and their commitment showed for CVC activities (tentative hypothesis # 23). However, the communication-based modes of knowledge transfer are more helpful than just a supportive corporate culture in bringing the business units' knowledge to the CVC unit and vice versa. A higher number of common interaction platforms between the investment managers and the business units, e.g. team-based meetings, allow to be aware of *everyone else's knowledge domain* (tentative hypotheses # 10a, # 10b). In order to give an overview on the numerous concepts discussed related to the knowledge-based theory, the following table 3-3 summarizes the mentioned dimensions, discussed variables and parameters, as well as its authors.

Table 3-3: Dimensions, variables and authors of discussed knowledge concepts

Dimension	Discussed Parameters and Variables	Proposed by
Modes of learning	• **Exploitation** • **Exploration**	• Cohen an Levinthal (1990) • Levinthal and March (1993)
„Absorptive capacity"	• **Recognize the value of information** • **To assimilate the information** • **To apply knowledge to commercial ends**	• Chohen and Levinthal (1990) • Lane and Lubatkin (1998)
Factors that maximize the generation of knowledge	• **Close to the domain of existing knowledge** • **Existing routines** • **Unlearning of old knowledge** • **Intensive, repetitive manner**	• Autio, Sapienza and Almeida (2000) • Cohen and Levinthal (1990) • Nonaka (1994), Grant (1996)
Types of learning	• **Environmental** • **Task** • **Process** • **Skill** • **Goal**	• Doz and Shuen (1995)
Characteristics of the transfer situation	• **Source of knowledge is reluctant** • **Source of knowledge is not trustworthy** • **Lack of motivation** • **Lack of prior related knowledge** • **Lack of retentive capacity** • **Barren organizational context** • **Arduous relationship between source and recipient**	• Szulanski (1995) • Arrow (1971) • Cohen and Levinthal (1990) • Glaser, Abelson and Garrison (1983)
Mechanisms to integrate knowledge	• **Rules and directives** • **Sequencing** • **Routines** • **Group solving, decision making**	• Grant (1996) • Demetz (1991) • Van de Ven (1976)

Before concluding this section, shortcomings of the knowledge-based view are discussed in order to be in line with the above mentioned chapter outline. One substantial deficit is that this theory gives no recommendations on how the actual learning process between the CVC unit and the business unit should take place. Further, it is difficult to measure any learning processes in a business unit, although this would be necessary for a better understanding of the incentives of a business unit. Moreover, while the knowledge-based view conceptualizes

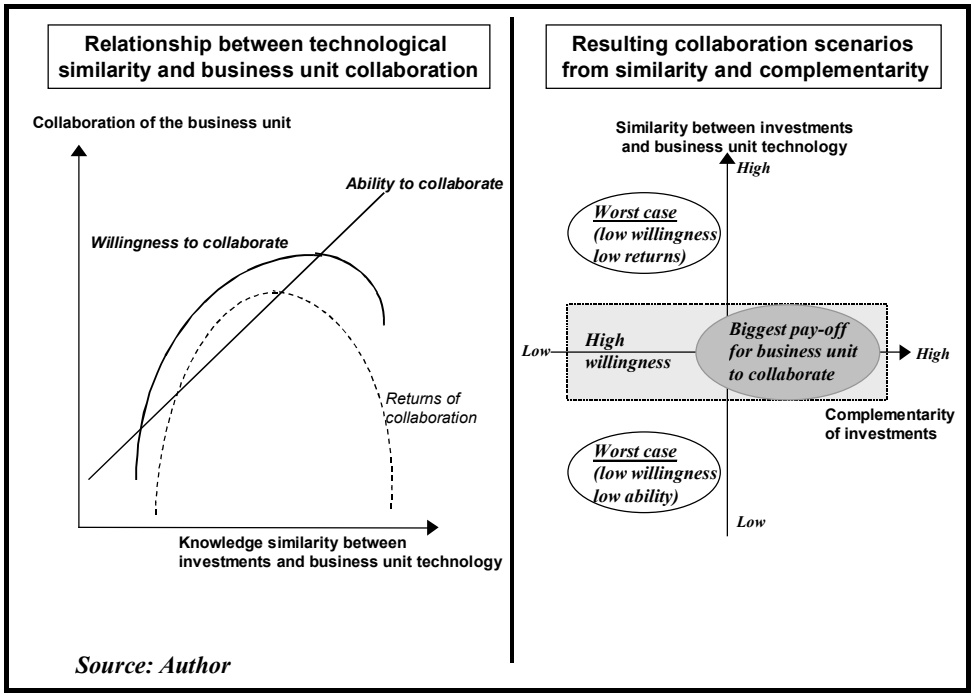
knowledge as a resource that can be acquired, transferred, or integrated in order to achieve sustained competitive advantage (Eisenhardt and Santos, 2000), the cases showed that the business units often fail to understand that their special knowledge represents a major source of useful information for the CVC unit. Further, another assumption of the theory is that a business unit is aware of the positive effects of transferring knowledge in order to learn. Unfortunately, since the CVC needs information from operational places that are distributed along very diversified activities and often possessed by "egoistic" individuals, the realization of the supposed competitive advantage hide more barriers to overcome than assumed by the theory. Thus, corporate top management has to focus on removing obstacles of the collaboration between the CVC unit and the business unit, and providing appropriate incentives.

A further drawback is, that even the scholars of the knowledge-based view seem to be divided in two main streams. One stream argues that relationships in terms of learning are always beneficial for the business units. Cohen and Levinthal (1990) argued that firms get locked out of certain types of knowledge if they do not acquire it early on. However, in developing their "competency traps", they are limited to the pursuit of a narrow set of opportunities suited to existing competencies. This aspect is consistent to the analysis of the business units' attitude towards CVC. Indeed, the business units are very focused on their "competency traps", which are given by their operational daily business. However, favoring "competency traps" may impede a successful collaboration between the business unit and the CVC unit. Business units often rejected the learning of new business strategies since it was found to be something that could threaten the current strategy of the business unit. Moreover, business units seem to be afraid of a loss of "their" proprietary knowledge by a transfer to the CVC unit, or later in the post-investment, by an exchange with a portfolio firm. Therefore, Cohen and Levinthals' (1990) suggestion supports tentative hypothesis # 6a, independently of the higher business units' capability to collaborate due to similar technologies (tentative hypothesis # 6c). Interpreting the loss of proprietary knowledge as a "negative" strategic incentive for a business unit to collaborate, these theoretical insights further support tentative hypothesis # 21c. Therefore, my findings follow another stream of learning theory that showed "path dependency" represents a constraining effect of the

firm's knowledge base (for example Kogut and Zander, 1996). The interviews showed since the business units are very "path dependent", the collaboration effort of the CVC unit sometimes fails or even is rejected. Insofar, the CVC either could go the easy way by focusing on investments very close to the "competency traps" of the business units, or could invest in very competitive technologies away business units' path in order to learn new technologies that are important for the survival of the corporation as a whole in the long term.

Resulting from the discussion above, the analyzed relationship between on the one hand similarity and complementarity of investments and on the other hand willingness and ability to collaborate, is summarized figure 3-4. The right hand side of this figure shows that while knowledge similarity steadily increases the ability of a business unit to collaborate, the willingness of a business unit shows the form of a parabola. While too less similarity impedes a common language in order to exchange knowledge, too much similarity does not allow that a business unit learns new knowledge. On the left hand side, the best collaboration willingness represent investments that incorporate medium similarity to existing business unit technologies. The pay-off for business units is maximized when the deals show a high complementary technology.

Figure 3-4: Relationship between on the one hand similarity/complementarity of investments and on the other hand willingness/ability to collaborate



In summary, knowledge-based view has offered explanations for some patterns observed in the case study chapter. Explanatory power concerns the recommendations about complementary and similar investments. While the consideration of the aspects complementarity and similarity concerning the selected portfolio firms were shown to be mainly useful in forecasting the resulting capability of a business unit to collaborate, it partly neglects the willingness of business unit to collaborate. It has been shown that it is less the involvement of business units in the investment process per se, rather the effective choice of a CVC unit when selecting investment companies in the pre-investment phase. However, in order to achieve an efficient selection of companies, the business units already should be involved in the investment process when deals are screened and selected. This is even more critical since the most important learning seems to take place directly between the portfolio firms and the business unit in the post-investment phase. In a sense, while the CVC unit has to realize the most appropriate "connection" between the business unit and the portfolio companies, the CVC unit is not directly involved regarding the learning and knowledge exchange that takes place between the portfolio firms and the business unit. In the actual process of learning, the CVC unit only represents a "moderator" between the two actors: the business unit and the portfolio firms.

Concluding, it has been shown along the discussion of the resource-based theory and the knowledge-based theory that it is less important for a CVC unit to know "what" and "how", than it is to know "who" they have to bring together. Due to the fact that the required knowledge is maintained by individuals in the context of CVC activities, the interesting question for the CVC companies becomes how to link and connect the CVC managers with the business unit. As many scholars have argued, networks of intraorganizational linkages are effective for exchanging resources by intraorganizational collaboration (e.g. Nahapiet and Ghoshal, 1998; Nohria and Garcia-Pont, 1991; Hansen, 1999; Powell, 1990). In the search for explanations that appear more appropriate, the subsequent section confronts exchange related theories with the case findings. This discussion will include some aspects about social capital theory (chapter 3.3.1) and network theory (chapter 3.3.2), since these theories are important for exchange relationships.

3.3 Confronting exchange-related theories about relationships with the case findings

Since not all required resources are given within one business unit and the efficient creation of value requires joint action between different organizational parts within a firm, exchange-related theories about relationships need to be analyzed. Here, social capital- and network theory give insights into relationships for the effective exchange. The field of exchange related-theories is extremely heterogeneous. It is characterized by methodological and conceptual diversity that, on the one hand, adds to the richness and breadth of the field, yet on the other hand, indicates the absence of a common theoretical base.

3.3.1 Social Capital Theory

The development of the social capital framework builds on ideas introduced by social exchange theorists (for example, Homans, 1961; Blau, 1964; Jacobs, 1965; Putnam, 1995), who emphasized the social relationships between actors engaging in transactions, and drew on Granovetter's (1985) work on the "social embeddedness of economic action." Later, Coleman (1988:98) introduced and developed the social capital framework in modern sociology, and defined social capital as "a variety of different entities, which consists of some aspect of social structures, and facilitates certain actions of actors within the structure… social capital is productive, making possible the achievement of certain ends that in its absence would not be possible." More recently the concept has been applied in organizational studies, where it has been used in connection with the social context of organizations and inter- and intraorganizational relationships (for example, Burt, 1992; Leana and Van Buren, 1999; Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998). In order to differentiate social capital from human capital, simplistically, social capital can be characterized as *"who you know",* while human capital represents "*what you know.*" The importance of social capital in the context of this work was illustrated in the case description, since it is important for a CVC manager to bring the decisive persons together to one table.

What reflects social capital? The central proposition in the social capital literature is that networks of relationships constitute or lead to resources that can

be used for the good of the individual or the collective. The concept of social capital reflects the idea that knowledge is embedded in a social context, and that knowledge is created through ongoing relationships among entities. Social capital theory suggests that networks of strong, personal relationships may lead to the development of trust, cooperation, and collective action (Burt, 1992). The pattern of the relationships are the basis for social capital. Bourdieu and Wacquant (1992:119) developed a definition of social capital as "the sum of resources, actual or virtual, that accrue to an individual or group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition." This definition focuses on benefits that can be achieved by participating in social networks and on deliberate construction of social relationships for the purpose of achieving these benefits. In the work of Bourdieu (1985) and Bourdieu and Wacquant (1992), the social relationships that allow individuals or groups to claim access to resources are distinguished from the amount and quality of these resources. The distinction between the physical resources and social capital that provide access to those resources is important for understanding social capital (Galunic and Moran, 2000; Portes, 1998).

The relationships themselves providing access to the physical resources can be considered as a higher-order resource (Nahapiet and Ghoshal, 1998) for the individual or organization, hence the label social capital. Nahapiet and Ghoshal (1998) argued that social capital may lead to knowledge creation through the combination and exchange of knowledge, skills and capabilities between entities. These authors defined social capital as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet and Ghoshal, 1998: 243). As social capital is embedded within relationships of individuals, resources become available through contacts among individuals. Two main ideas have been provided regarding the beneficial effect of social capital (Nahapiet & Ghoshal, 1998). First, social capital may enhance the efficiency of an exchange or decrease the exchange cost because less monitoring is needed in trustful relationships. Second, social capital may stimulate the learning and creation of new ideas through the enhanced level of cooperation between exchange partners. In a similar vein, Leana and Van Buren (1999) define "organizational social capital" as a resource reflecting the character of social relations within the

organization, and distinguish between the two elements, i.e. associability and trust. First, associability is defined as the willingness and ability of individuals in an organization to subordinate individual goals and associated actions to collective goals and actions. Second, trust consists of dyadic/generalized[12] trust and fragile and resilient[13] trust. Resulting from this overview about existent definitions of social capital in the literature, this study considers social capital as a mediating factor that facilitate the availability of resources and knowledge transfer.

After having defined the term social capital, subsequently I will represent the main variables of social capital. Social capital is a multidimensional concept (Granovetter, 1985; Nahapiet and Ghoshal, 1998; Tsai and Ghoshal 1998; Yli-Renko et al. 2001). Nahapiet and Ghoshal (1998) defined three interrelated dimensions of social capital: the *structural,* the *relational,* and the *cognitive dimension*. The *relational* dimension of social capital describes personal relationships that develop among people through a history of exchanges (Granovetter, 1992). This dimension focuses on the particular relations individuals have and the impact of these relations on their behavior. The main components of the relational dimension are trust[14] (Fukuyama, 1995; Putnam, 1993), norms, obligations, and identification (Burt, 1992; Coleman, 1990; Granovetter, 1985). The *structural* dimension of social capital refers to the overall pattern of connections between individuals (Burt, 1992). This dimension reflects the presence of strong social ties between individuals (Scott, 1991), the network configuration and appropriate organization in describing the pattern of linkages. The *cognitive* dimension of social capital refers to the presence of shared representations, interpretations, and systems of meaning among parties

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[12] While fragile (also referred to as instrumental or transacting) trust is based on perceptions of the immediate likelihood of rewards, is resilient (also referred to as relational, deep, knowledge-or identification) trust based on stronger and more numerous links between organizations and its members.

[13] While dyadic trusts represents trust between two parties which have direct knowledge of each other, is generalized trust based on norms and behaviors that are generalized to others in a the social unit as a whole.

[14] Trust was found to be a central governance mechanism in the social relationships between organizations (i.e. Uzzi, 1997; Larson, 1992). In this context, trust can be defined as "the confidence in another's goodwill" (Ring and Van de Ven, 1992). For an extensive review on trust, see Rousseau et al. (1998).

(Nahapiet and Ghoshal, 1998). It is argued that each of these dimensions influence resource exchange and development through various mechanisms, such as giving parties access for combining and exchanging resources, the anticipation of value through resource combination and exchange, the motivation to combine or exchange knowledge, or the capability to combine resources.

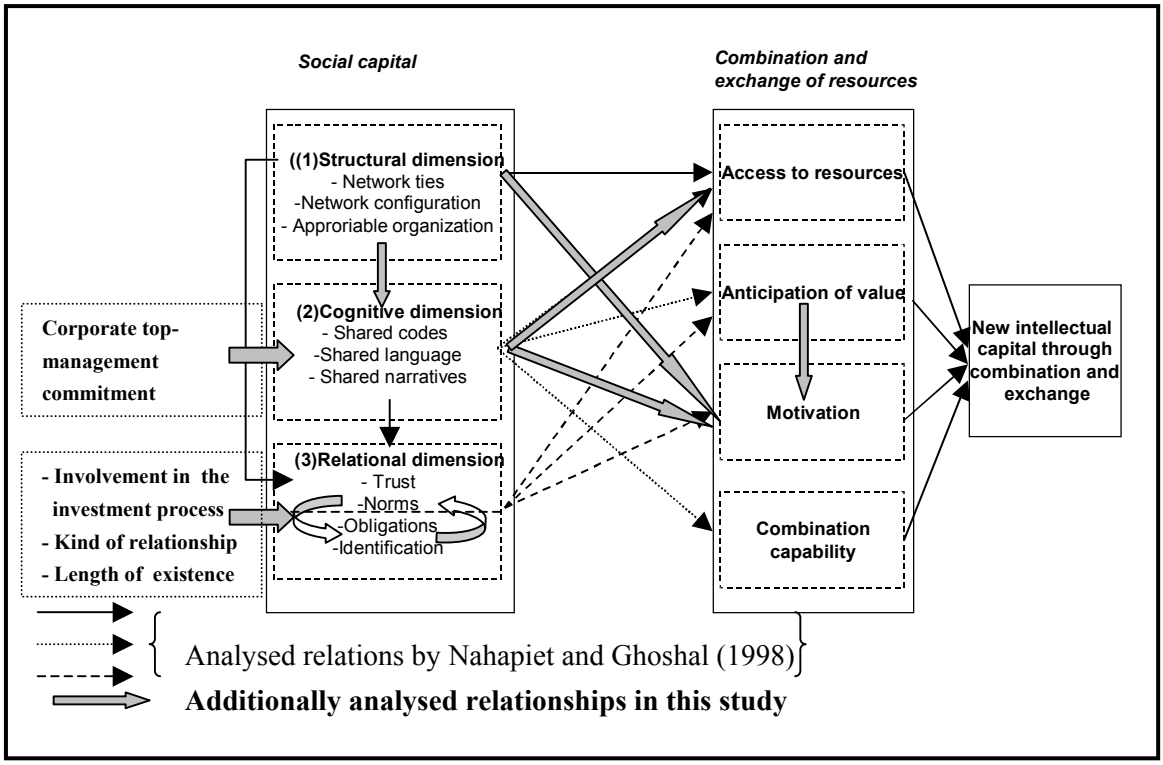
In empirical research, social capital has been applied in various levels of analysis including the relationships of individuals (Galunic and Moran, 2000; Higgins and Gulati, 2001), teams (Hansen et al., 1999; Reagans and Zuckermann, 2001), projects (Hansen, 1999), organizational units (Tsai and Ghoshal, 1998; Tsai, 2000, 2001), firms (Stuart et al. 1999; Stuart, 2000), single dyadic relationships (Mohr and Spekman, 1994; Yli-Renko et al. 2001), networks (Uzzi, 1997; Walker et al. 1997), and firm-market interfaces (Baker, 1990). Focusing on the relational qualities, Yli-Renko et al. (2001) found that social capital enhances knowledge acquisition by improving access to external sources of knowledge, by increasing the willingness and ability of exchange partner to identify, exchange, and assimilate knowledge, and by improving the breadth and efficiency of knowledge transfer. Recent research has acknowledged that social capital also represents costs, and that the value of social capital is contingent on whether the benefits exceed the costs[15] (Leana and Van Buren, 1999, Hansen et al. 1999; Higgins and Gulati, 2001).

But there is very little research that has explicitly explained the link between organizational learning and social capital in the context of intraorganizational relationships. Whereas Nahapiet and Ghoshal (1998) focused on the role of social capital between organizations, in this study social capital is examined in an intraorganizational context. However, since social capital also has been applied to various intraorganizational levels of analysis (for example, Tsai and Ghoshal, 1998; Tsai, 2000, 2001), it can be assumed that the social capital framework is applicable for the intraorganizational context of CVC in this work as well. To what extent are the theoretical findings congruent with the results of this study? For answering this question, subsequently I will confront the suggestions of

[15] While benefits include commitment justification, work flexibility, collective organization, intellectual capital, costs could be maintenance costs, foregone innovation, institutionalized power (Leana and Van Buren, 1999).

Nahapiet and Ghoshal (1998) and of Tsai and Ghoshal (1998) in a summarized way with the findings of this work. The main findings of these authors about relationships are summarized in figure 3-5:

Figure 3-5: Nahapiet and Ghoshal's (1998) main findings in relationships



Source: Author, based on Nahapiet and Ghoshal, 1998

In the search for further explanations for this study, subsequently I compare the main relationships of the social capital theory along this sequence: (1) *structural dimension,* (2) *cognitive dimension* and (3) *relational dimension*. However, regarding the (1) *structural dimension*, the confrontation of Nahapiet and Ghoshals' findings (1998) with the preliminary hypotheses of this work lead to a different picture. Besides acknowledging, that trust on the side of the business units positively influences their 'motivation', my study suggests that also the structural dimension of the CVC unit has impact on the business units' 'motivation' to collaborate and exchange resources. I observed that the more a CVC unit is structurally positioned as a core activity of the corporation, the higher the willingness of the business units to collaborate is (tentative hypothesis # 3). Also, the less the legal structure of a CVC unit (e.g. in the form of a 'Limited Liability Company', LLC.) induces the image of the CVC unit as

somewhat separated from other business units, the higher the 'motivation' of the operational people to collaborate is and the easier is the 'access' to them is. Moreover, the higher the joint vision of CVC activities within a company as something important for the success of the overall corporation is, the higher is the motivation of a business unit to collaborate. The development of this common vision between a CVC unit and a business unit was found to be directly induced by a very strong focus in investments strategically related to the business unit activities (tentative hypothesis # 1a), and by the length of existence of the CVC program (tentative hypotheses # 9a, # 9b, # 9c). Indirectly, a common vision (cognitive level) was strongly supported by the commitment of the corporate top-management (tentative hypothesis # 23). The confrontation of social capital theory with this study shows that the theory fails in providing a deeper explanation of the relationship between the 'anticipation of value' possible through the business units' collaboration and their 'motivation' to collaborate. In addition, this work shows that the higher the 'anticipated value' of a resource exchange by new technology insights is for a business unit, the higher is its 'motivation' to collaborate (tentative hypotheses # 14, # 21c).

These issues aside, the theory's finding that the (2) *cognitive dimension*, mainly the shared codes and language, influences positively the 'capability to exchange' resources is consistent with the findings of this work. Indeed, the more the CVC unit and the business unit are able to refer to a common (technological) language, the higher is the business units' 'capability' to collaborate. The case description illustrated that the more a CVC unit invested in technologies that are close to a business unit activity, in the sense of similarity of a technology, the more common language developed between the CVC unit and the business unit (tentative hypothesis # 6d). Unfortunately, social capital theory fails in explaining the observed relationship between 'shared language' and the 'access to parties' to exchange resources. The cases demonstrate that the more a CVC unit focuses in their investment selection on companies using a similar (or even the same) technology as a business unit, the easier it is for the CVC unit to get 'access' in a business unit, when acting as a moderator between the portfolio firm and the business unit (tentative hypothesis # 6e). In this sense, the more a portfolio company and the business units are able to apply a common language, the easier it is for a business unit to 'anticipate the potential value' that a portfolio firm could offer to the business unit. Therefore, when a CVC unit

determines their focused investment area, this aspect should be considered (tentative hypothesis # 6a).

Regarding the (3) *relational dimension* of social capital, another similarity of the arguments of social capital theorists and the emerged results of this work has to be mentioned. This work also found a positive relationship between the aspect of trust and the 'motivation' (tentative hypothesis # 16a). The more a business unit employee has personal trust in a CVC manager, the easier it is for the CVC manager to get 'access' to the surrounding business unit of this employee. Moreover, in cases of trust, the attempt of a CVC manager to explain the 'anticipated potential value' of an investment to a business unit tends to be more fruitful. However, one shortcoming of this relational dimension has to be mentioned. Following the existent interpretations in the theory about trust as an informal governance mechanism, Nahapiet and Ghoshal (1998) do not consider any interdependencies between informal and formal governance mechanisms. In this way, I found that the more trust exists between the CVC unit and the business units that, the less important are formal governance mechanisms, as for example collaboration and support agreements. But, it is important to mention that in the case of trust these formal mechanisms become in no way unnecessary; quite in contrast, they are still important to facilitate the collaboration. Moreover, while the case description shows that trust in the pre-investment phase is more important, formal governance mechanisms (e.g. collaboration agreements, control reports) are applied more in the post-investment phase (tentative hypothesis # 16b).

The illustrations above showed the relationships between the three dimensions of social capital, and mentioned factors that influence the combination and exchange of resources. However, in this study I also found that at the same time there are important relationships among the dimensions of social capital. These aspects will be in the focus of the subsequent paragraph. In an intraorganizational setting Tsai and Ghoshal (1998) found a very strong relationship between their measures of shared vision (cognitive dimension) and trust (manifestation of its relational dimension). Moreover, the social interaction ties (structural dimension) positively influence trust. Somewhat different are the findings of this work. The case description shows that the relationship between the structural dimension and the relational dimension seems to be stronger than the relationship between the

cognitive dimension and the relational dimension proposed by Tsai and Ghoshal (1998). In this sense, the involvement of the business units in CVC activities based on structural imperatives along the investment process (e.g. mandatory business unit approval after due diligence process, existence of "sponsoring business unit", etc.) seems to have stronger effects on the relational dimension than the relationship between the aspects 'shared vision' and 'trust' (tentative hypothesis # 17). Even more interestingly, this study shows that trust on the side of the business unit seems to develop by a concrete involvement in the investment process, coupled by positive CVC experiences, e.g. in the form of technological insights or an increase in sales or profit. But the confrontation of the theoretical views of Tsai and Ghoshal (1998) with the ones of this work shows an additional finding. The analysis of the collaboration process between the business unit and the CVC unit demonstrated reasonable belief that there is a relationship between the structural dimension and the cognitive dimension as well. Concretely speaking, the more a CVC unit is structurally embedded in a corporation close to the business units' core activities, the more enhanced is the development of the shared visions between the CVC unit and the business units. Moreover, the more structural imperatives of a business unit along the investment process are required, the easier the development of shared visions, codes and languages is (tentative hypotheses # 19a, # 19b).

In accordance with the outlined structure before finishing a chapter, subsequently a description of criticisms that social capital enfaced in the literature will be presented. The discussion will include a confrontation of the criticism with this study. The concept of social capital has been criticized for being merely a new label for processes that have been previously studied under different terminology. As Portes (1998:21) noted, "… social capital is just a means of presenting somewhat in a more appealing conceptual garb". Portes (1998) also criticized the use of social capital as a collective label for a number of different and even contradictory processes. Consequently, Bourdieu's (1985) distinction between social capital itself and the resources acquired through it should be clearly maintained (Portes, 1998). Leana and Van Buren (1999) pointed to the conflict of social capital's focus on strong ties, while other studies emphasize weak ties in gaining access to resources (for example Granovetter, 1973). Consequently, in their framework they distinguish dyadic trust (typical for strong ties) and generalized trust (typical for weak ties). Further criticism includes the

ignorance of costs, time consumption, and potential negative consequences of social capital (for example Leana and Van Buren, 1999).

This work supports the arguments of Leana and Van Buren (1999) in various ways. Indeed, I also found different kinds of ties between the CVC unit and the business unit. While the ties between the CVC manager and business units employees who already have been involved in CVC activities can be characterized as strong ties showing dyadic trust, the ties that CVC manager links to employees who are not yet involved yet are doubtlessly weak. Trust in the relationship between the CVC unit and the business units originate from an overall positive and productive reputation of the CVC unit among business unit employees. This image is rooted in the opinion of the business units referring to CVC as a useful "tool" that is important for the overall success of the corporation (tentative hypothesis # 3). Qualitative relationships incorporating dyadic trust between the CVC unit and the business units facilitate the collaboration between both actors (tentative hypotheses # 16a, # 16b). But dyadic trust is strongly time intensive. Concretely speaking, strong ties were developed by common interaction between the CVC managers and individuals of the business unit. Frequent meetings between the business units and the CVC unit increase the overall interaction between the both actors (tentative hypothesis # 10b). The longer a CVC unit exists in a corporation and the more a corporation tries to bring the CVC unit in contact with other operational departments, the higher the likelihood that qualitative relationships with dyadic trust will develop. Therefore tentative hypotheses # 9a and # 9b deliver additional insights to social capital theory. Nevertheless, this proposed distinction of trust is helpful to understand one facet of trust, which has not been considered so far in the developed framework of this study. In doing so, generalized trust is appropriate for understanding the factors that support the generation of internal deals by the business unit, whereas dyadic trust explains the basis of the direct collaboration between the CVC mangers and business unit employees, e.g. in asking for doing a due diligence or a post-investment service.

In summary, the social capital theory has offered important explanations for this work. However, it failed in explaining additional patterns emerging from the cases. Social capital theory does not provide insights into how the CVC unit

achieves qualitative network relationships and shared languages through an appropriate network organization. The question of how trust can be enhanced between the CVC unit and business units still remains open. Moreover, the social capital theory failed in considering any effects between the 'access', 'anticipation', 'motivation', and the 'capability' to exchange resources.

Resulting, the question awaiting deeper analysis is: what drives the creation of social capital between the business unit and the CVC unit? Hite and Hesterly (2001) are among the few who have considered the economic motives driving the creation of social capital within companies through inter-firm networking. They demonstrated that the development from 'identity-based networks' of managers' old contacts towards 'calculative networks' is driven by economic motives to acquire resources needed to expand the firm. However, these cursory findings are not sufficient in providing an explanation of the creation of intra-firm social capital for this work; especially the creation of social capital between two independent units in a firm. In contrast, the more numerous and better the informal networks of contacts are, the less important are "calculative networks". But, at the same time, these findings pinpoint to a potential solution to overcome the shortcomings of social capital theory; this is the used terminology of "networks".

Indeed, the structure of a multiunit organization can be easily conceptualized as a network arrangement consisting of a set of relational ties linking together dispersed organizational units (e.g. Miles and Snow, 1986; Nohria and Eccles, 1992; Nohria and Ghoshal, 1997). As already Huber (1991) has suggested, by linking different units together, a network arrangement provides a flexible learning structure that complements old hierarchical structures. Since a learning organization that is rich in social capital is characterized by motivated units which are intimately connected to one another, it is even more important to get insights in the dynamics of network linkages (Tsai, 2001). Therefore, chapter 3.3.2 is devoted to the network theory.

3.3.2 Network Theory

The previous overview of corporate venturing (section 3.1) showed that formal and informal networks are essential in the context of parent-CVC unit

relationship for the success of CVC activities. In the chapter about access to resources (chapter 3.2) and the previous section about social capital (section 3.3.1), it was concluded that networks can be used to acquire resources, to learn and to gain legitimacy (see for example, Ostgaard and Birley, 1994; Liebeskind et al., 1996). Moreover, knowledge-based theory showed that intraorganizational network linkages are a critical pre-requisite for organizational learning to take place. Therefore, the question becomes what can we learn from the network theory in order optimize the intraorganizational collaboration processes?

In the search for a useful definition of networks, Nohria (1992) maintained that all organizations are important in respect of their network designs and need to be addressed and analyzed as such. Following Lauman et al. (1978), networked designs consist of the interactions or relationships among interdependent contributors (or groups of contributors) who cooperate to achieve a purpose. A network can be viewed as consisting of nodes or positions (occupied by individuals or groups) and links or ties (manifested by interactions among the positions). According to the number, intensity, and type of interactions among members, networks may be tight or loose (Thorelli, 1986). Not all pairs of nodes are directly linked; and some are joined by multiple relationships (Tichy and Fombrun, 1979), and nodes and links change over time. Networked designs differ from other team structures in their lack of clear boundaries between the network and the rest of the organization. In contrast to other team structures, networks are not self-contained and membership is fluid and diffuse. Members cannot reliably identify the other members of the network and may be aware only of the participants with whom they have direct links. Work teams or project teams may comprise nodes of a network, but the network extends beyond team boundaries.

Having these rudimentary definitions in mind, network analysis represents useful implications for the intra-organizational collaboration focus of this work between the CVC unit and the business units.[16] Since the CVC unit and the business units have to perform complex network tasks and must adjust rapidly to changing market conditions, customer needs, and corporate needs, the relationship between

[16] The relationship to the external start-up companies is not in the focus of this work and is only touched upon if is seems to have significant influence or impacts on the intra-organizational relationships.

the CVC unit and the business unit can be conceptualized as a social network. Whereas social network research has provided many insights how structural and relational characteristics affect the outcome of a network (e.g. Burt, 1992; Walker et al. 1997), this work attempts to apply the network concepts that are most appropriate for different constellations throughout the investment process.

In the search for deeper explanations of how to arrange and configure the network between the CVC unit and the business units the subsequent paragraphs attempts to provide theoretical insights into how the CVC unit can find the corporate resources and how to couple these resources through network links. While for the aspect of how to find network resources it can be reverted to the literature about crossing intra-firm organizational boundaries (e.g. Picot et al., 1996), Tsai's (2000) discussion of intraorganizational linkage formation is helpful for the analysis of the connecting process. These linkages are important, as the integration of pieces of the knowledge from different units constitutes the crucial organizational coordination need (Van de Ven et al., 1976; Hedlund, 1994).

The network concept is not confined to the intraorganizational sphere. However, looking closer at the characteristics of the intraorganizational context of this work delivers the proof of authority to use network theory in this study. Usually, the main distinction between inter-firm networks and intra-firm networks is the absence of a hierarchical structure in interorganizational contexts (Liebeskind et al., 1996). Given the focus of this work, this distinction is not given in the intraorganizational relationship between the CVC unit and business units: the CVC unit has no hierarchic authority over the business unit to enforce their collaboration. The underlying structure of the resource flow between nonhierarchical clusters of legally separate units can be characterized as a heterarchy (Alter and Hage, 1993; Miles and Snow, 1986). Moreover, two interorganizational relationships (namely business unit to start up company and CVC unit to start-up companies) that surround the intraorganizational relationships between the CVC unit and the business units substantially affect the collaboration under focus of this work.

Of particular interest for this work are the sociologically oriented network theorists who apply social network theory in order to treat the characteristics of

network ties (such as centrality, structural equivalence, and network structures) in social relationships.[17] In this pursue, network theory offers a framework to analyze the pattern of linkages between the nodes from a structural- and a relational dimension (Burt, 1982; Granovetter, 1973, 1985; Powell, 1990). The stream of network scholars who agrees that economic patterns of interaction is embedded in a structural network of social relationships, focus on 'network ties', 'network configuration', and 'appropriable organization' (e.g. Burt, 1992; Fukuyama, 1994). Researchers that focus on the relational dimension have emphasized either dependence or trust as the elements that facilitate a firm to obtain information from its partners, whereby the strength of a tie provide a basis of trust (e.g. Cook, 1977; Granovetter, 1992; Gulati, 1995).

Following this group of researchers, economic institutions are socially constructed (Berger and Luckmann, 1966) and fundamentally influenced by the history and structures of personal relations and networks of such relations (Ben-Porath, 1980). In order to reach collaborative network linkages, network theory distinguishes between formal, hierarchical structures (including centralization, formalization and specialization) on the one hand (Mintzberg, 1983), and informal structures (including trust in lateral relationships) on the other hand (Powell, 1990).

In focusing on structural components of networks, network theory characterizes a network configuration by three properties: (1) density, (2) connectivity and (3) hierarchical position. In applying these characteristics of network ties, network theory maintains that the extent an actor benefits from its network depends on the degree to which network actors are linked to each other (e.g. strong/direct vs. weak/indirect), the number of direct and indirect ties a partner maintains within a network, and by the location of an actor (central vs. decentral). But, in the social network literature, there is a debate over the form of network structures that is optimal (Walker et al., 1997). Main part of these controversial findings goes back to the abovementioned distinction between the structural and the relational

[17] Besides sociologically oriented scholars that look at characteristics of ties there is also a group of authors who conceptualize networks as a new type of organizational coordination mechanisms, e.g. as a successor of the M-form organization (e.g. Ghoshal and Bartlett, 1990, 1995), or the N-form organization (e.g. Hedlund, 1994) for globalising firms (Bartlett and Ghoshal, 1989).

dimension. Moreover, even within the 'structural school' there are alternative structural approaches discussed. According to one view, densely embedded networks with many connections are facilitative, and social network structures are seen as advantageous to the extent that networks are "closed" (Coleman, 1988). Specifically, network closure encourages the development and enforcement of shared norms (Coleman, 1988). These norms increase the predictability of behavior, reduce self-seeking opportunism, and encourage cooperation (Walker et al., 1997).

According to an alternative view, however, social structural advantages derive from the brokerage opportunities created by an "open" network structure of autonomy (Burt, 1992). Burt introduced this idea with the theory of 'structural holes', which maintains that centrally located actors can build relationships with multiple disconnected clusters and use these connections to obtain information and control advantages over others (Burt, 1992). A structural hole indicates that the people on either side of the hole have access to different flows of information. Networks rich in structural holes imply access to mutually unconnected partners and, consequently, to many distinct information flows. Thus, maximizing 'structural holes' or minimizing redundancy between partners is an important aspect of constructing an efficient, information-rich network (Burt, 1992). In contrast to Burt's network structure of autonomy which emphasizes benefits to the focal actor based on access to "…more rewarding opportunities" (Burt, 1992:13), Coleman's notion of network closure provides access to information due to shared and enforced norms. While Brass and Burkhardt (1992) follow Burt's point of view in investigating the link between centrality in social networks and power within organizations, a second group of authors argue that the position in a network as such does not play the main role. Rather the social relationships and the network as a whole should be considered (Bourdieu, 1985; Coleman, 1988).

Burt (1992) suggests that these information benefits resulting from the network ties occur in three forms: access, timing, and referrals. While 'access' refers to receiving a valuable piece of information and know-how, 'timing' refers to the ability of personal contacts to provide information sooner than it becomes available to people without such contacts. 'Referrals' are those processes providing information on available opportunities to people or actors in the

network. Given that tacit knowledge and ambiguous knowledge have been shown to be more difficult to transfer over organizational boundaries, a stream of research has shown that strong ties and collaboration are positively related to the transfer of knowledge (Mowery et al., 1996; Kogut and Zander, 1992). By conceptualizing equity joint ventures as strong ties, Mowery et al. (1996) found that strong ties were more likely to be used to transfer complex capabilities and knowledge than weak ties (i.e. contract-based alliances).

Now, as we know the basic variables and the main streams of the network theory, the question becomes what are the advantages of networks over other organizational forms? Since the resources and knowledge required by the CVC unit is scattered along the firm, an intrafirm linkage represents an important channel of communication and information within the firm. The role of a network as an information channel and facilitator of knowledge exchange can be significant, since the network can (1) serve as an information-gathering device (Freeman, 1991), and (2) as an information-processing and screening device (Leonard-Barton, 1984). Several authors have tried to explain the variance in economic performance through the analysis of social networks (Burt, 1992; Uzzi, 1996, Walker et al., 1997). In a few studies exploring network structure from the perspective of innovation generation (Shan et al., 1994; Podolny and Stuart, 1995), it was found that the number of formed relationships is positively related to its innovation output. Liebeskind et al. (1996) support this work since they argue that social networks increase learning and flexibility in organizations.

Knowing about the positive effects of network links, what is said in the literature about how the CVC unit could form new linkages to business units? This is even more important since the existent literature analyzed some difficulties when such linkages are created. Difficulties include (1) path-dependency of social relations in the sense that prior linkages determine the formation of future linkages (e.g. Gulati, 1995; Walker et al., 1997), and (2) the lack of information about the competencies and reliabilities of potential partners (Gulati, 1995). Focusing on the rate of new linkages created, Tsai's work (2000) represents the only empirical work in the literature that analyzes how organizational units create new interunit linkages for resource exchanges. Results show that while the network centrality and trustworthiness of an organizational unit's positively affects the formation of

intraorganizational linkages, strategic relatedness between two units positively moderates each of the relationships above.

In applying the network theory in order to analyze the "search-transfer problem" of knowledge, Hansen (1999) applied two dimensions: weak vs. strong[18] ties and tacit vs. explicit[19] knowledge. He found that neither weak nor strong relationships between operating units lead to efficient sharing of knowledge among them. Weak or strong ties have their respective strengths and weakness in facilitating search for and transfer of useful knowledge. Findings show that weak ties allow search benefits for useful knowledge but impede the transfer of complex knowledge. Another finding of this study is, that having weak ties speeds up projects when knowledge is not complex but slows them down when the knowledge to be transferred is complex. In order to give an overview on the numerous concepts discussed related to the network theory, the following table summarizes the mentioned dimensions.

Table 3-6: Dimensions, variables and authors of discussed network concept

Dimension of networks	Discussed Parameters and Variables	Discussed by
Sociologically oriented network characteristics	• Centrality • Structural equivalence • Network structure	• Berger and Luckmann, 1966 • Ben-Porath (1980)
Structural dimension of pattern of linkages	• Network ties • Network configuration • Appropriable organization	• Burt (1992) • Fukuyama (1994)
Relational dimension of pattern of linkages	• Dependence • Trust	• Cook (1977) • Granovetter (1992)
Network structure	• Density: strong vs. weak • Connectivity: direct vs. indirect • Hierarchical position: central vs. decentral	• Walker et al. (1997) • Coleman (1988) • Burt (1992)
Advantages of network linkages	• Information-gathering device • Information-processing and screening device • Surplus in economic performance • Innovation generation	• Freeman (1991) • Leonard-Barton (1984) • Burt (1992), Uzzi (1996) • Podolny and Stuart (1995)
Difficulties concerning the formation of network linkages	• Path-dependency of social relations • Lack of information about the competencies and reliabilities	• Gulati (1995) • Walker et al. (1997)
Factors influencing the formation of network linkages	• Centrality (positive influence) • Trust (positive influence) • Strategic relatedness (positive moderation)	• Tsai (2000)
Search-transfer problem	• Weak vs. strong ties • Tacit vs. explicit knowledge	• Hansen (1999)

[18] Huber (1991) measures 'weak' ties as the average of the frequency and closeness scores.

[19] Huber (1991) operationalizes the degree to which knowledge was 'tacit or non-codified' with a three item scale that measured the extent to which the knowledge transferred from the source division to the receiving project team was not fully documented.

To what extent does network theory help to explain the results of this work? I first will confront the single aspects of network structure - density, connectivity and position - with what I found. Indeed, the cases showed that the personal networks of CVC managers positively influence their 'access' to business unit people. I found that due to the diversity of information a CVC manager needs concerning the investments, a higher number of network ties to multiple technical experts in various business units is more efficient in order to get the business units' collaboration, since it increases the amount of transferred knowledge and therefore the willingness of a business unit to collaborate (tentative hypotheses # 13 and # 14). Therefore, the findings of Jacob's (1965) and Granovetter's (1973) studies are consistent to explain the collaboration process between the CVC unit and the business unit. For these authors, "hop and skip" links and "loose ties" in information diffusion are more important because the creation of intellectual capital results from bringing together knowledge from disparate sources and disciplines. Since this study shows that the more a CVC manager maintains personal contacts and network ties, the higher is his 'access' to business unit people (tentative hypothesis # 13), this work stands in contrast to Burt (1992) who prefers few ties. Moreover, while I found that numerous and weak ties are useful in 'screening' potential business units, few and strong ties become more important when the CVC manager has to rely on getting information back from the business unit. Therefore, the further an investment manager proceeds in the investment process, the more strong and few network ties facilitate the collaboration, while numerous and weak ties become less important.

Insofar, the aspect of qualitative relationships supports Hansen's study (1999) who found that weak ties facilitate the search for knowledge, but impede the transfer of critical insights (tentative hypothesis # 13). However, completely transferring Hansen's (1999) theoretical insights to the context of my work would mean that the best scenario would represent weak ties and codified knowledge, since this promises search benefits and (only) few transfer problems (compared to non-codified knowledge). While I acknowledge Hansen's findings that weak and numerous ties for the CVC unit to their business units mean advantages in screening potentially interesting business units, the cases showed that one cannot assume that the knowledge required by the CVC unit is codified and independent as suggested by Hansen. Following Hansen's (1999) framework, I argue that

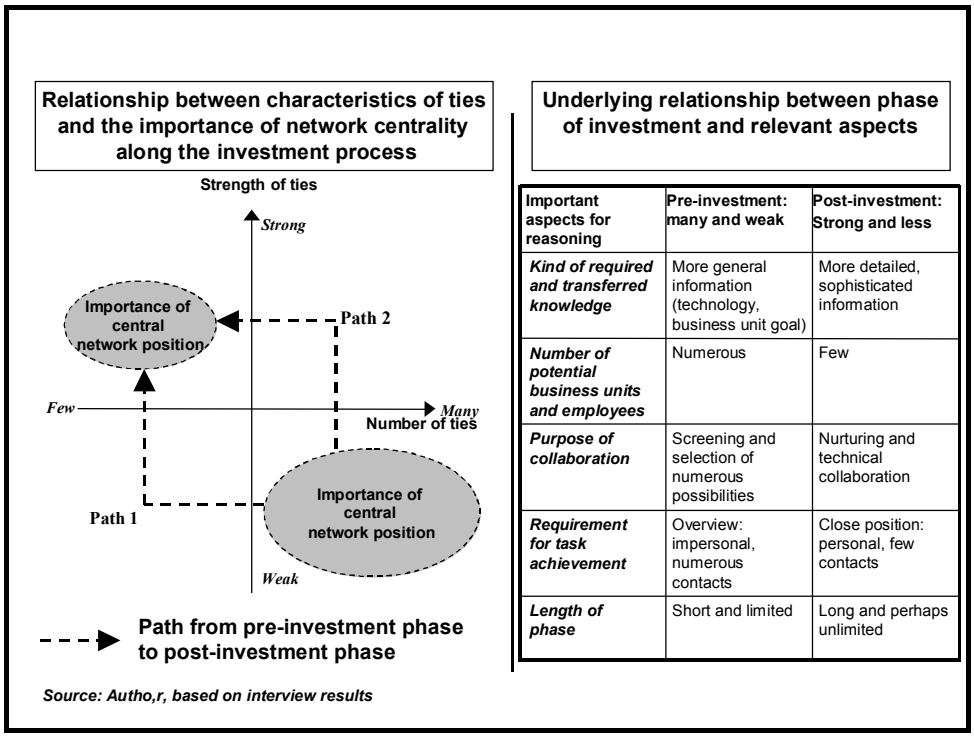
CVC units are in better circumstances if they rely on strong ties since this scenario "moderates" knowledge-transfer problems (compared to "severe" knowledge transfer problems of weak ties). This work shows that strong and few ties have a stronger effect on the willingness of the business units to collaborate and transfer the business unit knowledge (tentative hypothesis # 14).

To what extent corresponds the theoretical discussion pertaining to network centrality to the observations of this study? In fact, centrally positioned CVC units seem to have less problems in finding a corresponding relevant business unit that could be interesting for a portfolio firm. Examples for central CVC units would be *Motorola Ventures*, *Intel Capital* or *DaimlerChrysler Venture*. Doubtlessly, central CVC units have to undertake greater effort in finding the nurturing and technical support of a business unit in the post investment phase. At the same time, a central CVC unit increases the perception of a business unit to CVC as somewhat outside of a business units' core. But the advantage of a central CVC unit is that CVC activities of a corporation are more independent from personal or organizational changes in business units. Further, central CVC units have also a better corporate wide overview regarding best-suited business units for the support of a portfolio firm. This confrontation within my findings is consistent with the arguments of the group of network authors (e.g. Walker et al., 1997) who favor central network positions (tentative hypothesis # 3).

However, in the context of an intraorganizational environment, two aspects have to be taken into consideration. On the one side, top-management commitment for CVC activities can make things happen, since it can represent a signal to business units that CVC activities are something important for the corporation's wealth. Further, top-management is able to step between the business units and the CVC unit when collaboration becomes critical. The more CVC in a corporation enjoys top-management commitment, the higher is the willingness of a business unit to collaborate (tentative hypothesis # 23). But, on the other side, since a firm aims towards top-management not having to 'step in' too often, the top-management should rather pursue creating structures that really promote business units wanting collaboration with the CVC unit. Therefore, the more a CVC unit is structurally embedded within a corporation as a core-activity, the higher is the willingness of a business unit to collaborate (tentative hypothesis # 3).

Resulting from the discussion about strong/weak ties and numerous/few ties, the analyzed relationships and resulting scenarios for the investment process are summarized in figure 3-7:

Figure 3-7: Relationships and resulting scenarios for the investment process



Important aspects for reasoning	Pre-investment: many and weak	Post-investment: Strong and less
Kind of required and transferred knowledge	More general information (technology, business unit goal)	More detailed, sophisticated information
Number of potential business units and employees	Numerous	Few
Purpose of collaboration	Screening and selection of numerous possibilities	Nurturing and technical collaboration
Requirement for task achievement	Overview: impersonal, numerous contacts	Close position: personal, few contacts
Length of phase	Short and limited	Long and perhaps unlimited

Source: Autho,r, based on interview results

In summary, there is no general solution about number and strength of ties throughout the entire investment process, since it was shown more important for a CVC unit to have 'sleeping' ties that can be flexible and fast built if required. Therefore, the CVC unit should try to maintain latently its network in a kind of 'sleeping' mode, while having certain company directories (in the form of telephone and e-mail directories, organigrame, etc.) ready for the 'wake-up process' of its network ties. For having a corporate-wide overview when selecting potential business units throughout the pre-investment phase, a central network position is very important in order to maintain numerous and weak ties. In the post-investment phase when strong and few ties are required for a close collaboration a central network position is of less importance. As soon as potential business units are localized, it emerged in the interview that it is more efficient first to reduce the number of ties and then to "invest" in the weak ties, pursuing for strong ties.

But the so far discussed configuration of a network represents only one side of the medal that embodies the collaboration between two network actors. A network configuration also has to be governed efficiently. Therefore, I now will demonstrate what is said in the literature about network governance: what does the term network governance involve? For Jones et al. (1997:55) network governance involves "a select, persistent, and structured set of autonomous network players engaged in creating products or services based on implicit and open-ended contracts to coordinate and safeguard exchanges." The interesting aspect of Jones' definition is that these contracts are socially, not legally, binding. For Jones et al. (1997) the phrase "implicit and open-ended contracts" refers to means of adapting, coordinating, and safeguarding exchanges that are not derived from authority structures and from legal contracts. In the literature concerning network theory it is widely accepted that in order to enhance cooperation in shared tasks, the network form of governance relies more heavily on social coordination and control than on authority or legal recourse.

However, in order to know if the CVC context of this work meets the conditions of interactions in a network, we have to look at these factors more in more detail. What can be found in the literature concerning the structural embeddedness of network governance? For Jones et al. (1997) four conditions characterize network exchange: (1) *demand uncertainty*, (2) *customized exchanges* of human asset specifity, (3) *complex tasks* under time pressure, and (4) *frequent exchanges* among parties comprising the network. These conditions deserve a closer study.

(1) Under conditions of external *demand uncertainty*, that come from customers, competitors or financial markets (Miles and Snow, 1986), firms internally disaggregate into autonomous units (Miles and Coleman, 1997). Moreover, demand uncertainty also is generated by rapid changes in knowledge of technology, which results in short life cycles and makes the rapid dissemination of information critical (Robertson and Langlois, 1995).

(2) *Customization* of services is common among actors in a network. This customization involves human asset specifity (e.g. culture, skills, routines, and teamwork) acquired through "learning-by-doing", because it is derived from participant's knowledge and skills (see Williamson, 1985). Network governance is supposed to balance the competing demands of uncertainty

(asking for disaggregation) and human asset specifity (requiring coordination and integration) (Hill, 1994).

(3) *Task complexity* refers to the number of different specialized inputs needed to complete a service. Task complexity creates behavioral interdependence (Pfeffer and Salancik, 1978) and heightens the need for coordinating activities. Network governance facilitates integrating multiple autonomous, diversely skilled parties under intense time pressures to create complex services.

(4) *Frequency* concerns how often specific parties exchange with one another. In contrast to Williamson (1985)[20], network scholars (e.g. Jones et al., 1997) argue that frequent exchanges enable networks between actors as an alternative governance form. Frequency is supposed to transform the orientations that parties have toward an exchange and the amount of informal control. In addition, the frequency of dyadic exchanges allows informal control through the structural embeddedness[21] (Granovetter, 1992).

Before we can look if network governance mechanisms are applicable to the context of this work we have to clarify if the suggested factors characterizing a network exchange are applicable to the relationship between the CVC unit and the business unit. Regarding the point (1) *demand uncertainty* it doubtlessly can be answered with 'yes'. The high-technologies industries, to which the parent companies of the analyzed CVC units pertain, are certainly areas where new products and technologies leap frog prior products and technologies, leaving participants to catch up. Therefore, the more a CVC unit focuses on strategically oriented investment that are able to reduce this uncertainty pertaining to business units, the higher is the willingness of business units to collaborate (tentative hypothesis # 1a). Moreover, the case descriptions show that (2) the *customization* of human asset specifities (in terms of skills, culture, and routines) is transferable to the collaboration process between the CVC unit and the business unit. However, this customization depends strongly on the length of existence of a

[20] Williamson suggested because specialized governance structures are costly, to use them with recurring exchanges.

[21] The term embeddedness explains how dyadic relations and the overall structure of relations influences economic action and outcomes (Granovetter, 1992).

CVC unit, such as the longer the CVC activities exist in a corporation, the more progressed is this customization. Since the case descriptions show the mutual development of a CVC-culture and communication skills between the CVC unit and the business unit, customization increases the willingness of a business unit to collaborate (hypothesis # 9a). Further, the (3) condition *task complexity* coupled with high time pressure is without doubt applicable to the focus of this work. CVC managers and business units experts maintain very different specialized skills that have to result very quickly in statements and investment evaluations. Task complexity may justify why collaboration agreements facilitate the collaboration process between the CVC unit and the business unit (tentative hypotheses 11a, # 11b). Regarding the last condition (4) *frequency* two factors have to be mentioned in the context of this study. The first determinant is given by the technical specifity of the business units, since it came up in the case descriptions, that there are significant differences in the frequency of interactions between business units, depending on their industry area and their demand (tentative hypothesis 10a). Second, the overall frequency of exchange between the CVC unit and the business unit is widely dependent on the length of existence of the CVC program (tentative hypothesis # 9a). In summary, all four theoretical conditions that ask for a network governance mode are complied transferred to the exchange between the CVC unit and the business unit.

Since the confrontation above showed that there is reasonable belief that the network exchange conditions are present in the context of this work, subsequently an analysis of how these conditions shape and influence *social mechanisms* in network governance will follow. The theoretical discussion showed that the network governance carries with it special problems to coordinating exchanges and relying on autonomous units operating in a setting of demand uncertainty with high interdependence, owing to customized, complex tasks. Network scholars see structural embeddedness[22] as critical to understanding of how *social mechanisms* coordinate and safeguard exchanges in

[22] Structural embeddedness represents the network's overall structure and social control, which is seen as ability to shape the behavior of actors. Structural embeddedness is defined as a function of how many participants interact and how likely participants are to talk about these interactions (Granovetter, 1985, 1992). While relational embeddedness has quite direct effects on individual action, structural embeddedness has less direct effects on economic actions.

networks (Granovetter, 1985, 1992). Thus structural embeddedness allows parties to use implicit, and open-ended contracts for complex exchanges, and it enables *social mechanisms*, such as the subsequently discussed (1) *restricted access, (2) macroculture*[23]*, (3) collective sanctions*[24]*,* and *(4) reputatio*n[25] to coordinate and safeguard exchanges (Jones et al., 1997). In network governance literature, these *social mechanisms* are argued to facilitate the coordination and safeguarding exchanges. Further, these network governance modes are argued to overcome the network problems, rather than authority, bureaucratic rules, standardization, or legal resources.

How and why social mechanisms positively influence coordination and safeguard exchanges in networks will be highlighted now. (1) On the one hand, *restricted access* to resources minimizes variance in parties' expectations, skills, and goals (Eccles, 1981; Faulckner and Anderson, 1987). Further, communication protocols are developing and routines from continued routines are established (Bryman et al., 1987). On the other hand, the required mutual monitoring is decreased, and the increased parties' interaction enhances commitment (Granovetter, 1992).

(2) *Common values, norms*, and *beliefs shared* across parties through an intense and frequent mode of interaction (Abrahamson and Fombrun, 1992) enhances coordination among autonomous parties in three ways: first, by creating convergence of expectation through socialization (Williamson, 1991). Second, the theory argues that it allows the establishment of a common, idiosyncratic language to convey complex information (Williamson, 1975). Finally, by specifying broad understood rules of behavior (Camerer and Vepsalainen, 1988).

(3) In network governance one's reputation is hurt when one recommends someone whose performance does not meet expected results. It is argued that a

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[23] *Macroculture* means the development of common values, norms, and beliefs across parties.

[24] These collective sanctions involve group members punishing other members who violated group norms, values, or goals, and "range from gossip and rumors to ostracism and sabotage" (Jones et al., 1997)

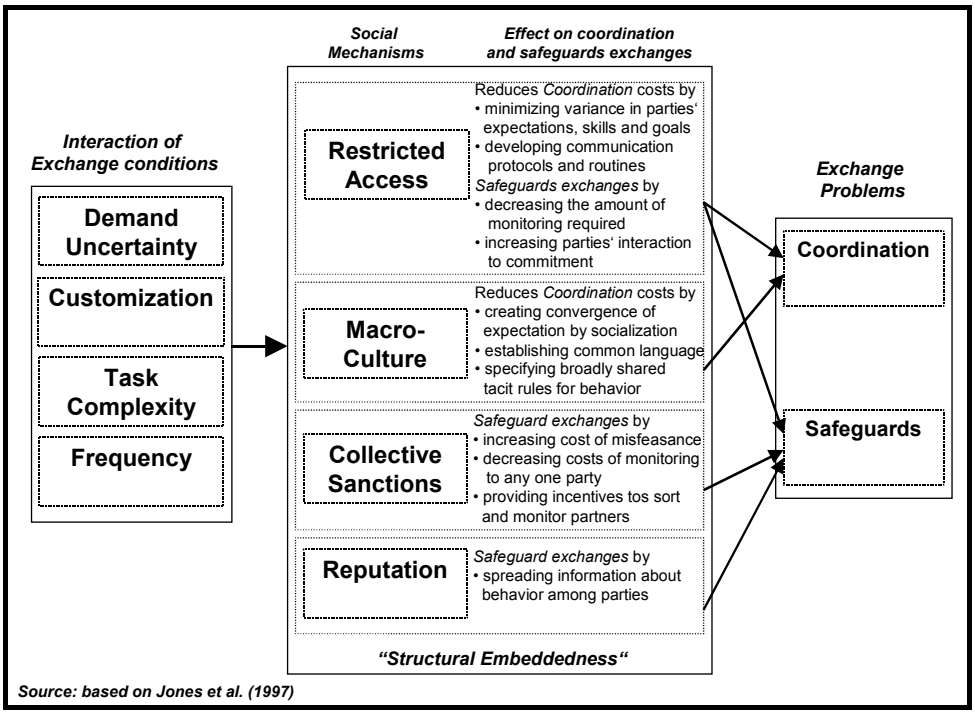
[25] Reputation means the information about parties' behavior. It involves an estimation of one's character, skills, reliability is important under exchange conditions of uncertainty and customization (Kollock, 1994).

collective sanction punishes those who do not adequately screen or punish poor performers (Becker, 1982). Consequently, collective sanctions safeguard exchanges by increasing costs of misfeasance, while decreasing costs of monitoring the other. At the same time, it is argued that it provides incentives to sort and monitor partners (Jones et al., 1997).

(4) Finally, *reputation* safeguards exchanges because it relays the detection of and serves to deter deceptive behavior, which enhances cooperation (Parkhe, 1993). Network governance theorists mention that reputation for mutual adjustment is critical for deciding who gets to repeat exchanges (Faulckner et al., 1987). Literature about network governance found, that the more these social mechanisms are used the thriving for overseeing complex, customized tasks in changing markets are enhanced (i.e. Jones et. al., 1997).

Figure 3-8 provides an overview on how interaction of exchange conditions leads to social mechanisms in network governance, and how these social mechanisms influence adapting, coordination, or safeguarding exchanges.

Figure 3-8: How interactions of exchange conditions leads to social mechanisms



To what extent and why is this critical in the CVC context? This question will be answered by analyzing subsequently all four *social mechanisms* in the context of this work.

Ad (1): The benefits of *restricted access to resources* within a network are consistent with this study due to several reasons. Indeed, it has been demonstrated in the case descriptions that business units who already "entered" the 'CVC network'[26] within a corporation, minimize their variance regarding the CVC units expectations, skills and goals. If the business unit and the CVC unit already worked together, they developed ways and routines to communicate. However, not supported in this study is the theory's suggestion that at the same time the necessity of mutual monitoring is eliminated. Even with business units with whom a CVC unit already worked, the collaboration process has been smoother to manage if there were collaboration agreements between the CVC unit and the business unit. While these agreements 'enforce' a business unit to deliver support, it also articulates what a business unit (and the start-up company) can expect from the collaboration. Therefore, tentative hypotheses # 11a, # 11b, and 16b that the numerous and early support agreement supports the collaboration, is not sufficiently explained by network theory. Moreover, the cases show that the positive side of this restrictedness has its limits. There is a converted U-shape relationship between the level of restricted access to the CVC-network and the overall efficiency of collaboration for a CVC unit. The right side of figure 3-9 shows that while too little restriction and a high number of interacting persons in the network complicates the development of qualitative personal contacts between investment managers and business unit employees, too much restrictedness limits the process of finding an appropriate business unit for the CVC manager. If a business unit has very little contacts with CVC managers, the "not-invented here syndrome" in business units is passively supported, that impedes external innovation and decreases the willingness of a business unit to collaborate (tentative hypothesis # 22b).

Ad (2): While acknowledging the positive effects of establishing a common language and rules of behavior *(macroculture)* on the coordination and safeguard exchanges, network theory does not consider that it takes a certain time to establish shared understanding and routines. CVC units must deliver incentives back to business units in order to maintain their long-term interest. Further,

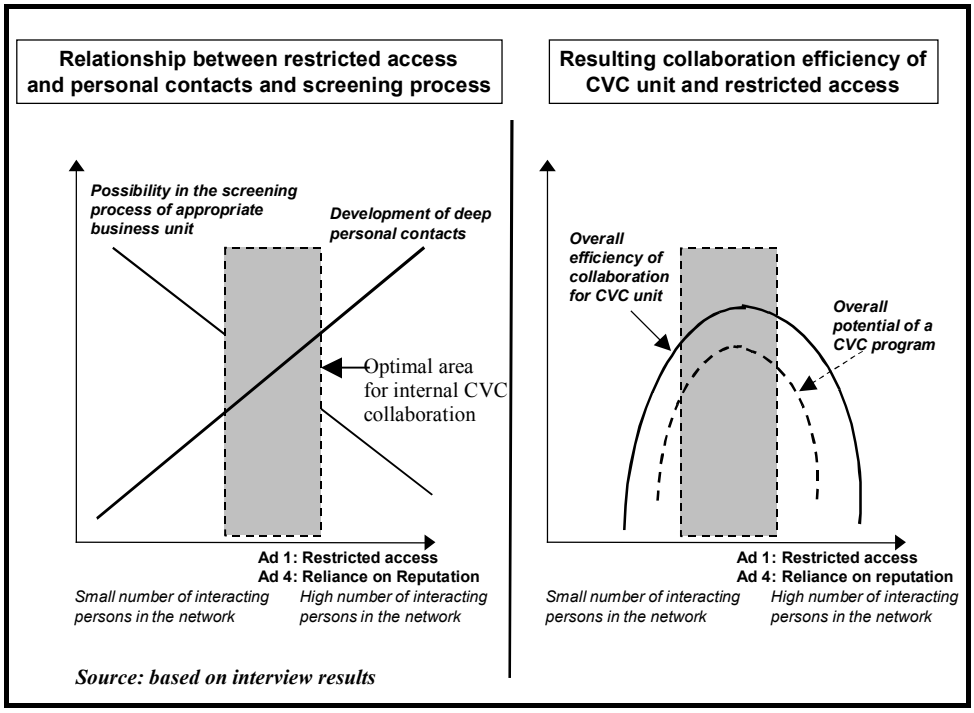
[26] By CVC-network I mean the developed contacts between CVC managers and business units employees who already worked on a CVC-project.

network theory does not consider that the *macroculture* is influenced in two ways: first, norms and common values develop easier if the CVC manager has formerly maintained other positions in a network (tentative hypothesis # 7a). Second, the cases showed that common values and norms are more easily developed, if the CVC unit is structurally and geographically located close to business units (tentative hypothesis # 3).

Ad (3): Regarding *collective sanctions*, the findings of this study show a slightly different picture compared to what the network theory claims. The case description shows that in case of disappointing feedbacks from a business unit (i.e. unacceptable long or of bad quality), the CVC manager performs "individual sanctions" by eliminating these business unit employees from their future contacts with respect to CVC activities. Further, the more the investment managers can assure on their qualitative relationships, the less important get contractual governance modes (i.e. control- or synergy reports). The CVC managers build trust following their previous experience they made with certain business unit people (tentative hypothesis # 16b). However, it is difficult to figure out if a "disappointing" feedback is the result from misunderstandings, from opportunism or just form a high-work load of a business unit regarding their current operational activities. Moreover, how can an information feedback of a business unit be evaluated, since CVC investments themselves are characterized by high economic uncertainties?

Ad (4): Due to the positive *reputation* of a business unit, which is based on a former collaborative attitude for CVC investments, investment managers prefer to get back for future investments to business units they already worked with. However, this may induce that an investment manager limits the range of potential business units and operational employees to a small number. This may eliminate the consideration of 'new' business units even if they would be very appropriate from a technical point of view. This approach would be harmful for the full potential of a CVC program, both for the strategic "window-on technology", as well as for the portfolio firms. This aspect of network governance mechanism stands in contrast to tentative hypothesis # 16c, which suggests that a higher number of contacts a CVC manager has facilitates the collaboration with business units. Figure 3-9 summarizes the main results of this theoretical discussion regarding *restricted access* and limitation on *positive reputation*.

Figure 3-9: Results out of the theoretical discussion regarding restricted access and limitation on partner with a positive reputation

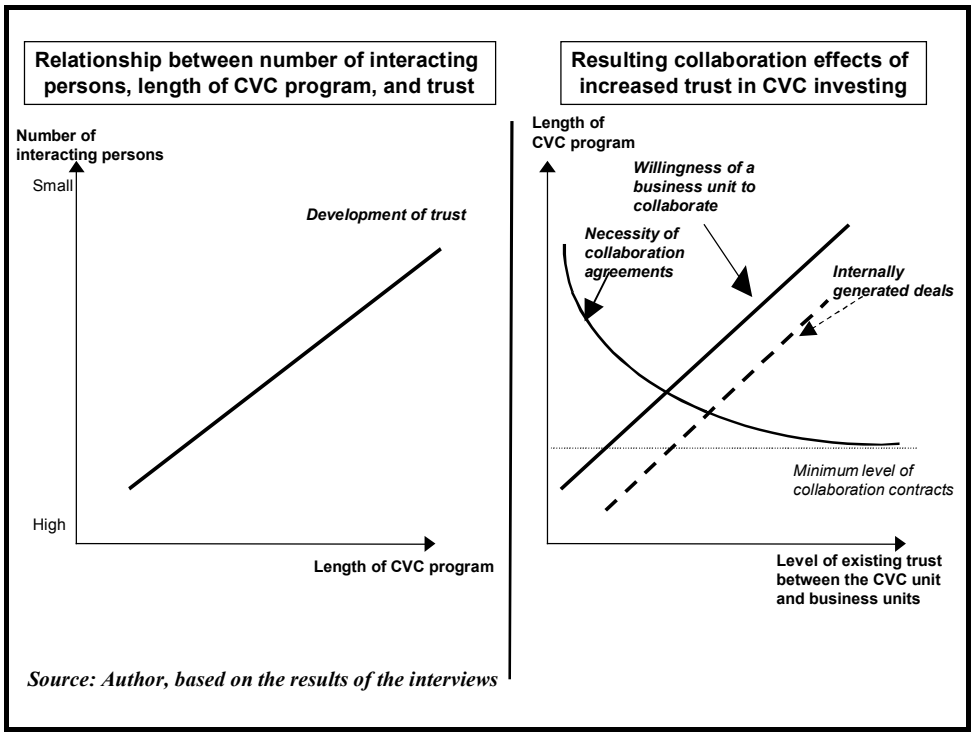


Out of this background, the central management competence for corporate top-management consists of the balancing of the tension conditions that exist in the networking process between the partners (Sydow and van Well, 1999): (1) *trust vs. control*, (2) *autonomy vs. dependency*, (3) *formality vs. informality*. Therefore, to what extent is the relational dimension[27] of the network theory – namely (1) *trust vs. control* – applicable to this study? Following the theory, potential benefits of creating intraorganizational strategic linkages can be achieved only if trust exists among organizational units. In the context of CVC investing, a high degree of trust is particularly important as it can achieve global integration in the network structure in which the business unit is linked to the CVC unit. I argue that a CVC unit's reputation for trustworthiness is mainly determined by CVC unit's integrity and reliability in interunit exchange. I found that especially the more established players within the cases (e.g. *Intel Capital*, *T-Venture*, or *Siemens Venture Capital*) supported my assumption. The CVC companies which

[27] Granovetter (1992) defines relational embeddedness as the degree to which exchange parties consider one another's goal and the exchange behaviors like trust, codifying and information sharing.

have a long time of existence, mentioned in the interviews that by the length of existence, the positive reputation of the CVC unit gets dispersed throughout the corporation. Reputation in return triggers trust by business units on CVC investments, which fundamentally facilitates the daily collaboration (tentative hypothesis # 9b). Existing mutual trust is an essential factor that will positively influence the engagement of a business unit to transmit internally generated deals to the CVC unit. Since the interviewed persons unisonously mentioned that the main part of exchange between a CVC unit and a business unit happens on a very informal basis, trust is even more important for the willingness of a business unit to collaborate (tentative hypothesis # 16b). Finally, trust also relates to the topic of "non-disclosure" (see *Intel* interview) in the sense that all information exchanged between the CVC unit and the business unit is treated highly confidential. The main results out of the discussion about trust as a governance mode are summarized in figure 3-10.

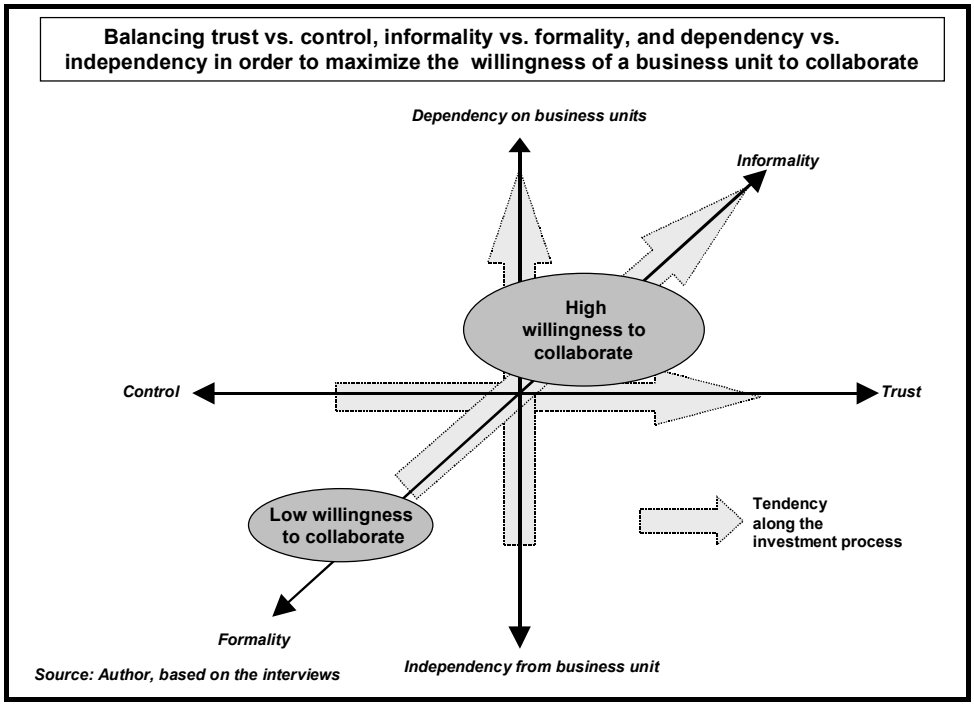
Figure 3-10: Main results out of the discussion of trust as a governance mode



With respect to the (2) aspect of *autonomy vs. dependency*, I argue that the more a CVC is dependent on feedback of the business unit, the higher is the willingness of business unit to collaborate (tentative hypotheses # 19a, # 19b). However, while a high dependency also increases the strategic alignment of a CVC program with the business units' strategy (tentative hypothesis # 1a), it

decreases the flexibility for fast decisions of a CVC unit. Regarding the balancing of (3) *informality vs. formality*, a clear tendency towards informality emerged along the interviews. The collaboration process is mainly based on informal contacts of investment managers and "voluntary" services of business units. Figure 3-11 shows that trust, dependency on business units, and informality in the collaboration even increase throughout the investment process. Fortunately, this high level of informality seems to have a self-enforcing influence on the willingness of a business unit to collaborate (tentative hypotheses # 13a, # 16a, and # 16b). Despite the predominance of informality, it has to be mentioned that although the tasks of selecting network partners and the regulation of the collaboration with business units belongs to the CVC unit, the allocation of resources as well as the evaluation of the results mainly belongs to the top-management in CVC programs. However, regarding the daily collaboration between the business units and the CVC unit less top-management influence was revealed in the interviews. While the top-management is only called in the case of severe collaboration conflicts, the more the investment managers contact middle-management of a business unit, the more operational people have a "backing" for collaboration from the senior management, and the higher is the willingness of a business unit employee to collaborate (tentative hypothesis # 20a, # 20b).

Figure 3-11: The pattern of tendency along the investment process and the resulting willingness of a business unit to collaborate



But, putting all these implications of the network theory together, the crucial question becomes: which organizational network mode seems to be from a theoretical point of view most appropriate for organizing the collaboration between the CVC unit and the business unit? Since CVC activities are located in a tension-area of autonomy and dependency, the context of CVC investing calls for a network mode of organizing that

- encounters the tendency of headquarter to intervene excessively,
- decreases time and effort devoted to influencing activities,
- decreases poor decision making resulting from the distortion of information.

The search for an appropriate network form for organizing the collaboration between the CVC unit and the business units leads to the empirical research about decentralized network structures in multiunit companies which are supposed to overcome theses problems (Bartlett and Ghoshal, 1993; Hedlund, 1994; Tsai, 2002). In the analytic search, Hedlund's (1994) heterarchical 'N-form' represents a useful approach. In order to be able to analyze differences and similarities between Hedlund's theoretical concept and the findings of this work, the main findings concerning the 'N-form' are subsequently presented.[28]

The concept of the 'N-form' was expounded by Hedlund (1994) as the possible successor of the multidivisional form ('M-form'), since the knowledge transfer among the independent, autonomous units to the M-form is supposed to be too difficult. Since the fundamental *goal* of the N-form is to combine the knowledge of the different units across the organization, it is of special importance for this study. The concept of the N-form suggests the multiplication of knowledge-based synergies by recombining individuals in cross-functional teams, where people represent the key element. The new role of the middle management is to pull together the dispersed know-how from different units, since they are 'on the pulse' of the specialized activities and are often extremely competent. As the

[28] Since it would go beyond the focus of this study to provide a detailed comparison of network modes, I just will restrict to focusing on the N-form. For a detailed discussion of the different network modes including 'M-form' (Ghoshal et al., 1989), the 'spherical network' (Miles and Snow, 1992), the 'management network organization' (Charan, 1991), see Achtenhagen, 2001.

underlying organizational *structure*, Hedlund (1994) suggests the concept of heterarchy. Thus, the *focus of coordination* in this concept is vertical coordination, based on cross-unit dialogue, temporary teams, and middle-level initiative. The *role of the top management* is one of monitoring and allocating resources, to provide direction and consistency to the knowledge development activities and to build the infrastructure for interpersonal and technical communication. Therefore, top management needs a clear vision of the company goals in the long term. Further, the importance of inter-functional and *inter-unit linkages* and relations among personnel at lower level of the organization, as the main *coordination need* is the integration of 'pieces of knowledge' from different units.

In order to get an idea about the transferability of the 'N-form' to the context of this work, the main aspects and characteristics of Hedlund's work will be confronted with this study. Comparing the *goal* of the 'N-form' - combining resources of different units - with the fundamental idea of the internal collaboration between the CVC unit and the business unit basically shows a congruent picture. However, this overall organizational goal has to represent any direct incentive for the business unit to collaborate: the more this "internal exploitation" follows strategic aims of a business unit, the more the business units are willing to 'integrate their pieces of resources' (tentative hypotheses # 1a, # 21a). Nevertheless, the strategic incentives have to be complemented by financial incentives for a business unit to maintain their willingness to collaborate in the long-term (tentative hypothesis 21b). Especially in the early stages of the investment process, when the CVC manager and the operational staff of a business unit need to enumerate their goals and further proceedings, extensive face-to-face communication is required (tentative hypothesis # 10 b).

Hedlund's suggested underlying *structure* of heterarchy corresponds with the findings of this study. The case descriptions show that CVC units do not maintain hierarchical authority over the business units. However, while network theory suggests flattening the hierarchy, there is only little consideration about how to flatten lateral barriers of communication and team working. This study goes beyond that: the case description shows that the more the organizational structure shows the CVC unit as being a part of the organization's core, the more are the business units willing to collaborate with the CVC unit (tentative hypothesis # 3).

However, while Hedlund assumes that the *linkages among units* exist in an intensive and dense way, the analysis of linkages between the CVC unit and the business unit shows a different picture. Especially, the creation of these linkages represent a main hurdle the CVC managers have to overcome in trying to get the business units' collaboration. The creation of linkages is complicate due to two reasons. First, CVC activities are often perceived in a business unit as something that is strategically not related to the business units core operations. And second, the business units' incentive to collaborate is limited since they don't depend directly on CVC investments. Due to that complicated background, only the experience of the CVC managers in other business units and the length of the CVC program make intensive linkages happen. At the same time, it increases the willingness of a business unit to collaborate (tentative hypotheses # 7a, # 7b, # 7c, # 9a, # 9b). With respect to the linkages among units in an intraorganizational setting, a centrally located CVC unit in the firm's network is more likely to have privileged access to critical resources because of its local advantage. Moreover, network centrality supports the visibility of a CVC unit within a corporation and is positively related to the creation of new linkages.

The *role of the top management* as a catalysts and integrator of units has doubtlessly its importance. However, I found that the corporate top-management commitment only passively provokes the integration of the CVC unit and the business unit (tentative hypothesis # 23). The investment manager represents the main initiator of the collaboration process: his personal contacts and networks to employees in business units are essential in order to activate the collaboration. Moreover, while Hedlund emphasizes top-management as the 'architect of structures', including information systems and databases, this work shows less importance of this auxiliary means. Although I acknowledge that the information technology can alleviate considerably the collaboration, it is only a necessary but in no way sufficient condition. Information technology neither reduces the need for face-to-face interaction nor eliminates personal contacts. However, if the involved actors of a CVC program revert for auxiliary reasons to any information systems I found that it should be designed as a shared global database, which is accessable for the CVC unit and (!) the business units. Internationally amendable databases enable connections to be made between the CVC and the business units on a global level, that originate form different functions and multiple disciplinary backgrounds. Both the limitation to a specific country as well as to

the CVC unit is not supportive for a mutual collaboration. Since the central element of network-oriented collaboration remains the personal "networking" between the CVC managers and the business units, corporate top management has to remove obstacles and provide incencentives concerning the development of social, personal and technical networks, which in return mediate in a positive way the willingness of a business unit to collaborate.

Straightforward, Hedlund's findings concerning *main dependencies and coordination needs* will be confronted with the case studies. While in the context of this study the aspect of 'technological dependence' (see Hedlund, 1994) seems to be less critical, the 'dependence on the transfer of personal knowledge' explains quite appropriately the main coordination needs the CVC manager has to take care of. However as mentioned along the discussion about knowledge-based theory (chapter 3.2.2), the kind of required knowledge and the investment focus (stage and area) influences the level of the technological and resource dependency (tentative hypotheses # 4a, # 4b, # 4c).

Finally, the confrontation of Hedlund's *main mechanism to manage coordination* gives additional insights. While this study prioritizes a high overall social interaction between the CVC unit and the business unit in order to enhance coordination and collaboration (tentative hypotheses # 10a, # 10b), or previous employments of CVC mangers (tentative hypotheses # 7a, # 7b), Hedlund compatibly emphasized "job rotation" and "cross-functional projects". Indeed, these possibilities represent useful mechanisms for a CVC program in order to enhance collaboration. With respect to "job rotation" the approaches of *DaimlerChrysler Venture* and *Intel Capital* are in a similar vein. *DaimlerChrysler Venture* mainly hires affiliates of its international trainee program, who rotated through trough different units within the corporation. *Intel Capital's* approach goes even further. Especially in the U.S., *Intel Capital* has constantly located investment manager within business units. While *DaimlerChrysler*'s *approach* underpins the hypotheses # 7a, # 7b and # 7c that the previous employments of CVC managers increases the willingness to collaborate, *Intel Capital's* approach pursues in maximizing the overall communication between the CVC unit and the business unit (tentative hypotheses # 10a, # 10b). Table 3-12 summarizes the main findings of this discussion.

Table 3-12: Transferability of key characteristics of the N-form to CVC programs

Transferability of key characteristics of the N-form to CVC programs

Characteristics	Parameter	Transferable to CVC programs
▪ Goals	▪ Exploitation of intra-firm advantages by combining existing knowledge nodes ▪ Economies of depth	✓
▪ Structure/configuration	▪ diverse, multiple power ▪ flat structure ▪ heterarchy	This study gives additional insights
▪ Role of business units	▪ specialized,	✓
▪ Linkages among units	▪ intensive ▪ cross-unit projects	linkages are not per-se intensive
▪ Role of top management	▪ catalyst, protector ▪ architects of structure ▪ integrator of units through overall	This study gives additional insights
▪ Role of employees	▪ valuable assets ▪ empowerment to enhance entrepreneurial behavior	✓
▪ Main dependencies/ coordination needs	▪ technological dependence between ▪ resource dependence (personal knowledge) ▪ knowledge-transfer among units	Certain aspects are transferable
▪ Main mechanisms to manage coordination	▪ cross-functional project teams ▪ recruitment ▪ job rotation ▪ communication	Theory presents additional insights

Source: Author, based on Hedlund (1994)

In summarizing this section, the strengths and weaknesses of the network theory have to beanalyzed. On the positive side, it has to be mentioned that the recognition of information sharing as a function of characteristics of network structure is doubtlessly useful in the context of CVC. Especially Hedlund's (1994) N-form structure helped in explaining the impacts of size and centrality on the realization of resource sharing. Therefore, it goes one step further than the discussed resource-related theories that merely determined sources of competitive advantage. On the negative side, the general emphasis on multi-party relationships and their density and centrality limits the explanatory power regarding the dyadic relationship between CVC managers and business unit managers (Gulati, 1998). A further restriction of network theory in the context of CVC is its applicability to the transformation processes and the measurement of network performance regarding the created value add of CVC (Gulati et al., 2000). The issue of allocating costs and revenues associated with the shared resources among cooperating units is complicated because of the significant measurement problems involved in assessing relative contribution (Hill, 1994). Also negatively weights the neglect of other determinants of collaboration such as formal governance mechanisms (Amit and Zott, 2001).

After having designed a network structure between the CVC unit and business units, managing the network involves more: appropriate governance mechanisms, having knowledge sharing routines, and making appropriate relationship-specific investments. Without any governance mechanisms and integration purposes, networks may not be managed efficiently or even remain fragmented. Therefore, in chapter 3-4 an analysis of theories follows that focus on the governance of relationships.

3.4 Confronting theories about governance mechanisms and integration modes with the case findings

The review of corporate venturing literature (chapter 3.1) showed that realizing the value for the corporation and for portfolio companies often goes astray because of missing governance and integration mechanisms between divisions within the corporation to achieve lateral communication (Lerner, 2001; Hill, 1994). However, for a firm to fully realize value form hierarchical governance, the correct control and governance systems must be in place (Hill, 1994). A dilemma emerged along the discussed reasons of failed corporate venture activities. On the one side, it has been shown that business units and the CVC unit within corporations are differentiated from each other in terms of subsystem, goal orientation, member's time orientation and member's interpersonal orientation. On the other side, the focused unit of analysis of this study shows a high level of interdependence since the results of the CVC unit depends to a great extent on the integrated and collaborating business units. Integration in this work is defined as the process of achieving unity of effort among the CVC unit and business units in the accomplishment of collaboration and lateral communication.

Lawrence and Lorsch (1967) found that within each organization the degree of differentiation of behavior and orientation between the various subsystems is inversely related to the degree of obtained integration between these subsystems. Galbraith (1977) found that successful organizations had adopted integrating mechanisms in proportion to the amount of differentiated subtasks. However, the differentiation in segmented subtasks leads to specific interdependency structures and therefore to different governance and integration mechanisms. There is the

basic assumption that the coordination in a sub-unit is smoother than between different sub-units (Lawrence and Lorsch, 1967).

Many of the integration theorists claim that the achievement of integration is the task of top management (e.g. Child, 1984; Galbraith, 1977). Following Hill (1994), it can be argued that hierarchical governance gives top management the authority structure required to address contracting problems, haggling, and free riding. Although coordination is undoubtedly an important part of the top manager's job, there is considerable evidence that many organizational systems develop governance and integrative devices in addition to the conventional hierarchy. Litterer (1973) for example suggested three means of achieving integration: through the hierarchy, through administrative or control mechanisms, and through voluntary activities.

In summary, the purpose of this introductory subsection pertaining to integration in diversified companies was to underpin the importance that the relationship between the CVC unit and the business units need to be governed. The lateral aspects of organizational functioning are becoming more important to organizational success in the highly, interdependent CVC-setting. Lateral structures and integrating roles and governance modes have to be designed to ensure the fast creation of value and the exchange of resources which are important for the success of a CVC unit, the value added to a start-up company and the value added of a business unit. I base my theory confrontation on concepts developed in the agency theory (chapter 3.4.1) to understand the dynamics in the relationship between the CVC unit and the business units regarding an efficient governance of the relationship. Social exchange theory (chapter 3.4.2) provides insights into how different governance mechanisms will affect the outcome of resource exchange.

3.4.1 Agency Theory

The discussion about resource-related theories indicated business units may benefit from the access to complementary resources of the portfolio firms. Besides this, corporations may also directly benefit from the IPO success of their portfolio companies via attractive financial returns. Therefore, it is important to know how the level of social interaction between the start-up company and the

corporation can be positively influenced. The chapters about social capital and network theory showed that social interaction facilitates the exchange of information and the identification of opportunities for cooperation (Cohen and Levinthal, 1990; Dyer and Singh, 1998). However, social interaction and cooperation depend in return on the transferred rewards to the involved actors - the CVC manager and the business unit. Since it is argued that the financial gain is a good incentive for cooperation (Cable and Shane, 1997), two questions arise: first, to what extent participate the CVC managers by their personal compensation on the financial gain; and second, how the operational business units participate financially on the success of the investments?

Usually incentive problems are discussed in the agency theory from a principal/agent perspective. Although the origins of the agency theory date back to Adam Smith, who already in 1776 described how managers of companies owned by others cannot be expected to manage the business as well as if it was owned by themselves, the work of Jensen and Meckling (1976:308) is the one most often cited. They defined the agency relationship as "a contract under which one or more persons (the principal) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent." They continue, "if both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interest of the principal." Agency theory thus focuses on both principals and agents who are assumed to be self-interested, rational, and risk-averse (Eisenhardt, 1989).

Agency theory has developed two research streams, commonly referred to as positivist agency theory and principal-agent theory (e.g. Eisenhardt, 1989). Researchers in the positivist branch of agency theory view the firm as a nexus of contracts among various production factors. Although the positivist agency theory provides substantial insights into the nature and origin of agency problems and the types of organizational structures and contracts that have been designed to cope with such problems, it stops short of providing insights into the selection of the optimal contract for overcoming specific agency costs. Representative works of positivist agency theory are Jensen and Meckling's (1976) development of a theory for the firm's capital structure as a response to agency costs, Fama's (1980) analysis of the efficiency of the separation of security ownership and

control in corporations, as well as Fama and Jensen's (1983) analysis of how the decision-making process within firms relates to different types of organizational structures and processes and their ability to reduce agency problems.

Based on the assumption of the principal-agent theory, the goals of the agent may not perfectly align with those of the principal. This stream of agency theory focuses on how to structure the contractual relation between the principal and the agent to provide appropriate incentives for the agent to make choices which will maximize the principal's welfare (Eisenhardt, 1989). The main distinction among these types of contracts is the proportion of fixed payments versus residual uncertain payments to the principal or the agent. In the case of complete information, when the principal can monitor the actions of the agent, the optimal contract will reward the agent with fixed payments that are based on behavior. This will curb opportunistic behavior by the agent and allows the principal to assume the residual risk. However, when information is incomplete, the agent can no longer be rewarded based on actions, as this will raise the potential for opportunistic behavior. Instead, the principal will compensate the agent based on outcomes rather than actions, which represents a sub-optimal arrangement if the agent is risk averse (Fama, 1980). Therefore, theory assumes that the principle cannot be motivated to act cooperatively without extrinsic incentives. Furthermore, differences in risk preferences of the principal and the agent lead to different preferred actions of the principal and the agent. Goal incongruence, information asymmetry, and the problem of risk bearing constitute agency risk and give rise to three types of agency problems: 1) adverse selection, 2) moral hazard, and 3) hold-up (e.g. Barney and Ouchi, 1986). Before I relate the abstract concepts to this work, first I will describe each type of opportunistic behavior.

The concept of adverse selection comprises problems that derive from asymmetric information before the two parties actually enter a relationship. Agents act opportunistically by misinterpreting their own background, motivations or capabilities. In principal-agent models that embody adverse selection, the agent is typically portrayed to be of unknown "quality" and capability of performing according to the expectations. The concept of adverse selection is described in detail as the "lemons problems" in Akerlof (1970). Adverse selection can be interpreted as "pre-contractual opportunism" that

exploits asymmetries in information about future performance (Barney and Ouchi, 1986).

Moral hazard arises in an exchange relationship when one party cannot directly observe the other's actions, and where efforts to monitor these actions are both costly and subject to error (e.g. Arrow, 1962). Moral hazard sets the stage for opportunistic behavior, such as shirking or purposefully not performing as agreed by one of the partners, once a relationship has been established. The agent might have an own hidden agenda that he would pursue after the principal has delegated the decision-making authority. Moral hazard can be interpreted as "post-contractual" opportunism that exploits asymmetries in information about current performance (Barney and Ouchi, 1986). To reduce moral hazard, principals often devise costly monitoring mechanisms. Holmström (1979) proves that any additional information about the agent's actions, no matter how imperfect, can be used to improve the welfare of both the principal and the agent.

Hold-up problems associated with post-contractual renegotiation of the agreement can arise from two factors: 1) one of the partners has invested in relationship-specific assets, and 2) contracts are incomplete. Relationship specific assets are investments of money, time, or other valuable resources in physical or human capital asset that have greater value in the current relationship than they would in any other relationship. Such sunk investments allow the transaction partner to renegotiate a contract for more favorable terms once the assets have been committed. Problems associated with incomplete contracts arise from the limited capacity of the partners to anticipate and identify all possible future outcomes. This will result in contracts that do not specify all contingencies, leaving open the possibility that performance of the actual terms of the contract would present unrealized benefits at the time of realization of the outcomes.

Agency problems create agency costs, which are defined by Jensen and Meckling (1976) as (1) the monitoring expenses by the principal, (2) the bonding expenditures by the agent, and (3) the residual loss. The monitoring costs mean that principals can use formal controls and monitoring to reduce the agency risks in the relationships, and establish incentives for the agent to induce performance that is in the principal's best interests. Agents, in turn, need to incur bonding costs to ensure that they are not harming the principal. The residual loss refers to

the reduction of welfare of the principal by the divergence in the agent's decisions and the decisions that would have maximized the welfare of the principal (Jensen and Meckling, 1976).

After having presented the basic concepts of agency theory, the crucial question is: to what extent are the different types of agency risk transferable to the context of CVC? Indeed, CVC investments under the focus of the internal relationship between the CVC unit and the business unit are characterized by problems of 1) high uncertainty concerning the collaboration between the CVC unit and the business unit, 2) adverse selection, 3) moral hazard, and 4) hold-up. The subsequent paragraphs will demonstrate the reasoning.

CVC investments are characterized by high uncertainty. While acknowledging Sahlman's finding (1990) that a large proportion of CVC investments fail due to entrepreneurial[29] and market-determined[30] risk, I found that in addition to these risks CVC units have to manage the 'corporate internal uncertainty.' 'Corporate internal uncertainty' means the possibility that a business unit refuses the collaboration regarding a portfolio firm, or that a business unit does not manage the collaboration with the start-up company in the expected way. However, I argue that the better the relationship between the CVC unit and the business unit is, the smaller is the uncertainty that a business unit behaves very uncooperatively against a CVC unit concerning a knowledge transfer (tentative hypothesis # 13). At the same time it decreases the necessity of contractual governance mechanisms (i.e. control or synergy reports) (tentative hypothesis # 16a). Nevertheless, the critical mediating factor that emerged in this study, which is trust, is not considered by agency theory (tentative hypothesis # 16b). Further, I found that the CVC units by focusing on strategic investments may reduce the uncertainty that the business unit rejects any collaboration (tentative hypothesis # 2). Since strategic CVC investments offer a "window on technology", increase in sales, or the "enhancement of innovation" for a business units, strategic investments may be interpreted as risk reduction mechanisms. The same is true

[29] Entrepreneurial risks include such factors as difficulties in the technological development, inadequate management teams, and financial problems caused by excessive cash-burn rates.

[30] Market-determined risks include such factors as the emergence of competitors, technological shifts, or economic downturns.

for the interaction between the investment stage and the willingness of the business unit to collaborate. The CVC unit should be aware that late stage investments decrease collaboration uncertainty regarding business units that prefer application of selling possibilities, whereas early stage investments induce less uncertainty in business units that look for R&D possibilities and spill-over effects. Therefore, tentative hypothesis # 4a is only partly explained by the agency theory.

Adverse selection problems in the relationship between the business unit and the CVC unit arise from the fact that a business unit has better information about the technical quality of potential investments than the CVC unit. Especially, regarding internally generated deals by business units, the CVC unit needs to expend significant resources on identifying the 'true' technical value of an investment, since business units are found to be very uncritical regarding their 'babies'. At the same time, the mainly financially motivated CVC unit may have informative advantages regarding the financial up-side of a portfolio firm, and may try to persuade a business unit to collaborate, even if there is not any strategic fit with the corporation. I argue that the focus on a very strategic CVC program may be a potential solution for this situation of mutual dependency (tentative hypothesis # 2). Then corporate top-management only needs to focus on informal relationship building mechanisms in order to guarantee a trustful exchange of information. One way is to increase the overall communication between the CVC unit and the business unit, since it reduces the information asymmetry, which in return reduces adverse selection (tentative hypotheses # 10a and # 10b). In the case of strategically oriented CVC programs, the corporation does not need to implement additional incentives (i.e. financial bonus) for the CVC unit, since strategic deals, assuming everything else being equal, are more easily to manage for the CVC unit than financial investments. The reasons are: the business unit's approval is easier to get for them; in the case of financially unsuccessful investments, the CVC unit at least has strategic benefits to emphasize against corporate top-management; the capability of the business units to collaborate is higher.

Moral hazard in the relationship between the CVC unit and the business units arise since the CVC unit cannot directly observe the business units' action regarding the support of the portfolio firms. Also, the business units are not able

to evaluate if a chosen investment by a CVC unit represented the most appropriate strategic deal out of the incoming deal-flow. In the case descriptions, it emerged that CVC unit and business units not always pursue aligned goals. In the absence of proper incentive structures, the CVC unit will mainly focus on maximizing financial returns, while the business unit will purposefully not collaborate as expected and shirk once an investment has been made. In this dilemma, one solution may represent collaboration agreements. I found, that the more collaboration and support agreements already exist when an investment decision is made, the more efficient is the collaboration between the CVC unit and the business unit. Both the CVC unit as well as the business unit know how they are expected to perform, and what they can expect as return for their input (tentative hypothesis # 11a). The earlier collaboration agreements are finalized along the investment process, the easier they are to achieve for a CVC unit (tentative hypothesis # 11b). Therefore, close monitoring in the form of support agreements can be interpreted as a mechanism for reducing inherent risk in the post-investment phase. Moreover, the more a business unit is involved in the advisory boards of an investment, the more transparent the actual support of a business unit is for the CVC unit (tentative hypothesis 21d).

The same is true for the financial deal-structure (e.g. in the form of intra-company accounted co-investments) that exists between a business unit and a CVC unit (tentative hypothesis # 21e), in order to motivate a business unit to collaborate. Therefore, agency costs could originate from the business unit, if they may not offer the promised support or withhold confidential information to the CVC unit (and the start-up company). However, I argue that in the case of a co-investment with a business unit, the business unit's incentives are strongly aligned with the success of a CVC investment. Since it is in the business units' best financial interest to provide value-added services and "nurture" the portfolio firm (tentative hypothesis # 21e), the potential for moral hazard by the business unit is relatively low. As the business unit's involvement increases the chance of the investment's success, the business unit has financial incentives to behave and act collaboratively against CVC investments. Moreover in the context of intra-organizational collaboration, a compensation based on the effort expended (which would be most effectively in the absence of information asymmetries and external uncertainty) is not appropriate, since it would induce moral hazard on the side of the business units. Therefore, the compensation resulting for a

business unit should be tied directly to the value creation for CVC investments. The more the compensation is tied to the achievement of 'milestones' agreed in the collaboration agreement, the higher is the incentive of a business unit to collaborate towards the achievement of 'milestones' in the support agreement (tentative hypotheses # 11a and # 21a). At the same time, moral hazard issues become less critical. However due to the high market uncertainty, a downside of this type of compensation is that business units who are not planning purposefully to shrink regarding CVC efforts, may not be rewarded in proportion to their effort spent.

Hold-up problems in the context of this work are based on the assumption of bounded rationality regarding decision making processes. By this I mean, that on the one hand, the business units may be very short-term oriented regarding their attitude against CVC investments. On the other hand, the cases show reasonable belief that the CVC managers chooses investments, which maximize the evaluation basis for their compensation, since investment managers are merely compensated on financial returns of the portfolio firms. In addition, the business units have unique technical knowledge that is critical for the CVC unit. However, the business units cannot be contractually bounded to collaborate, since human capital is "inalienable". Since the CVC unit has no direct authority on the business unit and the business unit can abandon the collaboration with a CVC unit at any time, the business unit retains bargaining power in subsequent investment processes. This represents a hold-up situation that arises as soon as the CVC unit depends on the input of a business unit along the investment process (e.g. in the form of an approval). Therefore, agency theories' assumption of hold up helps to explain my tentative hypotheses # 21 a, # 21 b, and # 21c, that the more incentives exist for a business unit (either in the form of strategic or financial returns), the more rationally the business unit will collaborate with the CVC unit.

However, the discussion of agency theory showed that collaboration agreements cannot fully eliminate hold-up positions. Another possibility regarding co-investments is to make co-investments depending on the CVC managers' previous experience with a business unit regarding their collaborative attitude during past investments. From a principal-agent perspective, this kind of 'staged'

co-investments can be interpreted as a means to curb hold-up problems, such as the continuation of failing collaboration projects between the CVC unit and the business unit. The more this kind of 'staging' is applied, the higher the incentive of a business unit is to effectively collaborate in order to qualify oneself for co-investments in CVC deals (tentative hypothesis # 21e). Thus, this 'staging'-approach corresponds to gradual embodiment of the inalienable human capital of the business unit in the financial capital of the business unit. Unfortunately, it has to be mentioned that on the side of business units the interest for these type of high-risk and long-term oriented investment is limited.

Following the chapter outline after having presented the main variables and basic arguments, now I will discuss empirical applications of the agency theory. In the context of venture capital, agency theory has been used in relatively much analysis of principal-agent problems. This happened either by considering the entrepreneur as an agent working for the principal venture capitalist (i.e. Sapienza and Gupta, 1994; Gompers, 1995; Lerner, 1995) or by considering the venture capitalist as an agent providing value-added benefits for entrepreneurs, the principals (Cable and Shane, 1997; Fiet, 1991; Smith 1998). Especially, the work of Gupta and Sapienza (1992) is of special interest for this work since they found that the frequency of interaction between the principal (venture capitalist) and the agent (portfolio firm) depends on the goal congruence, the stage of development of the agent, and the degree to which technical innovation the agent was pursuing. In a later study, Sapienza and Gupta (1994) found that higher task programmability and outcome measurability reduce information asymmetry. The same is true for the length of the past relationship between the principal and the agent (Eisenhardt, 1989). Further, the uncertainty of outcomes and the willingness of the parties to accept risk will together have an influence on the agency relationship (Sapienza and Gupta, 1994).

Kann (2001) opened the agency theory to the context of corporate venture capital and analyzed the relation between the CVC unit and the portfolio company. By modeling the CVC unit as the principle and the portfolio company as an agent and found that the shaping of the incentive and control systems can help to impose a risk on the agent and thus handle the adverse selection problem, the moral hazard problem, and the hold-up problem. Finally, the analysis of alternative organizational and institutional arrangements, especially regarding the

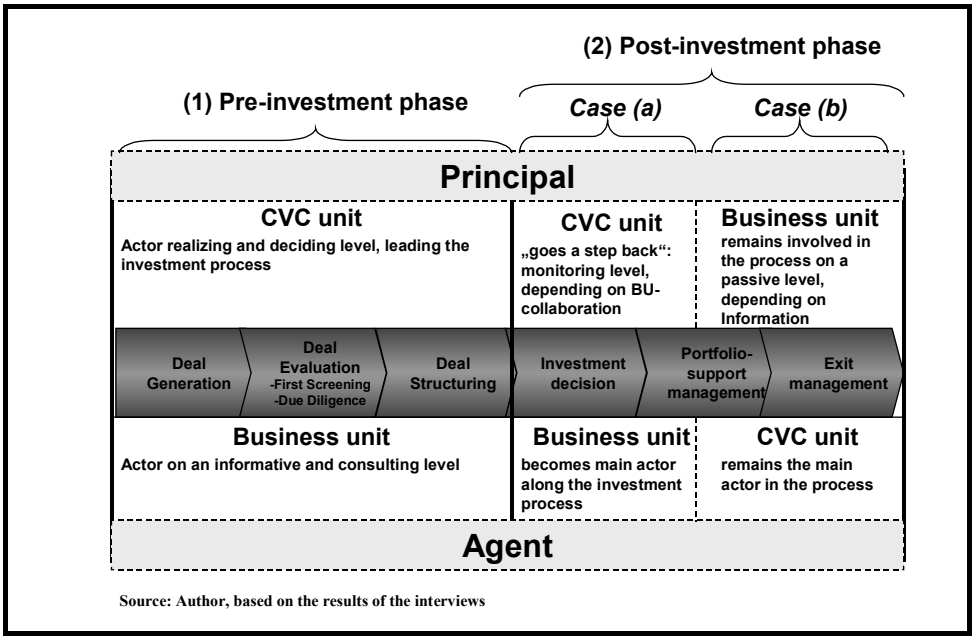
role of property rights, is another field where agency theory has been empirically applied. It concerns itself with. For example, Hart (1991) shows in his model that an agent should take some ownership of an asset if the agent makes relationship-specific investments, as well as if the agent is a crucial trading partner.

The confrontation of the agency theory's critics with this study asks for a deeper look at the criticism this theory received. One of the main criticisms concerns the strict assumptions of self-interest, risk-aversity, and rationality, which have been mentioned as an "undersocialized" characterization (Granovetter, 1985). Critics of agency theory have argued that agency theory's ability to explain the formation and development processes of relationships is limited, as there is a lack of control and monitoring devices in the relationships, goals are often jointly determined by parties, and the roles of principal and agent blur and shift (Larson, 1992; Uzzi, 1997).

The criticism of Uzzi (1997) that the roles of principal and agent blur and shift represents the link for this study. Since I consider potential agency problems in the relationship of the CVC unit and the business unit, the focus in this work is rather on the following question: when is it reasonable to believe that business units think that cooperation is necessary or helpful for them? Is there reasonable belief that the relationship is characterized by the problem of information asymmetry? In this study, agency theory is applied to the relationship of interest in a changing constellation. First, agency theory will be applied to the pre-investment phase since the analyzed cases showed that the CVC units depend on information-feedback (e.g. regarding approvals for the technical due diligence etc). Therefore, the CVC unit represents the principle, who is not able to verify the business unit's information. Since the business unit possesses and controls the resources that the CVC unit depends on along the pre-investment phase (i.e. deep industry and technical know-how, access to corporate facilities) the business unit represents the principal in the agency view. Second, in the post-investment phase, the position of the principal and the agent depends on who becomes the main actor along the investment process. Figure 3-13 shows that in case (a), when the business unit represents the realizing and deciding actor regarding the investment process, the business unit represents the agent, on whom the CVC unit (principal) depends; in this case the CVC unit depends on information and a collaborative attitude of business units concerning the ongoing

cooperation with the portfolio firms. In case (b), where the CVC unit remains the first contact partner for the portfolio company, there are good reasons to believe that the CVC unit mainly pursues high financial returns or fast exits, which represent objectives that are not necessarily congruent with the one of a business unit. In this case, the business unit represents the principal who depends on information of the agent - the CVC unit -, like strategic "window on technology". Figure 3-13 illustrates the discussed changing principal-agent constellations along the investment process.

Figure 3-13: Changing principal-agent constellation along the investment process



Especially the case where the CVC unit represents the dependent principal, implies the question: how does the CVC unit get the business unit to act on behalf of the CVC unit interests? The case findings show that opportunism is a main challenge that has be overcome in order to render CVC activities successfully: to create a context where the relevant actors develop confidence and are led to a performance that benefits the whole company. Main part of the conflicting opportunism is based on incongruent goals between the CVC unit and the operational driven business units. Assuming this conflicting constellation, to what extent are the existing control and collaboration agreements consistent with the theory? Regarding the pre-investment process, where the CVC unit represents the principal and the business unit the agent, the theory supposes, that the CVC unit should refer to control and monitoring devices and establish incentives that induce that the business units engagement is best for the CVC unit.

However, the findings of this study do not provide evidence regarding any applied control and monitoring devices in the pre-investment phase. Quite in contrast, the better the relationships between the CVC unit and the business unit, the less important are monitoring devices (tentative hypothesis # 16a). Moreover, the higher the developed trust between the two actors is, the lesser the necessity is to apply to formal governance mechanisms (tentative hypothesis # 16b). Looking at the post investment-phase, the agency theory predicts that the existence of collaboration agreements depends on whether the CVC unit or the business unit represents the principals. Regarding the post-investment phase, my study is congruent with the assumptions of agency theory. In fact, the existence of collaboration agreements between the CVC unit and the business unit depends on the principal-agent constellation. In case (a) where the CVC unit "goes one step back" in the post-investment phase, the CVC unit strongly aims in finalizing collaboration- and support agreement with the business units in order to guarantee and monitor the collaboration process of the business unit. In case (b) where the CVC unit remains the realizing- and deciding actor in the investment process, the case descriptions did not show any contractual monitoring of the business unit by the CVC. Taking this additional theoretical insight, my tentative hypotheses # 11a and # 11b have to be modified by considering this difference in the post-investment phase.

What can be said regarding the provided incentive systems in the relationship between the CVC unit and the business unit? In the case that the business unit represents the realizing/deciding actor, the theory suggests that any additional incentive for the business unit should be implemented. In this constellation where the CVC unit is the principal, who depends on the collaborative attitude of a business unit, the case description show no incentives for a business unit at all. Independent of the principal-agent constellation, the cases show evidence that the more financial returns of CVC activities get in the "pockets" of the business units, the higher their incentive to collaborate is. Therefore, tentative hypothesis # 21b stands in contrast to agency theory. Furthermore, the implication of Hart's study (1991) for this work would be that complementary portfolio firms should be owned by the CVC unit and by (!) the business units together. In other words, the theory suggests co-investments between the CVC unit and the business unit in order to overcome agency problems. Confronting the suggestion of co-

investments with the present study supports my tentative hypothesis # 21e, that the more co-investments exist between a business unit and a CVC unit, the higher is the incentive of a business unit to collaborate with the CVC unit.

To what extent is agency theory applicable to the relationship between corporate top-management and the CVC unit? This is even more important, since this relationship has significant influence on the relationship between the CVC unit and the business unit. In applying the assumptions of the agency theory, corporate top management can be seen as the principle and the CVC unit as the agent. This constellation imposes the question of how top management gets the CVC unit to act on behalf of the corporation's overall strategy. Following the agency theory, top-management is supposed to control directly the CVC unit. This is consistent with my findings. In all cases, the CVC unit reports directly to the top-management of the corporation. However, I found significant differences in the "bottom-up"-reporting. While for example *Siemens Venture Capital*, and *DaimlerChrysler Venture* limit themselves to informal verbal reporting, *Intel Capital* has to take position along the defined road maps of the business units. But, no additional incentives are applied to align the investment decisions of the CVC unit with the overall strategy of the corporation. While this lack of additional incentives could limit the motivation of the CVC unit to choose the most appropriate investments from a strategic point of view, both for the parent company as well as for business units, I argue that the greater distributional justice of compensation between the CVC unit and other business units is, the higher is the willingness of a business unit to collaborate (tentative hypothesis # 8). It can be assumed that a separation of the CVC managers' compensation from the corporate compensation system undermines the team character which is characteristical for multidivisional companies (Hill, 1994). Therefore, my study is somewhat complementary with Sykes' finding (1992), who argued that a venture compensation plan should be constructed so that there is congruence between the individual, the venture and the corporate goals. The plan needs to be flexible and stress team awards rather than individual awards. Two basic principles exist for Sykes (1992): equity as reflection of the performance, and equality regarding the distribution of rewards. However, I found that the more strategic aspects are considered in the performance measurement of the CVC mangers, the stronger is their pursue for strategically aligned portfolio firms. At

the same time this increases the willingness of a business unit to collaborate (tentative hypothesis # 8b).

However, the case description shows that the incentive systems of both the business unit as well the CVC managers show blatant needs for modification. The confrontation of this study with the components of agency theory shows that both the business units and the CVC managers in fact react and behave in a very rational and selfish way. The findings show that in doubtful cases, the CVC managers favor solid financial investments against strategic investments, since their personal compensation system is only based on achieved financial results. On the other side, the business unit neglects CVC activities, since their performance evaluation is only based on operational results. This confrontation shows that the incentive systems of both the business unit as well the CVC managers show blatant needs for modification. One explanatory reason for these inappropriate incentive systems could be the almost insuperable task of measuring the invested effort regarding strategic returns. Moreover, the theoretical assumption of risk-averse and rational behavior of actors is supported by case findings. The findings show that the business units indeed react very risk averse, since they do not prefer to spend their "own" budget for CVC –co-investments, because these investments are long-term oriented and characterized by high uncertainty about the economic success.

But, what can we learn of the extant literature regarding the basis for any bonus determination of actors involved in CVC activities. Already Salter (1973) identified the size of bonus relative to base salary as one of the key dimensions in the design of incentive systems for division general managers. As Salter (1973) suggested, the incentive bonus for a division general manager doesn't need to be a function of the focal division's performance. According to empirical research in this area, the greater the extent of resource sharing between units in an organization, the greater is the need to tie the unit manager's bonus to the performance of the larger cluster of units (Hill, 1994; Gupta and Govindarajan, 1986). The logic behind this finding is that the unit managers' motivation to engage in inter-unit cooperation and to take a cluster wide perspective in decision making and actions is likely to be greater when their incentives are tied to the performance of the cluster of units as a whole.

Therefore, the recommendation for corporate top-management of Gompers and Lerner (1999) to add a risk component to the remuneration of the CVC managers, as independent VC companies usually do in the form of a carried interest, stands in contrast to the stressed team character that is important for intra-organizational collaboration. However, the case description of this thesis congruently with Block and Ornati (1987) circumstantiate that the more VC activities are handled "in-house" by internal corporate venture capital units, the less they follow this recommendation. Quite in contrast, I hypothesize that the more distributional justice of compensation between the CVC unit and the business unit there is, the higher is the willingness of a business unit to collaborate (tentative hypothesis # 8a). But, distributional justice would impede any financial carried interest for the CVC managers. While the *Tower Perrin* study (2000), confirms this results for German CVC activities, the *William M. Mercer* report (2001) comes to similar results regarding nine big CVC programs in the US. Therefore, the suggestion of my study disagrees to Edelson's work (2001) who prognoses that especially successful CVC managers will wander to independent VC companies and therefore CVC activities have no future (Hardymon et. al, 1983).

While Gompers and Lerner (1999) merely argue that the lack of additional financial incentives of CVC managers affects in a negative way the relationship between the CVC unit and the operational units of a company, my findings go beyond that. I argue that it is more important that the CVC managers get a bonus which is based on strategic aspects, since this type of incentive strengthens the strategic focus of a CVC program and guarantees enough strategic fit to the core business of a company (tentative hypothesis # 8b). The incentive problem of the business unit in order to engage favorable on behalf of the CVC interests may be solved by the top-management through a shift from considering merely operational results to evaluation approaches which also take into account CVC engagements of a business unit (tentative hypothesis # 21a). That there is crucial need for modification is shown in the case descriptions, since unfortunately no company considers CVC activities in the balanced score-card of business units.

It seems that the agency theory is not thoroughly appropriate in explaining the governance mechanisms between the CVC unit and the business units. One shortcoming of this theory is that the hierarchical setting consisting of principal and agent is only hardly applicable in the context of this study. The hierarchical level

of the CVC unit and the business unit within a corporation does not show any superior or inferior hierarchical position of one actor. Neither the CVC unit, nor the business unit has the authority to force the other actor to action. This study shows that the CVC unit often interacts as an "intermediary" between the business unit and the start-up company, who pursues in realizing a "win-win-situation" for these two actors. Quite in contrast to agency theory's assumption, I found that the willingness of the business unit to collaborate is higher the less their relationship to the CVC unit is characterized by hierarchical qualities. This could happen either in the form of a flat organizational structure (tentative hypothesis # 3), or by qualitatively personal relationships between CVC managers and business unit people (tentative hypotheses # 13, # 16a, # 16b).

Another shortcoming that emerged in this study is that agency theory holds no explanatory power for the formation and development process of the analyzed intraorganizational relationship between the CVC unit and the business unit. As the case description shows, the alignment of the CVC strategy with the business units' strategy is facilitated if the CVC unit and the business units jointly determine the objectives and goals of a CVC program. While this procedure may limit the investment possibilities of a CVC unit regarding "disruptive technologies," I argue that jointly determined objectives are crucial to attain the willingness of a business unit to collaborate (tentative hypothesis # 1a).

Even worse, agency theory is not really suited to examine closely the incentive problems that strengthen the cooperation between CVC unit and other business units of the company. Although some companies of this thesis have at least some approaches that pretend giving any additional financial incentives for the CVC managers (e.g. *T-Venture*, *Siemens Venture Capital*, *Motorola Ventures*), it clearly emerged along the case description that a lot of the cooperation between the CVC unit and the business unit is merely based on "good-will" collaboration, following the motto, "I help you since I know you also once helped me." At the same time, following closely the recommendations of agency theory hides the risk of replacing the intrinsic motivation for cooperation between the CVC unit and the business unit by focusing on extrinsic incentives.

A final shortcoming of agency theory is that it does not consider the topic of organizational- and corporate socialization. This is even worse since the literature

tells us that intra-firm socialization has direct influence on the incentive of business unit to collaborate with others (Edstrom and Galbraith, 1977). Van Maanen and Schein (1979:73) defined *organizational socialization* as the process by which "an individual is taught what behaviors and perspectives are customary and desirable within the work setting." Ouchi (1975) applies this approach to context of intra-group collaboration and argued that socialization of managers can be a powerful mechanism for building identification with and commitment of the organization as a whole. Some key processes through which socialization occurs are job rotation across units and management development programs involving participants from several units (Edstrom and Galbraith, 1977).

Corporate socialization, which is interpretable as an informal governance mode, is linked to the tentative hypotheses concerning the characteristics of the corporation. Based on the indications given in the literature I argue that corporate socialization of department managers is a reasonable process through which the CVC unit's and the business units' values and norms become closely aligned with those of the parent corporation. However, corporate socialization needs to be actively supported by a high level of communication between the CVC unit and the business units which increases willingness to collaborate, mediated by a higher number of contacts (tentative hypothesis # 10). Furthermore, corporate socialization is a feasible way to develop an open corporate culture which is characterized by curiosity for technological newness, necessary for the business unit's willingness to collaborate with the CVC unit (tentative hypothesis # 22a).

In summary, agency theory described the effects of high uncertainty of CVC investments on the governance modes of the relationship between the CVC unit and the business unit. While acknowledging Sahlman's finding (1990) that a large proportion of the investments fail due to entrepreneurial risk and market determined risk, the discussion showed that CVC units have to manage the corporate internal uncertainty that a business unit refuses the collaboration regarding CVC investments. A result of the theory confrontation is that outcome control is more feasible than behavioral control, since the principal is unable to control the behavior of the agent. This could happen in the form of control- or synergy reports. This theoretical result is congruent with tentative hypothesis # 11a: the more collaboration and support-agreements exist, the higher is the capability of the CVC unit to manage the collaboration with the business unit.

Since the aspect of outcome uncertainty and –measurability is also true for the evaluation of strategically aligned investments decisions by the investment managers, my findings are in a similar vein as Eisenhardt (1985), Ouchi (1979), or Ouchi and Maguire (1975). All these researchers have argued that as outcomes become more difficult to observe or become less reliable as an indicator to the manager's "true" performance, then behavioral control should be the preferred approach.

This goes back to the role of corporate top-management. Their skill is to negotiate mutually beneficial returns for all contributing participants. The performance management and the reward systems must support cooperative and self-managing behavior on the part of organization members: the more financial and strategic incentives exist for a business unit, the more they are willing to collaborate with the CVC unit (tentative hypotheses # 21a, # 21b, # 21c). In this sense, the implemented incentive systems should fulfill the function of getting the attention, interest and desire of a business unit in order to enhance business unit's action. Moreover, appropriate incentive systems leads to the fact that business unit managers and investment mangers see themselves as completing rather than competing with each other, which in return increases the flexibility and innovativeness of corporations achieved through their CVC programs. In order to overcome principal agent problems, corporate socialization has been shown as a viable way to develop a sense of community among the network participants (tentative hypotheses # 22a, # 23). Corporate top management is supportive regarding the creation of a corporate culture that transcends intraorganizational ownership and borders between the CVC unit and operational units.

In concluding this chapter, one questions remains open: to what extent and how is any form of control influenced by the social relationships between the business unit and the CVC unit? Therefore, chapter 3.4.2 looks at social exchange theory.

3.4.2 Social Exchange Theory

Up to this point, the discussed theoretical perspectives have their origin in economics or management. The perspective of this chapter is derived from sociology. However, previous chapters already pinpointed that economic action between CVC units and business unit takes place in a network of social

relationships. The case descriptions also show that (overall) business unit employees are at least partially motivated by non-economic goals such as approval, status or power. Social exchange theory tends to emphasize the idea of personal obligation and gratitude rather than to focus on specific extrinsic benefits. This chapter is even more empowered, since presented the resource-related theories in this work (chapter 3.2), which highlighted the dependence on relationships, are build on social exchange theory. In order to understand social exchange theory, I first will present the basic ideas and variables of this theory.

Social exchange theory is based on the notion that people review and weigh their relationships in terms of costs and rewards. While costs are those elements in the relationship that have negative value to a person (e.g. stress, time, energy, attention), rewards have positive value to a person (e.g. fun, loyalty, attention). The formula that is used in order to "calculate" the overall value of a relationship subtracts the costs involved from the rewards provided. This calculation leads to positive relationships, in the case that rewards exceed costs, and leads to negative relationships if costs exceed rewards. According to social exchange theory, the "value" of a relationship predicts its outcome: while negative relationships will likely be terminated, positive relationships are continued.

The centrally discussed concepts of social exchange theory are dependence and power. Dependence as the source of an actors' power over others, has been a central theme in the study of power over the past decades. Since the publications of Emerson's (1962) seminal paper on power dependence relations and Blau's (1964) related discussion of tactics for balancing dependence relations, it has become commonplace to assert that power is less an attribute of an actor than of a relationship between actors. Emerson defined dependence of actor A in interpersonal relationships as (1) directly proportional to A's motivational investment in goals mediated by actor B, and (2) inversely proportional to the availability of those goals to A. According to Emerson (1962), dependence in social relationships is the reverse of power. Even more important for this work is Thompson's study (1967), which transfers Emerson's definition of interpersonal dependence to the organization's internal borders. The patterns of dependence on necessary resources, such as materials, know-how, or even capital, produce intraorganizational power, which influences organizational behavior (Aldrich and Pfeffer, 1976; Pfeffer and Salancik, 1978).

Which theoretical insights of social exchange theory can be transferred to this study in order to motivate a business unit to collaborate with the CVC unit? The relationship between dependence and power is only partially applicable in the context of this work. While social exchange theory characterized the situation of an actor either as dependent or powerful, the situation between a CVC manager and a business unit manager is in contrast characterized by a highly mutual interdependency. Speaking concretely, on the one hand the CVC unit strongly depends on the business units' collaboration. On the other hand, the CVC unit is in a powerful situation concerning the selection of investments and the allocation of capital.

Transferring Emerson's (1962) proposition in relation to the (1) motivational investment in goals and (2) availability of goals to the context of this work, means that a CVC unit is more dependent on a business unit, the more approval gates are implemented along the investment process. In other words, a CVC unit is less dependent on a business unit, the more independent from a business unit it can come to an investment decision. However, the dependency of a business unit is influenceable by a CVC unit and corporate top-management when designing the approval gates of business units along the investment process. Well aware of running in a situation of high dependency, I argue that the more a business unit is structurally involved along the investment process, the higher is their willingness to collaborate with the CVC unit (tentative hypothesis # 17). In return, the higher the willingness of a business unit is, the less critical becomes the dependency of the CVC unit. Concretely speaking, I found a curvilinear relationship between the time of business unit involvement and their motivation to collaborate, such as a very early business unit involvement avoids investments in strategically irrelevant deals and leads to a higher number of internal generated deals. However, the earlier a business unit is involved, the higher the number of transferred investment proposals that are finally not invested (tentative hypothesis # 18). While the collaboration of a business unit is attained by a realizing-level of involvement (tentative hypothesis # 19a), I found that the earlier this happened along the investment process, the higher is the capability of a business unit to collaborate (tentative hypothesis # 19b). The upside for a CVC unit of high business unit-dependency is that the CVC unit can focus their resources on screening the market for interesting investments, and on financial issues

(tentative hypothesis # 19d). Further, the more business units are involved on a realizing level, the higher the capability of an investmentmanager manager is to observe a higher number of investments on a consulting/informative level (tentative hypothesis # 19c). In managing an increased dependency on a business unit, I found that long-term oriented collaboration projects between CVC units and business units may be more effectively assessed by contacting senior management of business units. They are supposed to have the overview of the current and upcoming workload of business units, which is critical for the achievability of expected objectives (tentative hypotheses # 20a, # 20b).

After having presented the main ideas of social exchange theory, the question becomes: what are the basic assumptions of social exchange theory? First, I will present three assumptions (1a-1c) about the involved human nature. Secondly, three assumptions about (2a-2c) the nature of relationships follow.

(1a) Humans seek rewards and avoid punishment: Social exchange theory's notion is that people's behavior are motivated by some internal drive mechanism.

(1b) Humans are rational beings: The calculation of rewards and costs is used to guide exchange behaviors. The exchange patterns are based on the assumption that people are driven to achieve goals in their interactions with others.

(1c) The standards that humans use to evaluate costs and rewards vary over time and from person to person: The emphasis of the theory is on the role of diversity in relationships: a reward by one person may be seen as a cost by another.

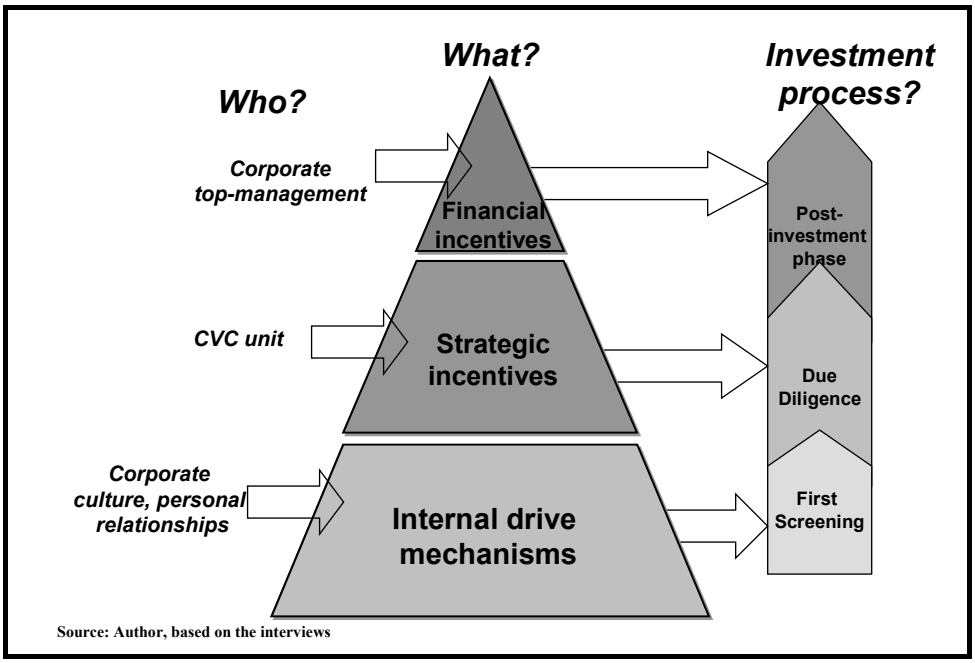
(2a) Relationships are interdependent: A human compares potential choices against the outcomes. The outcome is not completely in the hands of one individual as exchange partner co-create the nature and outcome of relationships.

(2b) Relational life is a process. Time and change are essential components in relational life. Especially past experiences in relationships are used to guide judgments and expectations about rewards and costs, which in return influence future interactions and exchanges.

(2c) *Dyads develop through stages of increasing commitment and reward*. One of the key idea is that actors engage in transactions in honor of the social exchange relationship itself, extending into the experienced past and the anticipated future.

In order to formulate valid statements about the applicability of social exchange theory, I will confront the assumptions of the theory with this study. The assumption of *reward seeking* in social exchange theory is somewhat different with my findings. I acknowledge "internal drive mechanisms" of social exchange theory related to short-term projects, which most efficiently happen on a good-will basis (e.g. help in first screening). However, I argue that intrafirm CVC activities are only partially based on internally driven motivation. I found that as soon as business units are asked to collaborate with the CVC unit to a greater extent (either through numerous projects or through long-term oriented cooperation with start-up companies), additional incentive systems have to be implemented by corporate top-management in order to maintain the business units' willingness to collaborate in the long-term (tentative hypothesis # 21a). Besides strategic incentives (tentative hypothesis # 22c), I found that especially the long-term willingness only is perpetuated by additional financial incentives that go back to a business unit (tentative hypothesis # 21b). Especially the predicted advanced relationships, characterized by the development of mutually beneficial goals between CVC units and business units, are only attained if business units are sufficiently financially rewarded. But at the same time, I found that additional incentives without "internal drive" are useless, since they have no "fundament". Figure 3-14 summarizes the findings.

Figure 3-14: Who needs to trigger what in order to maximize collaboration along the investment process



With respect to the assumed *rationality* of business unit's human being, social exchange theory gives no insight how to overcome the problem of rational behavior. While I acknowledge that business behave very rationally, the cases showed that the business units' rationality go back to their evaluation basis. Since corporate top-management only considers operational results in the balanced score-card of a business unit, business units are mainly focused on their operational results and neglect CVC activities. Therefore, corporate top-management should consider the engagement of business unit regarding CVC activities in the business units' balanced score-card. Moreover, the CVC unit may strengthen the strategic focus of their CVC program in order to overcome the barriers of rationality in business units (tentative hypothesis # 3). Even more efficient, CVC managers should consider the interaction between the investment stage of a CVC unit and the motivation of the business units to collaborate (tentative hypothesis # 4a). In order to get an idea about the needs and interests of a business unit, which are extensively discussed by zu Knyphausen-Aufseß (1995), a feasible way is an increase of the overall communication between the CVC unit and the business unit (tentative hypothesis # 10a, # 10b). This increases the capability of firms to consider the needs and interests of involved actors, summarized as "responsiveness" by zu Knyphausen-Aufseß (1995).

The assumptions of social exchange theory about the *standards that humans use to evaluate costs and rewards* represents another main hurdle which a CVC manager has to overcome. Applying the influencing dimension of time in evaluating costs and rewards to the context of this work means that CVC managers have to choose investments that may be of interest for a business unit in a specific time period. The "golden" way would be to select internally generated deals by business units, since it can be assumed that these deals maximize the current interest of business unit (tentative hypothesis # 5). Furthermore, the dimension of individual subjectivity in social exchange theory explains why CVC managers prefer to collaborate with business unit employees to whom they maintain personal contacts (tentative hypothesis # 14). Regarding, these "familiar" contact persons, the aspect of personal variation of social exchange partners is limited.

Forthcoming, I will confront the second group of assumptions of social exchange theory, which focus on the nature of relations. The mentioned *interdependency of relationships* is only partly found in the analyzed cases. While the cases show that CVC units are well aware that only by a co-creative collaboration the output of CVC programs could be maximized, business units are not always aware of their importance. This goes back to the core-assumptions of this work that this collaboration is necessary to achieve the supposed value added of CVC. In addition, the assumption of potential choices of an actor when choosing the exchange partner is only in a limited sense true for this work. CVC units often depend on a specific technological knowledge which is only existent in one business units of the parent company.

To what extent is the theories' assumption that *relational life* between two actors is a process supported by this work? Indeed, social exchange theory supports my hypothesis that the longer a CVC program exists within a corporation, the better the collaboration between involved actors works (tentative hypothesis # 9a). Even more important, the assumption about past experiences of actors explains why the past employment of CVC managers within the corporation is crucial to guide its judgments and expectations about rewards and costs. Therefore, tentative hypotheses # 7a, # 7b, # 7c, which mention the positive relationship between the previous employment CVC managers in other business unit positions and the collaboration effectiveness, are compatible with social exchange theory.

The last assumption of social exchange theory that *dyads develop through personal commitment and rewards* of individuals gives additional support for this work. However, I argue that qualitative relationships and top-management commitment are not sufficient. Again, having in mind that relationships are based on a series of reciprocating benefits, business units need to get rewards for their engagement regarding CVC activities. Besides the already mentioned strategic and financial incentives, the cases showed that especially the function of being the assigned contact person for CVC concerns needs to be complemented by social honor and personal status within a company.

Figure 3-15: Applicability of social exchange theory in the context of CVC, and additionally provided insights of this sudy

Assumptions	Transferability to this study	Additional insights of this study
(1a) Humans seek rewards and avoid punishment	Yes	• Long-term willingness of business units can only be perpetuated by financial incentives • Internal drive mechanisms only sufficient for short-term collaboration
(1b) Humans are rational beings	Yes	• Rational behavior of business units originates in their evaluation basis • Consideration of CVC activities in balanced score-card of business units • Strengthen strategic focus
(1c) The standards that humans use to evaluate costs and rewards vary over time and individuals	Yes	• Choose investments which are interesting in a specific time • Select internally generated deals • Collaboration preference concerning personal contacts of CVC manager
(2a) Relationships are interdependent	Limited	• Co-creative collaboration is necessary in order to achieve the supposed value add of CVC
(2b) Relational life is a process	Yes	• Long existence of CVC programs in corporations supports collaboration • Past employment of CVC managers is crucial to guide its judgments
(2c) Dyads develop through stages of commitment and reward	Yes	• Strategic and financial incentives are additionally necessary • The position of the designated contact partner in business units for CVC needs to be followed by social honor and personal status in the company

Source: Author, based on interview results

After having presented the major variables of social exchange theory and their applicability to this study, I will discuss some empirical findings which represent the basis for a further confrontation with this work. These empirical studies are grouped by their focus on different variables. The suggested impacts and initiators of these studies will be further confronted with my work.

In general, social exchange theory has been applied at all levels of analysis, from the study of interpersonal relationships (Blau, 1964; Cook and Emerson, 1978), to complex organizations (Hickson et al., 1971), to interorganizational relationships (Jacobs, 1974; Baker, 1990), to intraorganizational relationships (Peffer and Salancik, 1974; Kanter, 1977; Bacharach and Lawler, 1980) and exchange networks (Marsden, 1983). In applying social exchange theory Levine and White (1961:584) defined "organizational exchange" as "any voluntary activity between two actors which has consequences, actual of anticipated, for the realization of their respective goals." Blau (1964:21) found that activities are "motivated by the returns they are expecting to bring and typically do in fact bring." In the opinion of Emerson (1976), an organizational exchange relationship is established when from activities a "temporal series of transactions" is followed. By defining a resource as an actor's possession or

behavioral capability, which is valued by another actor, Emerson (1981) makes the difference obvious to the resource-based view of the firm.

The connection between the concept of behavioral control in agency theory and the context of social exchange represents the concept of commitment (Cook and Emerson, 1978; Morgan and Hunt, 1994). Commitment has been discussed either as a firm's willingness to exert effort on behalf of the relationship (Morgan and Hunt, 1994), or as the presence of emotional bonding and deep care about the fate of the other party (Steers and Mowday, 1977), or as the willingness to make short-term sacrifices in order to realize long-term benefits (Anderson and Weitz, 1992).

To what extent confirm or contradict these empirical studies the finding of this work? Regarding the personal obligation and gratitude claimed in these studies, I have to mention that while personal commitment exists regarding top-management, it is not always a matter of course on the side of a business unit. Acknowledging, that personal commitment of corporate top-management is necessary in order to get the motivation of a business unit to collaborate (tentative hypothesis # 23), I argue that only the commitment of business units itself represents the sufficient condition for an efficient intraorganizational collaboration process. The better the social relationship between business units and CVC managers is, the more probable is the commitment of a business unit, and therefore the higher their willingness to collaborate (tentative hypothesis # 13). In all cases, commitment has to be complemented by sufficient strategic and beneficial rewards that result from CVC for a business unit (tentative hypotheses # 21b, # 21c). This finding is therefore somewhat different to Anderson and Weitz's (1992) assumption that individuals are willing to accept "short-term sacrifices." Although I agree that the acceptance of personal "dis-profits" may be actively increasable by an emotional bonding between the CVC manager and the business unit employee, the findings suggest a very limited effect. One option to strengthen the intraorganizational bonding between CVC managers and involved operational units is a strong corporate culture (tentative hypothesis # 22b). It is important to mention that a supportive corporate culture emerged as the biggest difference between the US and the German companies in this work.

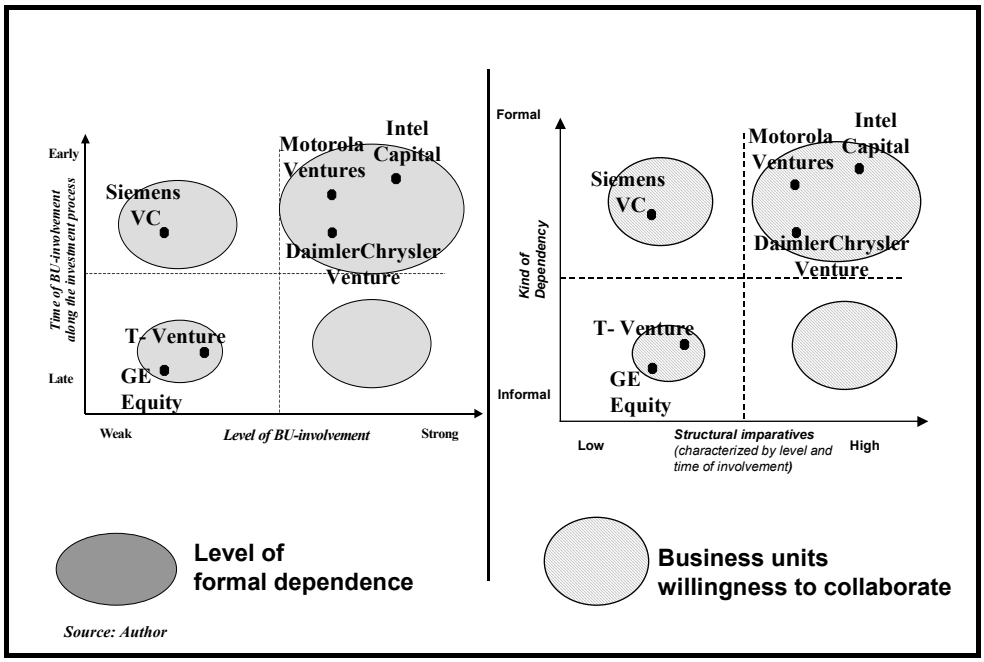
Another stream of authors in social exchange theory emphasize the aspect of interdependent series of transactions (Emerson, 1962; Levine and White, 1961). Following these authors, the participants embark on a "quid pro quo exploration process" during which incremental risk taking and trial-and-error learning takes place (Emerson, 1962:33). It is expounded that through a "testing" process a sufficient number of exchanges and communications occur in order to evaluate the relationship's business potential. The two sides learn about each other in both personal and organizational terms. Further, it is argued that since commitment also entails vulnerability, parties will seek to partner with trustworthy partners. Sharing an understanding of the conduct and content of their exchange relationships leads to stability and durability. At the more advanced stage of the relationship, the exchange process is characterized by norms regarding issues such as confidentiality, disclosure, sense of trust, reliability, fairness, mutuality, and norms of reciprocity (Zucker, 1986, Larson and Starr, 1993). According to social exchange theory, trust is not the result of contractual safeguards, because safeguards do not require a leap of faith (Zand, 1972). During this exploration and learning process, the actors build, test, and refine an increasingly complex social contract. The unique advantage of this social contract is that 'social control' in exchange relationships, for example the partner's concern for preserving the relationship and protecting their reputation, offers strong protection against the risk of high dependence (Larson, 1992).

Confronting the mentioned process of "trial and error learning" with my findings shows that development of relationship between the CVC unit and the business units follows the supposed patterns of social exchange theory. Speaking concretely, this study argues that the longer a CVC program exists in a corporation, the higher is the willingness of a BU to collaborate (tentative hypothesis # 9a). At the same time, the higher age of a CVC program is related with a higher number of reliable contacts between the investment manager and the people of the business units (tentative hypothesis # 9b). The case description shows that the better the relationship between the CVC unit and the business unit is, the higher is the existent mutual trust. In turn, trust positively affects the need for formal "protection" against the dependence on collaboration (tentative hypothesis # 16a).

These issues aside, the confrontation demonstrates one shortcoming of Larson's (1992) findings. While she argues that the informal governance mode of social control is sufficient, this study shows that although social control becomes more important, in no way become formal agreements between the CVC unit and the business unit dispensable (tentative hypothesis # 16b). The case description indicates that although investment manager have their "favorite contacts" in business units, guaranteeing certain collaboration quality, the necessity of having collaborations agreements remains.

One further shortcoming of social exchange theory emerged in the analysis of the collaboration between the CVC unit and the business unit: there are two types of dependence, formal and informal dependence. First, the 'formal dependence' of the CVC unit on the business unit collaboration results from structural imperatives of the business units in the investment process (e.g. go/no go-approvals). However, while formal dependency on business units may be critical or even harmful for the CVC unit's progress in the process of investing, I found that only the formal dependency increases the willingness of a business unit to provide their required input (tentative hypotheses # 17, # 19a). Second, there is 'informal dependency' that originates in asking the business units for an informal feedback regarding the technology of a start-up company (e.g. opinion obtained on the telephone or e-mail). Since 'informal dependency' allows the investment manager to continue in the investment process without or with a negative business unit feedback, it is less critical for fast decisions, which are indispensable in the CVC market. But, despite of this advantage, I argue that 'informal dependency' does not fundamentally strengthen the motivation of business units to collaborate. Interestingly, the case descriptions shows that in spite of a higher 'formal dependency' of business unit throughout the investment process the intrafirm collaboration process seems to be less problematic than in the case of mainly independent CVC units. Figure 3-16 summarizes the main findings of this paragraph by applying it to the analyzed cases.

Figure 3-16: The positive relation between the level of formal dependency and the business units' willingness to collaborate



Following the overall outline, before concluding this subchapter I will represent some criticism about social exchange theory. First, Sabatelli and Shenan (1993) criticize the theory as untestable, as the central concepts of costs and rewards are not clearly defined. A second criticism is related to the theory's view that humans are rational calculators who are able to come up with numerical representations of their relational lives. Finally Duck criticizes (1994) that people are not as self-interested as the theory assumes.

This expressed criticism poses the question to what extent they are congruent with my findings? The mentioned criticisms regarding the calculable rewards only maintain truth if the rewards of business units remain on a non-economic, sociological basis. Moreover, the claimed unprecise definition of costs is not confirmed in this work. The fact that on the one hand business units can measure their costs for CVC activities (e.g. spent time and resources), but on the other hand, their rewards remain undefined in their balanced score-card, characterizes the uniqueness of this study's focus. The situation is aggravated by the almost not measurable strategic returns. Therefore, I conclude that top-management has to be alerted to consider the spent effort of business units regarding CVC activities in defining their operational balanced score-cards. Further, a corporate top management should pay attention to the corporate culture, since it positively

increases the perception of non-economic benefits on the side of business unit employees in order to overcome a very self-interested way of working conditions.

In summary, social exchange theory provided sociological insights in the relationship between two actors. However, this takes place on a very superficial basis by treating dependence and power as "black-boxes" concerning the resource acquisition process. Social exchange theory failed in explaining potential mechanisms, which the CVC unit could utilize in order to strengthen the motivation of a business unit to collaborate. In this respect, my study goes beyond that. First, this work showed that tree types of incentives are necessary in order to maximize the collaboration of a business unit: "internal drive", strategic and financial incentives have to be present. While social exchange theory focuses on "internal drive" mechanisms, this study developed important influence factors for each incentive component. In addition, the importance of each incentive component has been linked to the corresponding stage in the investment process.

Secondly, and even more interesting, I showed that the higher the "formal (!) dependence" of a CVC unit on business unit feedback is by an early and strong business unit involvement, the higher is the willingness of a business unit to collaborate. The somewhat averse effect is that the CVC unit needs not be concerned that the dependency is harmful for their progress in the investment process, since the business units are motivated by "internal drive mechanisms".

With this concluding remark on the above theoretical discussion it is now warranted to tie together the findings of this chapter. So far the chapter has confronted the case findings with extant resource and exchange related theories and has discussed various strands of governance related literature in hopes of uncovering new insights into collaborating relationships. How can all these discussions be tied together in a useful contribution to an integrated theory of intra-organizational collaboration? The following and final chapter 4 of this study aims at providing an answer.

4 Constructing a new approach and directions for further research

Section 3.2 of the previous chapter has established a need for an extension of resource-related theories of relationships to explain the case findings which were summarized in the set of tentative hypotheses at the end of the case study chapter. Furthermore, the third section of chapter 3 discussed exchange-related theories and demonstrated that a major cause for the shortcomings of this theory stream is the lack of explicit governance mechanisms and incentives in order to structure exchange-efficiency in relationships. Since the connection across an organization involves that the relationships need to be governed, the final section of the previous chapter focused on agency and social exchange aspects.

This final chapter's task is to combine the previous work. The so far applied procedure can be paraphrased as follows: Chapter 2 observes and condenses real-life phenomena. Chapter 3 looks at resource-related theories (section 3.1), exchange-related theories (section 3.2) and theories about governance modes of relationships. This chapter is to take up and use the supportive inputs for reconciling the shortcomings of extant intra-organizational collaboration theory.

In the terminology used by case study methodologists, chapter 3 has been engaged in the enfolding of conflicting and supportive literature. At the point where further discussions of extant literature do not produce additional support for the explanation of the case-based tentative hypotheses, theoretical saturation has been reached (Eisenhardt, 1989; Yin, 1984). This study has reached theoretical saturation concerning the discussion of resource-related, exchange-related and governance-related theories. What remains to be done is to utilize what has been learned for an extension of extant theory capable of explaining intra-organizational collaboration between the CVC unit and the business unit. This is the ultimate goal towards which all previous deliberations have been working. The following three subsections present and discuss this theory extension.

Section 4.1 constructs the new theoretical approach by tying together the diverse strands of theory. This represents the actual proposition of the extension of intra-

organizational collaboration theory and is therefore more elaborate than other subsections. The following section (4.2) takes the theoretical arguments back to the level of the case study findings, i.e. to the set of tentative hypotheses, in an iterative loop. Thus, the step serves to ascertain the validity of the new contribution and to detect potentially remaining weaknesses of the new approach. Finally, section 4.3 opens up the discussion of the implications that this study's contribution to the understanding of intra-organizational collaboration concerning CVC programs may have for management. In doing so, a model is proposed that holds the promise to explain the collaboration patterns witnessed in the cases. In Yin's (1984, p. 21) terminology this inductively generated model, which is the result of case-based 'analytical generalization', can serve as a basis for future large sample 'statistical generalization' of intra-organizational collaboration theory.

4.1 Framework for the merger of exchange resource-related, exchange-related and governance-related theories in the collaboration of CVC programs

The objective of learning more about intra-organizational collaboration between business units and the CVC unit determined the choice of the case study methodology for this study. In addition to the in-depth descriptions of the collaboration process between investment manager and business units, this study also aims at generating an explanation for the observations in the cases. But how can the large and quite heterogeneous body of information discussed in the previous chapter be synthesized into such an explanation? As this chapter aims at providing explanations, it begins with a short summary of the key inputs of the previous sections. These inputs represent the central line of thinking leading to the proposition of this study's inductively grounded extension of theory.

In section 3.2, the set of tentative hypotheses was confronted with extant resource-related theories. The resource-based view of the firm was found to hold serious shortcomings in explaining the case observations. The resource-based view of the firm excessively focused on the role of resource complementarities. Further, the main reason for the lack of a consistent explanation of the case findings is the analyzed path-dependency of business units, which dominantly

influences the cooperativeness of a business unit with a CVC unit. Additionally, the resource-based view failed to explain the attractiveness of external investments in order to become less path-dependent by increasing the pool of business units' resources. The main reason for this failure is the theory's extensive focus on corporate internal resources. Moreover, the resource-based view also lacks insights how the CVC unit knows where the resources inside a corporation are and how to get access to them. Finally, the resource-based view does not consider the aspect of trust, although trust was found to be a decisive pre-requisite for a frequent and open interaction.

The advantage of the resource-based view was that it supports the focus on strategic investment objectives when designing a CVC program, since strategically oriented CVC programs deliver complementary resources to a business unit. The exchange of complementary resources was found to act as a trigger for external investments attractive for business units. But not only the willingness of a business unit to collaborate is determined by complementary resources; also the business unit's capability to collaborate is influenced.

One unique difference emerged between interorganizational exchanging relationships and the focused intraorganizational relationship of this work. While in interorganizational settings a defined resource-exchange is necessary for the formation of the exchanging relationship, in the intraorganizational relationship of this work the resource-exchange is not exactly defined in advance. Two reasons emerged that limit the applicability of the resource-based view in this study: first, the business unit and the start-up company are partly "forced" to collaborate, although the beneficial outcome for the actors is incalculable. Second, since the main part of resources is exchanged between the portfolio firms and the business units, the CVC unit is only a mediator in realizing the exchange of resources.

Nevertheless, the investment manager should be aware of the implications when selecting portfolio firms that maximize the willingness of a business unit to collaborate. Only if the CVC unit introduces the business unit to a "right" selected start-up company, any resource exchange is effected. In doing so,

complementary portfolio firms stimulate the 'eco-system' of a business unit.[1] However, complementarity per se is not the decisive factor that defines the willingness of a business unit to collaborate, but also whether the exchanged resources positively influence the success of a business unit. Direct competition is minimized when the selected portfolio firm can signal value-adding resources to a business unit. The more the exchanged resources are not direct substitutes for one another, the higher is the willingness of a business unit to collaborate due to a higher incentive for interaction in the purpose of value creation.

The secondly discussed resource-related theory was the knowledge-based theory, including organizational learning. The depiction of a firm as 'a repository of knowledge and competencies' (Kogut and Zander, 1996) gives no adequate explanation for the individual knowledge inherent in business unit employees. The theory lacks additional insights for my argument 'what a CVC managers knows is who he knows in a corporation'. Levinthal and March's (1993) classical distinction of exploitation and exploration of knowledge does not adequately consider the interest the business unit has in knowledge acquisition.

The concept of absorptive capacity (Cohen and Levinthal, 1990) has been shown as an important factor influencing organizational learning. This concept indicated that there is a relationship between the acquisition of knowledge and the recognition of its usefulness for a business unit. It has been shown that the involvement of business units along the investment process represents a way of exploring and exploiting knowledge with respect to involved business units. There is evidence that an early involvement increases the willingness of a business unit to collaborate, since a business unit can influence the learning process more efficiently. Further, the findings reveal that the involvement of a business unit along the investment process should go beyond a mere informative or consulting level. I found, that only by an involvement of a business unit on a realizing and deciding level the whole range of knowledge exploitation and exploration is enabled.

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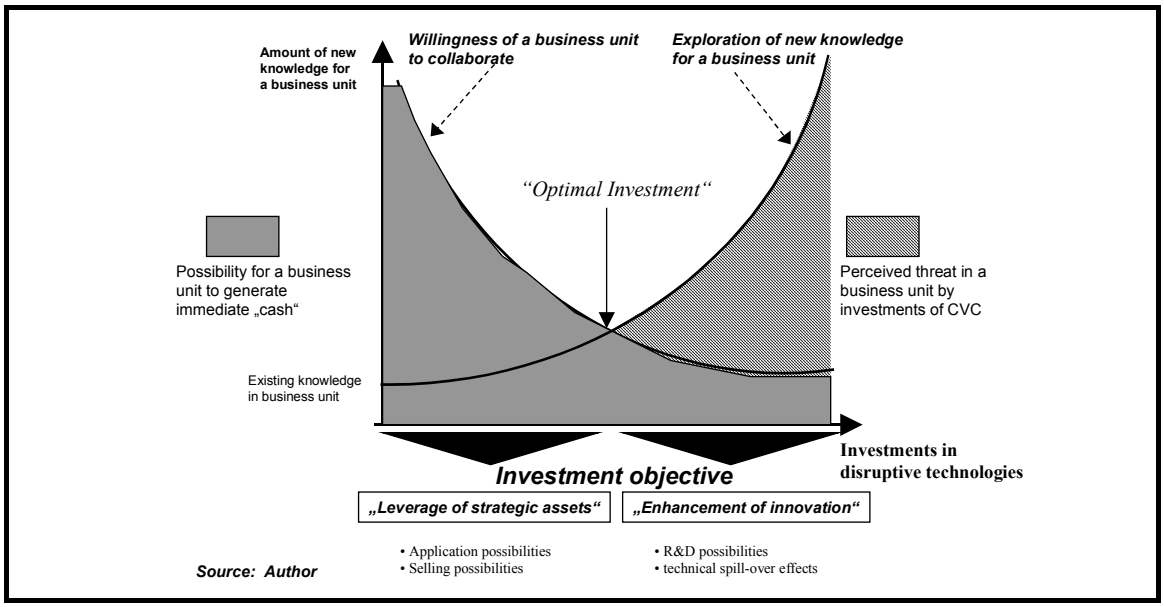
[1] I defined complementary investments by using two indicators. (1) complementarity of resources and capabilities, and (2), complementarity of products and resources. Both indicators refer to a business unit's operational business (see section 3.1.1. of this work).

One of the key findings is that there is an interaction between investment stage and the aspects of exploitation and exploration, such as late stage investments lead to more collaboration in business units that prefer "leverage of strategic assets", while early stage investments lead to more collaboration willingness in business units that look for "enhancement of innovation". There is also evidence that the objective "enhancement of innovation" generates stronger rejection at business units, since they could fear the termination of their current business. This result is even more astonishing since at the same time the exploration of new knowledge increases. The diverging development of collaboration willingness, which is based on the possibility of immediate cash-generation of business units, and knowledge exploration, which is based on the perceived threat in a business unit, is shown in figure 4-1. The opposite situation regarding willingness of business units and exploration of new knowledge results out of the investment strategy "leverage of strategic assets": high collaboration willingness but little exploration of new knowledge.

Figure 4-1: Exploration of new knowledge and the willingness of a business unit to collaborate resulting of an investment strategy



This analysis has shown that corporations have a difficult balance to strike between the investment objectives "leverage of strategic assets" on the one hand, and "enhancement of innovation" on the other hand in order to determine the "optimal investment" that promises collaborative business units and exploration of new knowledge. This finding stands in contrast to the traditional

understanding of the knowledge-based theory that exploration *and* exploitation of knowledge increases the willingness of an actor to exchange knowledge.

The advantage of the knowledge-based view is its explanations about common language concerning complementary investments. These aspects provide insights in the business unit's ability and willingness to collaborate. There is evidence that the high disposition of a business unit results from a medium level of similarity between selected investments and business unit technology, guaranteeing a common language while facilitating the learning new knowledge. At the same time, pay-off for a business unit is maximized when portfolio firms are complementary to the business unit technology.

But, since also the most learning takes place between the start-up company and the business units during the post-investment phase, the selection of most appropriate investments by the CVC unit is more important than the involvement of a business unit in the pre-investment phase. Since the CVC unit represents the "moderator" who brings together business unit and start-up companies, it is less critical for the investment manager to know "what" and "how", than it is for them to know "whom" of the corporation they have to bring together with the portfolio firms. Concluding this paragraph, it can be stated that the knowledge based theory is mainly useful in forecasting a business unit's capability to collaborate, while it partly neglects the willingness to collaborate.

The second stream of theory (chapter 3.3) that was confronted with the cases consisted of social capital theory and network theory. Both approaches hold only partly explanatory power for the intra-organizational collaboration process between CVC units and business units. The findings reveal that the objectives of a CVC program determine the activity level of a business unit's involvement along the investment process. The cases offer support that a position of high centrality in a corporation is a necessary but in no way sufficient requirement that facilitates access to critical resources in business units. It is rather the personal networks and contacts which the investment managers have. Therefore, the concentration on structural aspects did not have the power to shed light on the actual willingness of a business unit to collaborate. Moreover, structural aspects are only of little practical value for the CVC unit, since the resulting structure out of the defined CVC objectives, are only limited influenceable by CVC managers.

The multidimensional concept of social capital which suggests that the relational, structural, and cognitive dimension influence access to resources, the anticipation of value, the motivation to exchange resources, and the capability to combine resources maintains partial explanation power of relations. Particularly, the different types of analyzed trust represent interesting insights about willingness and ability of business units to subordinate their operational goals and associate actions to CVC activities. In doing so, especially dyadic and resilient trusts are found to be sufficiently efficient. However, the motives driving these types of trust require a different approach.

The close analysis of social capital theory showed that in the case of intra-organizational collaboration between the CVC unit and the business unit many of the assumptions are either not valid or not sufficient. Acknowledging an influence of the relational dimension (trust), I showed that also structural and cognitive dimensions are important drivers for the motivation of a business unit to exchange resources. While social capital theory lacks giving explanations about the triggers of the relational, structural, and cognitive-dimensions, the cases substantiate my argument that the cognitive dimension is strongly supported by corporate top management commitment, while trust is supported by positive experiences of business unit's about CVC investments.

In addition, social capital holds no explanatory power for the relationship between the anticipation of value and the motivation to exchange resources. Also concerning the explanation of the relation between the type of relationships and the kind of trust, social capital theory fails. This is not trivial, since the cases showed that CVC managers and the business unit employees develop different forms of trust, depending on the quality of their relationship, and, equally important, that the kind of trust is strongly influenced by the dimension of time. The search for further theories emerged, since social capital theory failed in explaining how the CVC unit achieves qualitative networks of relationships. Economic incentives are generally neglected in social capital theory. Acknowledging the importance of social capital, there is a need for an approach that explains the creation of social capital.

Acting from the emerged necessity, section 3.3.2 discusses social network theory under an intraorganizational perspective. The findings reveal that networks of

relationships between the CVC manager and the business unit individuals can be conceptualized by nodes (or positions) and by ties (or links). Since this conceptualization is used to explain different kind of networks (tight and/or loose), it holds explanatory power for the adjustment of CVC programs to changing external (market, customer) and internal (business unit) conditions.

While the sociologically oriented network theories focus on structural and relational dimension of ties, strategic management literature applies the network theory for the analysis of network forms for multinational companies. However, the theoretical discussion about the most appropriate network configuration characterized by the dimensions density, connectivity and hierarchical position was found to held insufficient explanatory power for this work. While network theory explains that the establishment of network linkages is beneficial for the creation and transfer of resources and knowledge, it did not have the power to shed sufficient light on the question how to create linkages them between the CVC unit and the business units. While Tsai's (2000) recommendation regarding network centrality in linkage formation is useful for an investment manager during the pre-investment phase, a central position does not represent the most appropriate in the pre-investment phase.

Due to different requirements and purposes depending on the investment phase, Hanson's (1999) analyzed relationship between weak vs. strong ties and tacit vs. explicit knowledge was found to hold also only limited explanatory power for the case findings. The same is true concerning the discussion of network governance in relation to intra-organizational collaboration. The implications of theses mechanisms on the overall efficiency of collaboration remain unexplained by network theory. The components of trust, informality, and dependency partly explained the willingness of a business unit to collaborate. But network theory needs to include the relationship between trust and the necessity of collaboration agreements in networks. One explanation for this limited explanatory power is the theory's focus on corporate top-management, which can make things happen in intra-firm network constellations. However, network theory fails in explaining the important role of the middle management in CVC programs.

In search for a network form of organization that overcomes these difficulties, network theory presented Hedlund's N-form (1994), which focuses on the role of

middle management combining the resources of different units. The presented N-form, which is based on the fact that nodes have strategic, specialized roles holds explanatory power for the context of this study. The heterarchical N-form of network theory, which suggests a flat structure between the actors, was the first feasible concept of a structural setting ensuring that business units really want to collaborate. At the same time, the higher willingness of a business unit decreases the necessity of corporate top-management to intervene between CVC unit and business units. Therefore, the role of corporate top-management is limited to conflict management. In addition, network theory delivered insight in the steps of knowing, mobilizing and leveraging the network actors. These theoretical findings showed overwhelmingly support for the case description, which pointed to the sequencing challenges of a CVC manager of finding the attention, desire, interest, and action of a business unit.

This explanatory support aside, network theory holds no explanatory power for additional financial incentives that have been repeatedly mentioned along the interviews as absolutely necessary for the long-term interest of a business unit to collaborate. In addition, there is no sufficient explanation about extrinsic or intrinsic incentives.

Section 3.4 deals with the broad field of theories on governance mechanisms. The principal goal is to structure the exchanging relationship in order to increase its efficiency. This was pursued in the confrontation of the tentative hypotheses with agency theory and social exchange theory. Agency theory was largely able to explain the emerged aspects of high uncertainty, adverse selection, moral hazard and hold-up problems. However, agency theory holds no explanatory power for the changing constellation of agent and principal in the relationship between the CVC unit and the business unit. Further, the suggested monitoring devices of agency theory are only compatible regarding post-investment phase. While agency theory shed light on the necessity to implement congruent compensation systems, it failed in substantiating these ideas. By focusing on the hierarchical setting, agency theory missed in explaining the aspect of corporate socialization.

Prompted by the apparent shortcomings of agency theory regarding the suggestibility of behavioral control, the last theory chapter focused on social

exchange theory. On the positive side, one key finding was, that besides strategic and financial incentives, business employees are partially motivated by some non-economic goals such as internally driven approval, status, or power. Furthermore, social capital theory holds explanatory power for the fact that the maintenance of social relationships is a time consuming process, through which the development of trust and norms of reciprocity is explained. On the negative side, social exchange theory failed in delivering explanations that internal drive mechanisms need to be supplemented by strategic and financial incentives in order to maximize the business units' collaboration willingness. Finally, social exchange theory made no distinction between "formal-" and "informal dependency", and its implications on the willingness of an actor to collaborate.

In summary, agency theory and social exchange theory showed that trust and personal relationships as informal governance modes on the one hand, and collaboration agreements and control reports as formal governance mechanisms on the other hand, have to come together in order to effectively structure the collaboration between the CVC unit and the business unit. One of the key findings of this study is that formal governance modes cannot be completely replaced by trustworthy relationships.

Since the objective of this study is to offer an extension of extant theory as opposed to proposing an entirely new theoretical approach, it was determined which aspects of the analyzed theories have been proven to be useful. Based on the earlier explanations, the findings from the enfolding of the literature are incorporated into this study's proposition with the goal of increasing overall explanatory power for the case study results.

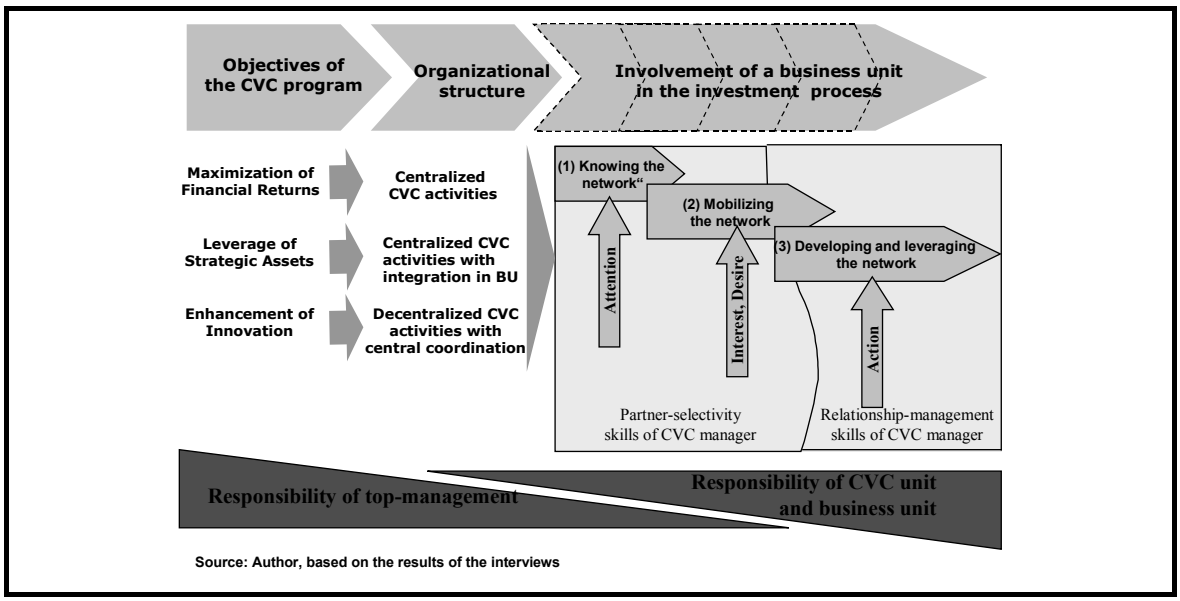
The organization of corporate venturing units has been described in many studies by consultants as well as by researchers (for example Mackewicz & Partner, 1997; Bain & Company, 2000; Gompers and Lerner, 1997; Murray and Maula, 2001; Kann, 2001; Keil, 2001). All these models and concepts either generally focus on the most appropriate strategy or on organizational processes. A lot of tge empirical concepts focus on the relationship between the CVC unit and the start-up companies but neglect the intra-organizational aspect. Moreover, all these concepts stop after the analysis of the corporate venturing objectives or they start with the question how to tackle organizational processes. Even worse,

no influencing factors on the business units' collaboration are considered. However, both, the set-up of a certain CVC strategy as well as the form and design of the ongoing investment process have undeniable influence on involved business units. This re-coupling refers on the willingness as well on the capability of business units. Since the literature also gives hints that the relationship of a CVC unit to its corporation is of crucial importance, it is even more surprising that no study embraces the impacts on business units of both stages of a CVC program.

Following the central arguments generated by confronting the theory with the case study results as well as the literature on corporate venturing, this section addresses the proposal of the 'intra-organizational collaboration model of CVC'. The supportive and conflicting literature have been reviewed at length and theoretical saturation has been reached. The set of 'theory free' tentative hypotheses is to be challenged, corroborated, and eventually refined in such a way as to extend extant theory. The need for such an improvement became obvious when the extant theory failed to offer explanation for the case findings. My framework tries to analyze important influence factors according to the stage of intra-firm collaboration. At this point, it is important to construct a new approach that combines both stages - the strategy/structure definition and the investment process – and with the conclusions drawn in chapter 3 to ask for the implications on the willingness and capability of a business unit to collaborate. Thus my model aims at generating a new conceptual framework that focuses on the intra-firm collaboration in order to close the gap in the existing literature.

My study claims that the collaboration process between CVC unit and business unit is better understood when explaining the collaboration process between CVC unit and business unit along the three stages of (1) definition of CVC objectives, (2) maintenance of an organizational structure, and (3) involvement of a business unit in the investment process. Moreover, since these different stages can be considered as multi-layered steps, including applicable influencing factors, it is assumed that the application of this concept can easily be transformed. Figure 4-2 illustrates the main tenets of the 'intra-firm collaboration model' by summarizing the patterns of getting the willingness of a business unit to collaborate in each phase.

Figure 4-2: Main tenets of the 'intra-firm collaboration model'



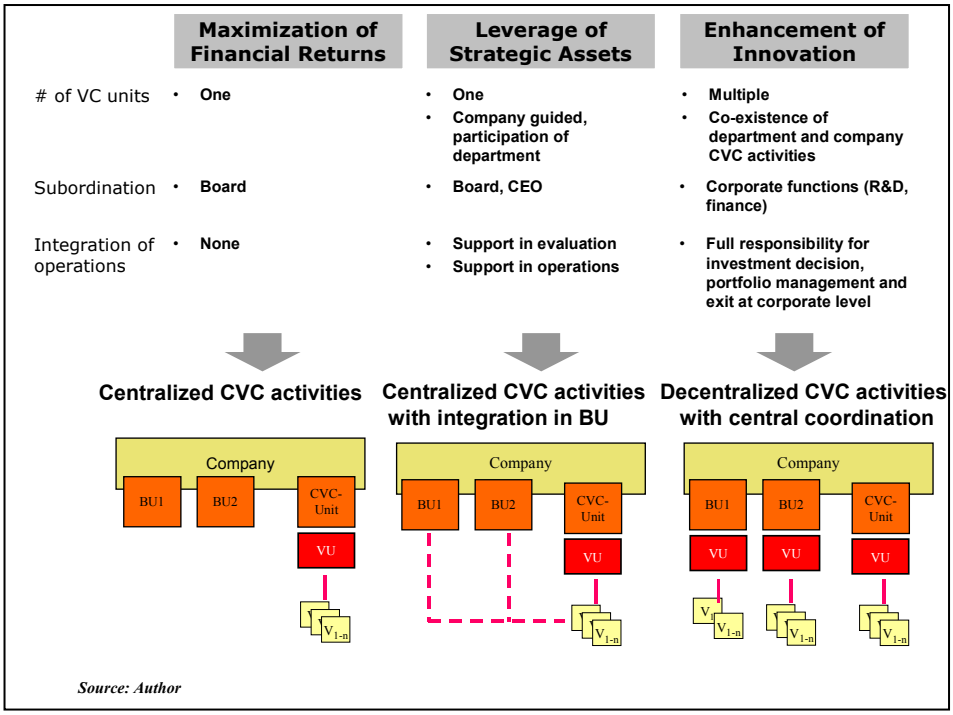
The first stage of the framework includes the definition of the CVC objectives. The approach proposed here demonstrates that the first decision of the corporation has to be whether to prefer potentials of strategic investments or attractive financial returns of mainly financially motivated investments. In case of strategic investments the corporation needs to focus on informal relationship building mechanisms in order to facilitate collaboration; they do not need to implement additional incentives (i.e. financial bonus) for the CVC unit, since strategically motivated investments, assuming everything else being equal, are more easily to manage for the CVC unit. The reasons are: it is easier for them to get the business unit's approval; in the case of financially unsuccessful investments, the CVC unit at least has strategic benefits to emphasize; the capability of a business unit to collaborate is higher. Financially motivated investments, that need the approval of the business unit, will probably be related with more rejection and less capability from a business unit. The approach proposed here demonstrates that the emphasis of the strategic focus is being used as a first step to get the willingness of a business unit to collaborate and that there are valid reasons why focusing on strategically intended investments is a rewarding strategy in the context of the intra-organizational collaboration.

The second stage of the framework transforms the three analyzed CVC objectives into the most appropriate organizational structure. Based on empirical evidence, this study shows that the first objective "maximization of financial returns" is realized best in a centralized CVC unit within a corporation. This

means that there is only one unit within a corporation, subordinated to the board of a corporation, which is responsible for all CVC investments. In this organizational setting, CVC investments are completely separated from business units since there is no involvement of business units. Second, if corporate top-management decides to prefer the strategic objective "leverage of strategic assets", this framework shows that CVC units are also centralized within a corporation, but show an integration of business units concerning the evaluation and support of portfolio firms. Finally, this framework reveals that the purpose of "enhancement of innovation" is organizationally best realized by decentral CVC activities that are centrally coordinated. This approach means that CVC units are subordinates of corporate functions and that responsibilities emerging along the investment process are at corporate level.

These findings of the study, that the structure of a CVC program follows its strategy, are summarized in the following figure.

Figure 4-3: The structure of a CVC program follows its strategy



There is to say that independently of which investment strategy has been chosen, corporate top-management has to focus on removing collaboration obstacles and on providing incentive mechanisms for fine-tuning the collaboration performance between the CVC unit and the business unit. Furthermore, corporate top-

management has to create a corporate culture that focuses the attention of divisional managers on maximizing the efficiency of the collaboration rather than the performance of each division as an independent unit. More precisely in terms of performance measurement, as interdivisional collaboration between the CVC unit and the business units increases, corporate top management my de-emphasize rate-of-return measures of divisional performance and emphasize more subjective modes of evaluating performance, e.g. ability to innovate. I found that the greater the degree of resource sharing among the CVC unit and the business units, the greater should be the reliance on subjective criteria in assessing the performance of involved business units. In all cases, top management should not accomplish incompatible objectives, such as supporting the existing strategy and, at the same time, generating attractive financial returns.

While the first and second step pertain to strategic possibilities of the corporate top-management in influencing the collaboration between CVC unit and business unit, the third stage is characterized by more control/autonomy of the CVC unit and business units in shaping and implementing their collaboration process. Therefore, in this model there is a tendency that the responsibility of corporate top-management on the one side and the CVC/business unit responsibility on the other side represent two opposite directed developments. However, there is no defined border between the responsibility of corporate top-management and the responsibility of the CVC – and business unit.

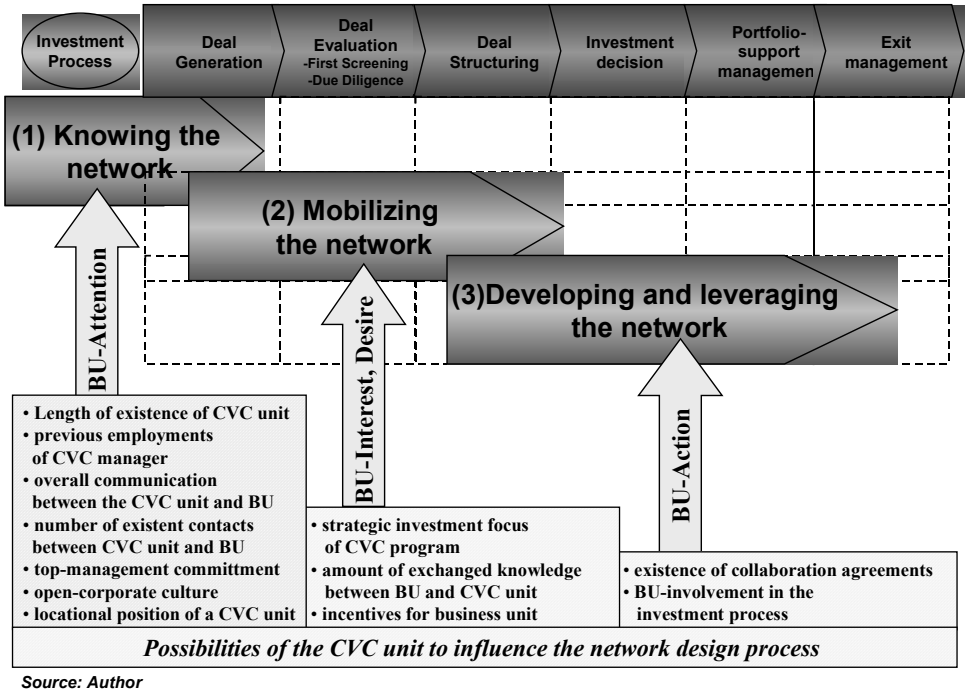
This framework can fulfill different purposes. The first and second step can be used for ex-ante decision when defining a CVC program in order to organizationally integrate a specific CVC purpose into a large corporation. In this context, this framework helps to analyze, classify, and compare the impacts of different CVC objectives on the organizational structure and the involvement of business units in the investment process.

The third step - the involvement of a business unit in the investment process – goes further, because a strategy has to be realized for involving a business unit along the investment process. The theoretical discussion of networking theory showed that the design process of a network between the CVC unit and the business units involves three stages, of which CVC managers and business unit employees in sequence go through in developing their network: (1) knowing the

network, (2) mobilizing a network, and (3) leveraging the network. Interestingly, the corresponding impetus for each of these stages follows a kind of "AIDA"-principle – a long established mnemonic trick in sales. In the final stage of this model where the strategy and the structure of a CVC program are defined, "AIDA" stands for *attention, interest, desire,* and *action* of a business unit.

(1) Knowing the network is triggered by the CVC unit's pursuit to find the *attention* of a business unit. While this pre-requisite is actively determined by personal networking contacts, passively it is influenced by a supportive infrastructure (e.g. databases, service-teams, competence centers), by the top-management commitment, by an open corporate culture, by the locational position of CVC unit, and finally by the length of existence of a CVC program. The longer CVC activities are in place within a corporation, the better are these activities already visible and known within the parent firm. Having the attention of a business unit the next issue is to find their *interest* and their *desire* to collaborate. The business units' desire and interest induces the (2) mobilization of the network possibilities. The main impetus for this mobilization is given by a strategic investment focus of the CVC unit, the amount of exchanged knowledge and the offered incentives for a business unit. Finally, (3) leveraging the network requires the collaborative *action* of the business unit. Business unit's action is stimulated by the existence of collaboration agreements and by a concrete involvement throughout the investment process. Interestingly, I found that the possibilities to influence the network design process get less for a CVC unit towards the post-investment phase, since more collaboration directly between the portfolio firm and the business units takes place. These staged processes and are illustrated in figure 4-4. Additionally, the figure shows the influence possibility given within each networking-stage.

Figure 4-4: Process of involving a business unit along the investment process



The represented networking stages in figure 4-4 and its influencing factors could represent 'guide-lines' for the CVC program that try to design an appropriate networking system for a collaboration between the CVC unit and the business unit. Moreover, it includes recommendations for the selection of appropriate investment managers regarding the personal characteristics necessary in doing successful internal networking. In addition to reducing intra-firm transaction costs and securing the access to network resources, an appropriate network between the CVC unit and the business unit enhances the value created out of CVC activities. The enhanced value embraces benefits for the start-up company, the CVC unit, as well as the business unit. Moreover, well-conceived internal networks can decrease response time to market opportunities, which is even more important in the context of CVC.

Concerning the actual involvement of a business unit in the investment process, it is important to consider the core-competencies[2] of a business unit, due to two

[2] A core competency is a special skill or technology, embodied in the knowledge of its people and the organizational procedures that creates unique customer value. Investments in facilities,

reasons: the reference to business units' core-competencies represents the competitive advantage of a corporate venture capitalist, since they are hard to imitate or substitute for traditional venture capitalists. Second, if the involvement of a business unit has a positive impact on the core-competencies of a business unit it supports the business unit's collaboration. There are several ways how the aspect of core competency can be considered. In order to create an incentive for a business unit, the selection of appropriate portfolio firms is critical which either support, extend, or apply the business unit core-competencies. How much learning occurs in the post investment phase between the portfolio firms and the business units depends whether the focused investment stage and technological area of a CVC unit allow certain technological overlap between the portfolio firms and the business unit. While it increases the willingness of a business unit to collaborate, at the same time it determines the capability of a business unit to collaborate along the investment process.

But the investments should not threat the current technology of a business unit. Corporate top-management and CVC managers should be aware that the decision to invest in start-up companies that represent "disruptive" technologies regarding the existing business units' technologies may negatively affect the collaboration process between the CVC unit and the business unit. However, according to Christensen (1997) there are good reasons for corporate top-management to promote even "disruptive technologies" in order to guarantee the economic survival of the company in the long-term – even and especially if the business units refuse collaboration. By creating a new business around the "disruptive technology", substitutive investments create internal unrest, as the established business units do not want to have their sales cannibalized. In this case, a company's own resources and processes can become liabilities rather than capabilities. If the "disruptive" portfolio firm fare well, corporate top-management has to evaluate whether and how to adapt its own technologies and processes to be more like those of the portfolio firm. Because investments in "disruptive technologies" could signal the emergence of new markets for a business unit, investment managers must create information about such markets –

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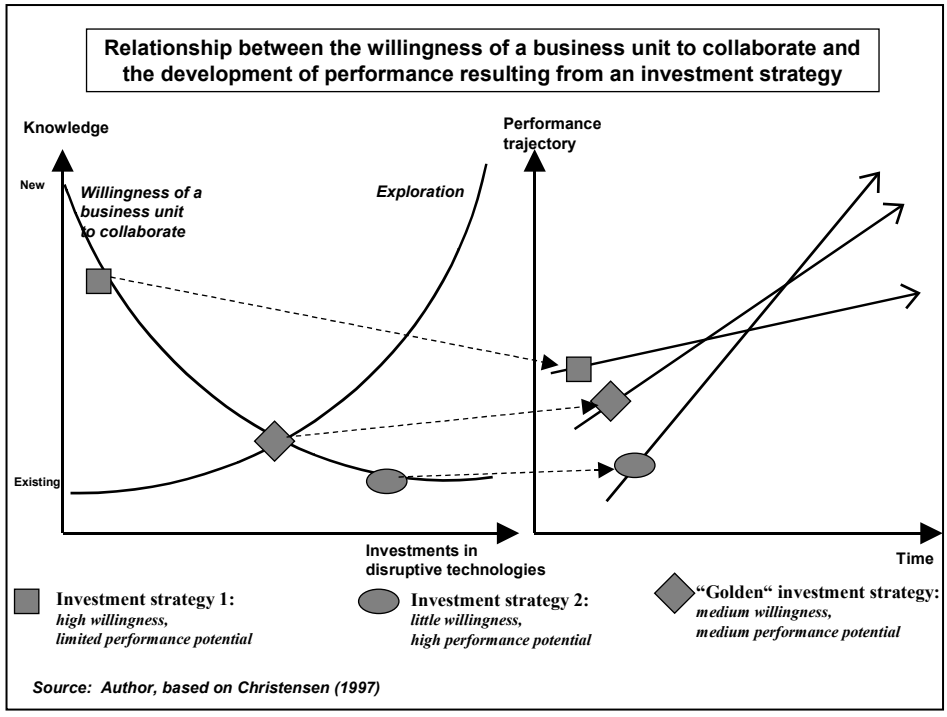
people, and knowledge that strengthen core competencies can create sustainable sources of competitive advantage (see Prahalad and Hamel, 1990).

what is the market potential, who the customers will be, which dimensions of product performance will mater most, etc. The business units of a corporation have to understand that their technological and market bases are of finite life spans. CVC has to be seen in the business units as a possibility to replace the businesses that must inevitably die. To do so, corporate top-management must be willing to see business units die in order to avoid that competitors kill them.

Therefore, this framework additionally shows that the selection of an investment that calls for a high disposition of the business unit to collaborate is not the one that maximizes the long-term performance of a corporation (see investment strategy 1 in figure 4-5). The cases showed that investments representing a threat to a business unit or not immediately promising high cash possibility may maximize the performance potential of the corporation in the long-term (see investment strategy 2 in figure 4-5).

Figure 4-5: Collaboration willingness of a business unit and the long-term performance trajectory resulting from an investment strategy[3]



[3] The concept of performance trajectory embraces the rate at which the performance of a product is expected to improve over time, see Bower and Christensen (1995).

A solution for the mentioned dilemma may be the "golden" investment strategy that is located in the intersection of the curves "willingness of a business unit to collaborate" and "exploration of knowledge". This investment strategy lies between the performance potential of the mentioned investment strategy 1 and 2. The "golden-rule" for investment managers guaranteeing consideration of core-competencies and new knowledge exploration, is to prefer investments that have been generated by business units. While internal deals maximize the willingness of business units to collaborate in the investment process, at the same time they decrease the negatively impacting "not invented here syndrome". Overall, while the investment strategy must grant the exploitation of corporate resources, is also must guarantee the exploration of additional competencies.

Apart from that, it has been shown that the involvement of a business unit to collaborate is also influenced by corporate top-management commitment in order to guarantee the access to critical business unit resources. The better corporate top-management succeeds in demonstrating its commitment for CVC activities as a core-competency of the corporation, the higher the willingness of a business unit will be to collaborate in the investment process. Corporate management itself has to encourage employees to believe that innovation is part of the role set for all members of the organizations.[4] This is even more important since the history of CVC investing showed that even if top management embraced the CVC concept, middle management often resisted. Since it is the role of the middle managers to pull together the dispersed knowledge throughout different business units,[5] the top-management's responsibility is to provide passively direction and consistency to the CVC activities, and to build the infrastructure for interpersonal and technical communication between the investment managers and the business units. To assert and develop the new technologies, it is necessary that the top-management instructs the CVC unit to recourse mandatorily to business units' capabilities throughout the investment process by "go/no go approvals." Although this procedure hides the danger that an investment proposal will not get the

[4] Specific conditions are: quick adaptation of employee ideas, recognition of people who bring ideas forward, support for experimental projects, and money to get projects off the ground.

[5] In the cases, middle managers have been found to be 'on the pulse' of the specialized activities, and are mostly extremely competent due to their experience in the company.

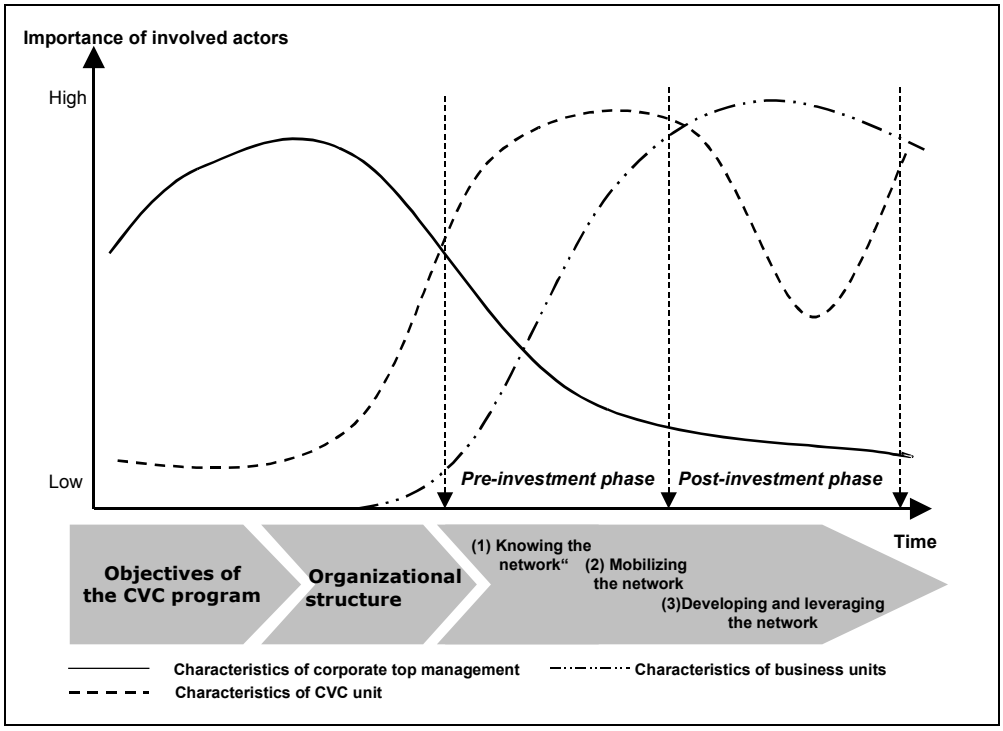
approval of a business unit, it impedes that a business unit refuses the collaboration after an investment has been made. Further, by considering CVC activities on the balanced score-card of business units, corporate top-management has to guarantee that the business units' middle managers not merely focus resources on fulfilling the requirements of existing and operational business.

To innovate successfully by CVC investments corporate top management must follow pluralistic management practices adapted to the needs of both new and mature businesses, which require flexibility, responsiveness and resourcefulness. Perhaps the major adaptation challenge for corporate top management is to tolerate a mix of apparently contradictory policies and practices. Additionally, corporate top-management should not judge CVC investments only on the basis of financial returns, rather on their potential to positively affect the company's own business. This is especially true in times of low or even negative financial returns of CVC investments. In all cases, to achieve synergies there is a need for an active management of the interface between the CVC unit and the business units by corporate top-management. Regardless of whether growth is desired in present or future businesses, corporate top-management needs a clear-eyed view of its CVC strategy and its operational capabilities. The CVC unit needs the discipline to build its investment portfolio with these parameters of top-management in mind.

Moreover, the more the corporation internally signals an open corporate culture, the more fruitful is the collaboration basis between the CVC unit and business units. Business units should be open and curious for technological innovation, since these technical insights can be profitable in their long-term performance. However, the longer it takes to transform a technological innovation into an advantageous output for a business unit, the harder it is to get their willingness to collaborate. Because of this, the border between responsibility of corporate top-management and responsibility of CVC unit and business unit is fluent. However, figure 4-6 shows a tendency that while corporate top-management is highly important for defining the strategy and the organizational structure of a CVC program, its importance decreases at the moment when the CVC unit initiates the involvement of business units along the investment process. Further, the model shows that as soon as an investment is selected and financed, the main

responsibility shifts to the business unit. Only at the time of an exit of an investment, the importance of the CVC unit as a main actor increases. Figure 4-6 illustrates the delayed trend of the mentioned considerations.

Figure 4-6: Importance of involved actors along the investment process



Since the competitive advantage of the CVC unit – its access to business units' resources - is lost if a business unit rejects the collaboration and refuses access to its resources, this framework must be complemented by governance-mechanisms. After the investment managers selected the portfolio firms, formal and informal governance modes have to follow. Although the CVC manager backs out of the investment process throughout the support management from business units in the post-investment phase, he actively has to control and guarantee the ongoing collaboration between the portfolio firm and the business unit. On the side of informal governance mechanisms, its social interaction with the business units is necessary. While personal contacts between CVC managers allow the exchange of information about the development of investments, it simultaneously leads to the intensification of the relationship, characterized by dyadic trust. Trust-building efforts consist of the establishment of a tight web of qualitative contacts between the CVC unit and the business unit. The negative relationship between the quality of personal relationships and the importance of formal governance is mediated by trust; although trust makes formal

collaboration agreements between the CVC unit and the business unit less important, in no way it becomes dispensable. These statements remain true independent of any principal-agent constellations between the CVC unit and the business unit.

The review of the network theory contributed to a closer understanding of the relationship a CVC unit depends on. While in the pre-investment phase it is important for the investment manager to have numerous and weak ties, in the post-investment phase it is advantageous for the CVC unit to focus on few and strong ties. The reasons are quite obvious: first, while in the pre-investment phase more general information is needed, technically detailed and sophisticated knowledge is essential in the post-investment phase. Second, while the purpose of intra-firm collaboration in the pre-investment phase is screening and selecting the most appropriate business units, nurturing and technical support is of interest in the post-investment phase. Thus and third, while numerous businesses are potentially of interest in the pre-investment phase, only few business units are required in the post–investment phase. Fourth, while the tasks in the pre-investment phase ask for an overview within the corporation, close and personal relationships are critical in the post-investment phase. And finally, while the pre-investment period is generally short and limited, the post-investment phase can be long - or perhaps unlimited. At the same time, the aspect of centrality in the corporate networks decreases.

The described transformation process requires that a CVC unit choose the most efficient path from the position of many/weak ties in the pre-investment phase to few/strong ties in the post-investment phase. This study shows that there is no general solution about number and strength of ties a CVC unit should maintain along the investment process. It is more important for a CVC unit how the ties can be flexibly built if necessary. Therefore, the CVC unit should try to maintain its network contacts in a “sleeping” mode, while having certain company directories which facilitate the transformation process between “knowing the network” and “mobilizing the network” (e.g. organization charts, e-mail and telephone lists).

The findings of this study represent an extension of the understanding of intra-firm collaboration in the specific context between business units and CVC units.

This ‘integrated model of intra-organizational collaboration’ in CVC programs explicitly takes into account the strategy definition, the organizational structure and the concrete involvement of business units throughout the investment process as key variables influencing the collaboration between the CVC unit and the business unit. It has been found that the reason for lack of explanatory power of extant theories explaining collaboration phenomena between two mainly independent business units of a corporation rests in the fact that the theories are valid only for explaining one small part of the collaboration process. The incentive structures of collaboration have been found to be so profoundly different from the assumption of existing intra-firm collaboration settings. Finding the willingness of a business unit to collaborate with a CVC unit follows the pattern of knowing the network, mobilizing the network and finally leveraging the network within a corporation. This means for a CVC unit to sequentially get the business units’ attention, interest and action. Influencing factors of each phase have been discussed.

4.2 Revisiting the tentative hypotheses

As indicated in the introductory comments to this section, the proposition of the ‘integrated model of intra-organizational collaboration’ has to be followed by confronting this new approach with the set of tentative hypotheses formed at the end of the case study chapter. The objective of the subsequent paragraphs is to perform this confrontation. Following the juxtaposition of extant corporate venturing theory in section 3.1, this confrontation is the second instance of theory evaluation.

Why do the tentative hypotheses have to be readdressed at all when the main objective of this study, the propositions of a grounded model, has already been achieved? Of course, it is true that the set of tentative hypotheses is already incorporated in the proposed ‘integrated model of intra-organizational collaboration’ in two ways. First, components of resource related theories were integrated in this study’s approach, because they demonstrate explanatory power for the hypotheses regarding the creation of value through the selection, creation, and combination of resources. Secondly, the confrontation of the theory with the set of tentative hypotheses found many shortcomings of extant models, because

often only small parts of these models could be used as an explanation for the observation made in the case studies. This was the reason for the search of inputs about efficient creation of value through common action between involved actors and through the governance of the connection across the organization.

The answer for the need of revisiting the tentative hypothesis is a methodological one. As mentioned by Bortz and Döring (1995), the establishment of internal validity for any type of empirical work is an important factor. For the purpose of this study 'internal' can be paraphrased in the in the following way: is the 'integrated model of intra-organizational collaboration' in CVC programs really explaining what has been observed in the case studies? This subchapter is concerned with increasing internal validity, and therefore, uses iterative loops. In doing so, the results of this study's analytical generalizations are checked against the observations. This confrontation holds the ability to support what this novel approach explains, and shows where the model does not hold explanatory power.

The tentative hypotheses are presented at the end of 2.5. For an easier confrontation with the 'integrated model of intra-organizational collaboration in CVC units' the tentative hypothesis are presented in the same order. Figure 4-7 provides a classified overview of the tentative hypotheses.

Figure 4-7: Classified summary of the tentative hypotheses

	Number	Tentative hypothesis
Characteristics of CVC unit		
Objectives	# 1a	strategic CVC objectives/ willingness of BU to collaborate
	# 1b	strategic focus/ temptation to favor financial investments
	# 2	strategic objectives/ involvement in the investment process
Structure	# 3	structurally position/ willingness of BU to collaborate
Focused investments	# 4a	investment stage/ willingness of BU to collaborate
	# 4b, c	investment stage/control and influence of BU
	# 5	internally generated deals/ willingness of BU to collaborate
	# 6a	substitutive investments/ willingness of BU to collaborate
	# 6b	financial objectives/exposure of substitutive deals
	# 6c	substitutive investments/ capability of BU to collaborate
	# 6d	technological overlap/ willingness and capability of BU to collaborate
Previous employment of CVC managers	# 7a	previous positions of CVC managers/ efficiency of CVC unit
	# 7b	number of internal contacts in the corporation

	# 7c	quality of internal contacts
Compensation system of CVC managers	# 8a	distributional justice of compensation/ collaboration of BU
	# 8b	consideration of strategic aspects in compensation/adherence of strategic focus
	# 8c	strategically motivation/ 'corporate' compensation of CVC managers
	# 8d	CVC unit effort to gain collaboration/ willingness of BU to collaborate
Length of existence of CVC program	# 9a	length of existence of CVC program/ willingness of BU to collaborate.
	# 9b	length of existence of CVC program/ number of internal contacts in the corporation
	# 9c	length of existence of CVC program/ number of internal deals
Governance mechanisms		
Informal modes	# 10a	overall communication/efficiency of CVC unit
	# 10b	overall communication/ number of contacts
Formal modes	# 11a	early existence of collaboration agreements/capability of CVC unit to control, influence collaboration
	# 11b	early existence of collaboration agreements/easiness to achieve the agreements
	# 12a	supportive infrastructure/capability of CVC unit in pre-investment phase
	# 12b	supportive infrastructure/capability of CVC unit in post-investment phase
Knowledge sharing		
	# 13	number of contacts/level of knowledge exchange
	# 14	amount of knowledge exchange/ willingness to collaborate
	# 15	quality of contacts/ impact of substitutive investments
	# 16a	quality of contacts/ importance of contractual control
	# 16b	trust/importance of formal governance mechanism
	# 16c	number of interacting persons/ collaboration efficiency
Characteristics of business units		
Involvement in the investment process	# 17	structural imperatives/ willingness of BU to collaborate.
	# 18	time of involvement of BU/ willingness of BU to collaborate
	# 19a	realizing BU-involvement/ willingness of BU to collaborate
	# 19b	early realizing BU-involvement/ capability of BU to collaborate
	# 19c	realizing BU-involvement/ consulting CVC-involvement
	# 19d	consulting CVC-involvement/ number of overseen investments
	# 19e	consulting CVC-involvement/ capability of CVC to focus on pre-investment activities
Hierarchy level of	# 20a	post-investment phase/ hierarchy level of contacted BU-persons

contact partners	# 20b	hierarchy level of contacted BU-persons/ capability of BU to authorize resources, to control, or to solve problems
Incentives for a BU	# 21a	incentives of BU/ willingness of BU to collaborate
	# 21b	financial gains for BU/ inventive for BU to collaborate
	# 21c	strategic gains for BU/ incentive for BU to collaborate
	# 21d	involvement of BU in advisory boards of investment/ incentive for BU to collaborate
	# 21e	Intra-firm co-investments/ incentive for BU to collaborate
	# 21f	quality of networks/impact of incentives on BU-collaboration
	# 21g	organizational learning/ impact of financial incentives on BU-collaboration
Characteristics of the corporation		
	# 22a	open and curious culture of corporation/ willingness of BU to collaborate
	# 22b	open and curious culture of corporation/ not-invented here syndrome
	# 23	Top-management commitment for CVC/willingness of BU to collaborate

The hypothesized characteristics of CVC units do not represent a homogenous group. The focused objectives by CVC units can be grouped into the categories financial and strategic investors (tentative hypotheses # 1a, # 1b). These objectives determine the involvement of a business unit along the investment process (tentative hypothesis # 2) and the structural position of a CVC unit within a corporation (tentative hypothesis # 3). The intended motives of CVC programs in combination with the structural embeddedness of a CVC in a corporation affect the willingness of the business unit to collaborate with the CVC unit. In order to realize the strategic objectives, an early and deep involvement of business units is recommendable, whereas voluntary and weak involvement of business units is useful for the realization of financial objectives.

The confrontation of the hypothesized investment focus with the model's proposition concerning the willingness of a business unit to collaborate is straightforward. Tentative hypothesis # 4a mentions interaction between the investment stage and the willingness of a business unit to collaborate. Therefore the willingness of a business unit depends on the preference of a business unit regarding the collaboration goals. However, the selected investment stage by a CVC unit also determines the control and influence possibilities of a business

unit throughout the investment process (tentative hypotheses # 4b, # 4c). The investment stage, in return, depends on the underlying motives of the CVC program (tentative hypothesis # 1). Not only the investment stage determines the willingness of a business unit to be involved in the investment process, but also the number of CVC investments in internally generated deals by business units (tentative hypothesis # 5). Internal deals facilitate the mobilization of the intra-firm network and the leverage of the corporate benefits.

As a logic consequence from analyzing CVC objectives, tentative hypotheses # 6a to # 6d define the effects of investing in substitutive investments. By this, the resulting willingness of a business unit to be involved in CVC activities in order to leverage the firm's assets can be determined. Tentative hypothesis # 6a claims that the higher the exposure of a CVC unit is to invest in substitutive technologies, the less is the willingness of a business unit to collaborate. To a certain extent this is true, as it reflects the overall CVC strategy (tentative hypothesis # 6b), and is especially valid for the interest of a business unit to be involved in the investment process. This involvement must be considered in close connection with the issue of knowledge transfer. However, the increased business unit capability resulting of the technological overlap of substitutive investments is not valid as far as the willingness of a business unit is concerned to be involved in the investment process (tentative hypotheses # 6c, # 6d).

The characteristics of a CVC unit contained in tentative hypotheses # 7a to # 7c constitute the previous employment of CVC managers. Knowing the relevant people, mobilizing potential business units in order to leverage the corporation's assets depends on the number and the quality of internal contacts a CVC manager has within a corporation. Tentative hypothesis # 7a emphasizes the increased efficiency of a CVC unit that results from having CVC managers that previously worked in other positions within the parent company. The reasoning for this is quite simple. Previous employments of CVC mangers in other positions lead to more and qualitative better contacts within various business units (tentative hypotheses # 7b, #7c).

Tentative hypotheses # 8a to # 8d can be considered as a recommendation for an efficient compensation structure for the CVC managers. Distributional fairness must be evident in the compensation of CVC managers compared to business

unit employees in order to increase the collaborative attitude of a business unit along the investment process (tentative hypothesis # 8a). In the case of strategic objectives, strategic aspects must be considered in the compensation basis of CVC managers in order to guarantee strategic orientation when selecting portfolio companies (tentative hypothesis # 8b). The more strategically motivated a CVC program is, the more similar to the "corporate" compensation must be the compensation system of the CVC managers. Precisely spoken, this means a base salary which is added by a bonus based on corporate performance. However, the statement of distributional justice is not valid as far as incentive of the CVC managers is concerned to gain the collaboration of a business unit (tentative hypothesis # 8d). The payment of carried interest is considered as being an integral part of a compensation system of investment managers. The establishment of a compensation system is a strategically and politically difficult decision which must be decided by corporate top-management.

Finally, the last mentioned characteristics of a CVC unit dealing with the length of existence of a CVC program (tentative hypotheses # 9a to # 9c), are straightforward as they provide support for the phase of "knowing the network" along the involvement of business units. Since "knowing the network" covers the knowledge about the CVC purposes, tentative hypothesis # 9a emphasizes a higher willingness of a business unit to be involved. The higher willingness of a business unit to collaborate is mediated by a higher number of internally existing contacts between the CVC unit and business units (tentative hypothesis # 9b). Tentative hypothesis # 9c is a logic consequence of tentative hypotheses # 9a and # 9b. The high recognition of the purposes of CVC activities within a corporation increases the number of internally generated deals by business units.

The confrontation of the hypothesized governance mechanisms with the model's proposition concerning intra-organizational collaboration is straightforward. To start with, tentative hypothesis # 10a is compatible with the models' overall involvement steps of a business unit to know the 'decisive persons' in a corporation as a prerequisite of mobilizing the actors. Thus, a higher overall social interaction between the CVC unit and the business unit, aiming at increasing the number of contacts in a corporation, is in all cases recommendable (tentative hypothesis # 10b). Tentative hypotheses # 11a and 11b put the used governance mode in relationship between business units and the CVC unit in

another light and emphasize the necessity of early formal collaboration contracts as critical. This is consistent with the new model since it states a decreasing direct involvement and importance of a CVC unit later in the investment process. Since the model argues that the main responsibility of a CVC unit lies in selecting the most appropriate portfolio firms in the pre-investment phase, tentative hypotheses # 12a and # 12b, which emphasize supportive infrastructure (e.g. service-teams, venture units) are compatible with the new framework.

The accordance between the tentative hypotheses concerning the knowledge sharing (# 13, # 14, # 15, # 16a-c) and the new model is not as apparent as it is between the hypotheses discussed so far. Some of these hypotheses have more in common with the model than others, which merely are not explained by the framework. Tentative hypothesis # 13, which claims that there is a higher level of knowledge transfer between the CVC unit and business units, is more or less an effect that results from the model. Tentative hypothesis # 14 is not directly linked to the framework. Although a higher knowledge transfer increases the willingness of a business unit to collaborate, it first requires the interest and desire of the business unit to be involved. As far as tentative hypothesis # 15 is concerned, the same logic applies as in the discussion of the previous tentative hypothesis. While the model may be useful to establish qualitative relationships, it does not explain the moderation effect between the existence of qualitative contacts within the corporation and the exposure to substitutive deals, such that substitutive technologies have less impact on the willingness of a business unit to collaborate. Finally, tentative hypotheses # 16a to 16c, which describe the effects of having established numerous contacts, are again compatible with the model, since the establishment of numerous contacts quasi results from following the frameworks' recommendations about getting a business unit involved in CVC activities. The advantage of qualitative relationships is the reduced necessity of collaboration agreements when leveraging the corporate network (tentative hypothesis # 16a). The reason is quite simple: it is the existence of trust (tentative hypothesis # 16b). However, only indirectly linked to the model is the suggestion that trust in no way makes formal control mechanisms dispensable. The final hypothesis # 16c dealing with knowledge sharing in qualitative relationships can be explained properly by the developed model. The theory about network ties showed that in order to get the attention of business units, it may be recommendable for CVC

managers to expand the contacts when selecting the most appropriate business unit. As soon as one business unit has been selected, the step of leveraging the corporate assets is suggested to be most efficient when reducing the number of contacts and focusing in the post-investment phase on few contacts.

Tentative hypotheses # 17, # 18, # 19, # 20, and # 21 relate to characteristics of business units. To begin with, hypothesis # 17 is fully congruent with the model. The hypothesized structural imperatives along the investment process are captured by the model's statement that concrete action by a business unit is necessary in order to leverage the corporate assets. Tentative hypothesis # 18, which deals with the fact that there is a curvilinear relationship between time of the business unit involvement and its willingness, is only indirectly related to the model. While an involvement of business units before the investment decision prevents investing in strategically irrelevant deals, it increases the number of inquiries of a CVC manager transferred to a business unit. This issue is expressed in the increasing importance of business unit's characteristics in the previous section. Tentative hypotheses # 19a to # 19e cope with the level of business unit involvement in the investment process. Since the overall purpose of the new model is to get the business unit actively involved in CVC activities, tentative hypothesis # 19a is supported. It is hypothesized that a realizing and deciding level of business unit involvement increases the willingness of a business unit to collaborate. Tentative hypotheses # 19b and # 19c are expressed by the delayed curve of the business unit's importance throughout the investment process, which follows the curve of CVC unit's importance in a time-lag. The more a business unit gets actively involved in the investment process, the higher is the capability of a business unit to collaborate, and at the same the more passive gets the involvement of the CVC unit. In return, the time-delayed importance of the business unit following the CVC unit importance in the model allows a CVC unit to observe a higher number of investments in the post-investment phase (tentative hypothesis # 19d). The same logic applies to the possibility of the CVC unit to focus its resources on financial issues along the pre-investment phase (tentative hypothesis # 19e).

The situation concerning tentative hypotheses # 20a and # 20b is different. While the model merely suggests that the importance of the business unit generally increases in the post-investment phase compared to corporate top-management

and the CVC unit, it disregards the hierarchy level of persons which are contacted in a business unit. This is at odds with tentative hypothesis # 20a. Tentative hypothesis # 20b dealing with the advantages of contacting the high-level management within a business unit cannot really be explained by the developed model, but it also has no impact on the validity of the framework.

Tentative hypotheses # 21a to # 21g deal with the subject of existing incentives for a business unit necessary to mobilize their resources and to leverage business unit assets. The issue of hypothesis # 21b, that financial incentives such as profit sharing are necessary needs to be considered when mobilizing a business unit to be involved in the investment process. The interest and desire of a business unit has to be confirmed by strategic gains for a business unit (tentative hypothesis # 21c). In return, potential "enhancement of innovation" or "window on technology" is related to the first stage of the new model: the definition of objectives of a CVC program. Since the new model suggests an increased involvement of a business unit in the post-investment phase, it is compatible with tentative hypothesis # 21d. There, it is hypothesized that the business unit's interest to be involved in CVC activities increases if they are involved in the advisory boards of a portfolio firm. The same logic applies to tentative hypothesis # 21e that suggests an even stronger interest of business units in CVC by intra-company accounted co-investments. As far as tentative hypothesis # 21f with the moderation of quality of contacts on the relationship between financial incentives and the willingness to collaborate is concerned, it is rather some kind of recommendation that is not directly linked to the framework. However, the hypothesized moderation effect of organizational learning (tentative hypothesis # 21g), is in so far directly related to the new model, since organizational learning strongly depends on the objectives of a CVC program and its resulting focused investments; this is defined in the first stage of the model.

The last paragraph is focusing on the characteristics of the corporation. Besides the insignificant emerged differences between the German and the American companies, the cross-country analysis has also developed two tentative hypotheses (# 22a, # 22b) that rather treat cultural aspects. Tentative hypothesis # 22a claims that an open and 'curious' culture of a corporation increases the willingness of a business unit to be involved. This type of corporate culture was predominately found in the case of the American companies. However, while this

kind of culture doubtlessly facilitates the involvement of a business unit in the investment process there is no real explanation for this in the model. To a certain extent, this neglect in the new framework is related to the difficult task of operationalizing a company's culture. The same logic applies to tentative hypothesis # 22b. The last tentative hypothesis deals with the fact that the involvement of a business unit in CVC activities should have the support and commitment of corporate top-management, because the attention and interest of business units about CVC investment needs to be directed and initiated from the very top of the company already when defining strategy and structure of a CVC program. Thus, CVC programs are a way of creating rents and new real options either by providing "strategic feelers" to disruptive technologies, or by co-opting through minority investments. Such strategic decisions are not made by middle-management. Tentative hypothesis # 23 is supported due to the fact that the model considers the high importance of corporate top-management especially in the first two stages of the framework.

The preceding confrontation of the 'integrated model of intra-organizational collaboration' in CVC programs with the set of tentative hypothesis has found overwhelming support for the explanations the new model offers. Most of the tentative hypotheses that were derived immediately from observations and analysis of the intra-firm collaboration cases can be thoroughly explained by the new model. Some questions remain concerning the applicability of this framework across all types of corporate venturing activities as different venturing objectives ask for an adaptation. The relationship and interaction between the CVC unit and the business units was clearly the focus of this study. Because of this limited focus, the extension of this model to other influencing relationships (e.g. between the start-up company and the business unit) is required.

The aim of this subjection was to check the newly 'integrated model of intra-organizational collaboration'. As the iterative loops offered profound explanations for the majority of the hypotheses, it results in a substantial corroboration of the new model. Since the results of exploratory research are often not as clear as one would like them to be, the detection of shortcomings and the uncovering of needs for future refinement is one of the reasons why this iteration was performed. The subsequent section 4.3 will deal with these topics more in detail.

4.3 Implications and directions for further research

This study has explored the intra-organizational collaboration between the CVC unit and business units in corporations that maintain a CVC program. Six cases about these collaboration activities were described in detail in the context of the investment process. The rich description has demonstrated how the objectives of CVC programs influence the organizational setting of CVC units in corporations, which both critically influence the involvement of a business unit throughout the investment process. Within- and cross-case analyses were performed to substantiate the analyses. By using the methodological procedures of comparative case-study research the study succeeded in identifying several common patterns concerning the objectives of CVC programs, their organizational structures and the concrete involvement of business units along the investment process. These patterns where then assembled to form a set of tentative hypotheses.

Starting with the tentative hypotheses, the body of extant theories has been confronted. In doing so, first resource-based and knowledge-based theory looks at the creation of value through the selection and combination of tangible and intangible resources. Second, social capital and network theory gave insights in the creation of value through common action between different actors. Finally, social exchange and agency theory tell us how different governance modes affect the outcome of resource exchange. Some of the propositions from the theories offered partial explanations for the case findings. However, because of numerous shortcomings, the study resulted in the construction of an ‘integrated model for the collaboration between the CVC unit and business units’, that pursues in a high willingness of a business unit to collaborate.

This framework ties together the characteristics of CVC units, business units and corporate top-management and thus generates a novel extension of CVC theory capable of explaining the intra-firm collaboration in CVC programs. The model’s explanations were cross-checked with the tentative hypothesis and were found in accordance with the case findings. The model can be used in two ways. On the one hand, it can be used as a method how to define the strategy and the organizational structure of a CVC program. On the other hand, and even more important, it is a tool how to manage the concrete involvement of a business unit

along the investment process, which guarantees the willingness of a business unit to collaborate.

Apart from the theoretical contribution, this model of intra-firm collaboration also shows several implications for managers. Which are these? The study brought up two scenarios. On the one side, there are strategically motivated CVC programs which follow a well defined integration process of business units along the investment process. Mandatory involvement of business units ensures the alignment of CVC and business unit strategies. This is important for the overall strategy of the corporation. On the other side, there are CVC programs that are not actively pursuing business unit involvement along the investment process. The success of these CVC programs, which mainly focus on financial objectives, could be explained by two reasons: First, the CVC unit is entirely independent from business unit preferences and strategies when screening the market for the most promising portfolio firms in financial terms. Second, a voluntary involvement possibility of business units to collaborate with portfolio companies only in the case of high interest and strategic importance lead to a higher willingness of a business unit to collaborate than it would be in the case of mandatory involvement. In other words, if a business unit sees potential to collaborate they may, but they do not have to nurture the start-up company. Out of these two scenarios, I argue that both approaches are viable ways for CVC programs. The strategic decision has to be made by corporate top-management whether the corporation favors financial or strategic objectives with their venturing activities. However, if the company orients itself on financial objectives, a mandatory business unit involvement is not recommendable, since financially oriented investments that need the approval of the business unit, will probably encounter more rejection from a business unit.

Another key implication is that the willingness of a business unit to collaborate along the investment process is influenced by the characteristics of three actors: the CVC unit, the corporate top-management and the business unit itself. All these actors have impacts on the process of the involvement by ‘knowing the network’, ‘mobilizing the network’, and ‘leveraging the network’. Analogies have been found to the ‘AIDA’ principle of sales. While the first and second stage mainly lies in the responsibility of corporate top-management, the control and responsibility is taken over by the CVC unit and business unit in the third

stage of the model, the actual involvement of a business unit along the investment process.

This study has been explanatory in nature and does not claim to offer final truths, and some problems remain unresolved. Although through repeated confrontation of the traditional models with the case findings it has been shown that this study offers the most appropriate explanations of intra-firm collaboration, an important problem of this study is that it does not explicitly look at the collaboration between business unit and portfolio firms. However, that collaboration strongly influences the relationship under focus of this work, since the majority of resources and knowledge is exchanged between the business unit and the portfolio firms. Including portfolio companies in the research in order to get information about the amount of realized and transferred value added to the investee would be doubtlessly useful. Nevertheless, it has to be mentioned that the focused relationship between the CVC unit and the business unit is an important initiator for the ongoing relationship between the portfolio firm and the business unit. As far as the relationship between the CVC unit and corporate top-management is concerned, this study only indirectly focuses on the collaboration between the investment managers and the top-management of the corporation. Especially, the definition process of CVC objectives, which has been shown to have impacts on the collaboration process between the CVC unit and the business unit, is not analyzed in detail. Another issue that deserves to be mentioned in the context of unresolved questions concerns the neglect of the relationship between CVC unit and other VCs. It can be assumed that co-investments with other VCs have their impacts on the collaboration between the CVC unit and the business unit.

In the process of this research some light has been shed on the previously unexplained patterns of intra-firm collaboration in CVC programs. With the CVC model of intra-firm collaboration, I hope that future research may be able to build on these results. An issue that deserves special attention in future research is the performance measurement of CVC. In order to develop normative statements from the integrated model of intra-organizational collaboration between the CVC unit and the business unit it is inevitable that quantitative measurements of the performance of much collaboration willingness should be conducted.

The use of specific strategies, organizational structures and concrete business unit involvement can only be recommended after more is known about their success. What kind of financial incentives for business units are viable ways? How big must the financial incentives be in order to maximize the willingness of a business unit to collaborate with a CVC unit? Which specific form of CVC compensation overcomes the dilemma of migration of investment managers and the perpetuation of the business unit's collaboration? To what extent is it possible to implement the American corporate culture in German CVCs, which is beneficial for an open and curious attitude of the business units? How can the strategic pay-backs for business units and the corporation be measured?

All of these questions represent interesting courses for further research. Clearly, what is needed for performing such inquiries is large-scale quantitative analysis. This may not be easy, since such studies would face some considerable difficulties concerning the operationalization of variables and data availability of CVC programs. The difficult problems concerning the 'contact trails' of collaboration come to mind in this context. These difficulties may be exacerbated by the sensitivity of financial success resulting from collaboration. Apparently, I can finish this study in the words of Zaby (1999) that exploratory studies open at least as many questions as they answer.

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Appendices

List of Interviews and Affiliations of Interviewees[1]

CVC Program	Investment manager	Place	Date/ Duration	Investment manager	Place	Date Duration	Business Unit Affilitate	Place	Date/ Duration
T-Venture	Mr. Dr. Schwegler	Bonn, Germany	19.07.01 1,5 Hrs.	Mr. Kögler	Bonn, Germany	19.07.01 2 Hrs.	*Not possible*	---	---
Daimler Chrysler Venure	Fr. Dr. Tümpen, Mr. Albrecht	Stuttgart, Germany	20.07.01 2 Hrs.	Mr. Henzler	Stuttgart, Germany	06.08.01 2,5 Hrs.	Mr. Strohkirch	Stuttgart, Germany	06.08.01 1,5 Hrs.
Intel Capital	Mr. Offner	Munich, Germany	23.07.01 2 Hrs.	Mr. Krumm	Munich, Germany	07.08.01 2,5 Hrs.	Mr. Al-Shamma	Munich, Germany	08.08.01 1,5 Hrs.
General Electric Equity	Mr. Rossi	London, UK	24.07.01 3 Hrs.	Mr. Sanchez	London, UK	28.06.01 24.07.01	*Not* *Possible*	---	---
Siemens Venture Capital	Mrs. Blasel	Munich, Germany	08.08.01 2 Hrs.	Mr. Steis	Munich, Germany	22.08.01 1,5 Hrs.	Mrs. Dr. Wiggenhorn	Munich, Germany	20.08.01 1,5 Hrs.
Motorola Ventures	Mr. Estes	Chicago, USA	23.10.01 2 Hrs.	Mr. Mark	Chicago, USA	USA 23.10.01 1,5 Hrs.	Mr. Lodato Mr. Lacal	Chicago, USA Chicago, USA	28.11.01 1 Hrs. 03.12.01 1 Hrs.

Different characteristics of the companies available at *Venture Economics*

Characteristic	**American CVCs**		**German CVCs**	
Date of foundation	**Motorola Ventures**	1992, central since 1999	**Daimler Chrysler Venture**	1997, since 2000 open for ext. deals

[1] Only for the purpose of the evaluation process of this work at the university

	Intel Capital	1990	**T-Venture**	1997
	GE Equity	1990 (informal), formal since 1995	**Siemens Venture Capital**	1984 (TVM), since 1999 SVC
Number of managed funds	**Motorola Ventures**	1	**Daimler Chrysler Venture**	1
	Intel Capital	5	**T-Venture**	4
	GE Equity	4	**Siemens Venture Capital**	4
Capital under management	**Motorola Ventures**	150 US$ million annual fund	**Daimler Chrysler Venture**	120 € million
	Intel Capital	7500 US$ million	**T-Venture**	500 € million
	GE Equity	8000 US$ million	**Siemens Venture Capital**	US$ 180 million, (thereof 60 % go in funds)
Number of investments	**Motorola Ventures**	3	**Daimler Chrysler Venture**	21
	Intel Capital	Ca. 350	**T-Venture**	70 direct invest., + ca. 30 fund inv.
	GE Equity	Ca. 375 + 86 indirect fund investments	**Siemens Venture Capital**	55 direct invest., + investm. in 9 funds
Number of Exits	**Motorola Ventures**	3	**Daimler Chrysler Venture**	No exit
	Intel Capital	n.a.	**T-Venture**	1
	GE Equity	n.a.	**Siemens Venture Capital**	8
Nation breakdown	**Motorola Ventures**	96,8 % USA	**Daimler Chrysler Venture**	53 % Germany, 43 % USA
	Intel Capital	78,4 % USA	**T-Venture**	51,4% USA, 11,8 % Germany
	GE Equity	45,9 % USA	**Siemens Venture Capital**	86,8% USA
Investment stage breakdown	**Motorola Ventures**	Expansion 68,3%, Late stage 17,7%, Early stage 14,5%	**Daimler Chrysler Venture**	Early stage 56,1%, Later stage 25%, Expansion 18,9%
	Intel Capital	Expansion 56,5%, Later stage 20,6 %, Early stage 15,5%	**T-Venture**	Expansion 66,6%, Early stage 18,3%, Late sate 15,1%

	GE Equity	Buyout/Acq.47,5/% Expansion 29,6%, Later stage 11,5%	**Siemens Venture Capital**	Expansion 50,3%, Late stage 35,9%, Early stage 11,9%
Industry breakdown	**Motorola Ventures**	Internet spec. 34,6% Comm/Med. 23,9% Comp softw. 21,5%	**Daimler Chrysler Venture**	Financ Serv 38,1%, Comp softw. 28,4% Internet spec. 25%
	Intel Capital	Internet spec. 32,5% Comp softw. 23,8% Comm/Med 19,2%	**T-Venture**	Internet spec 57,1% Comm/Med 35,5%, Comp softw. 5,3%
	GE Equity	Financ. Serv. 41,6% Internet spec. 25,9% Comm/Med 10,9%	**Siemens Venture Capital**	Comm/Med 59,2%, Comp softw. 16,9% Internet spec 13,8%

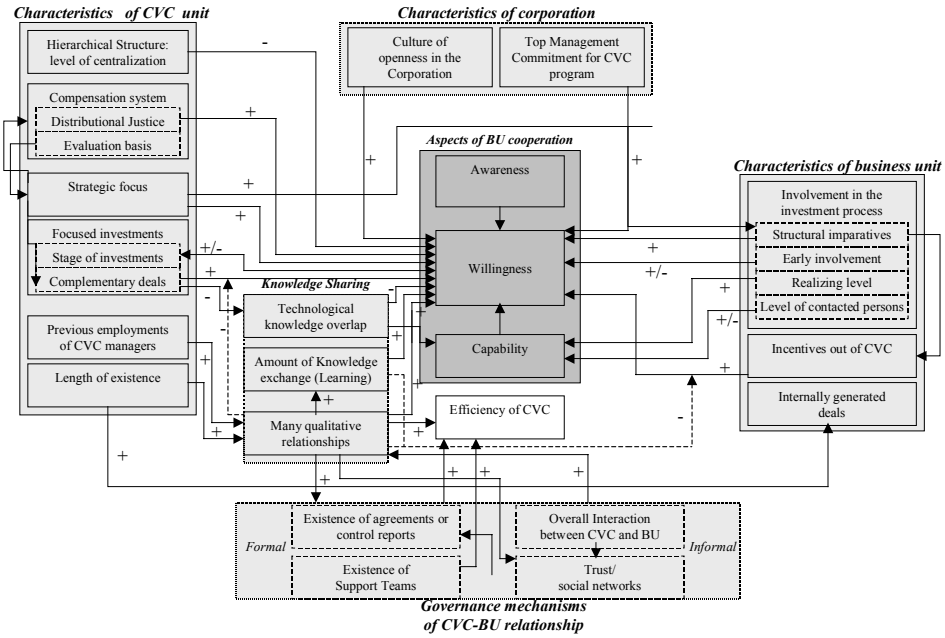
Summary of the within case-cross country analysis

Charac-teristics	**Motorola Ventures**	**Intel Capital**	**GE Equity**	**Daimler Chrysler Venture**	**Siemens Venture Capital**	**T-Venture**
General Aspects						
Investment model	1. strategic focus 2. financial returns	1. strategic purpose 2. financial attractiveness (as pre-requisite for strategic deals)	1. financial focus 2. strategic purposes	1. Strategic intra-preneurship 2. financial goals; irrelevant are enhancement of demand or potential acquisition candidates	1. Financing 2. Consulting /Coaching: Venture Nurturing by providing use of the links of Siemens 3. Networking: Central contact partner, Info-know how center, VC Best Practice	1. Financial returns 2. Strategic objectives; 3. Social objectives: positive, innovative and responsible image of Telekom 75 % direct investments, 25% in indirect fund models
CVC locations	Corporate headquarter, important BU-locations (Chicago, Boston, Silicon Valley)	22 offices in all 5 continents	10 offices in all 5 continents	Stuttgart (Germany), Palo Alto (USA); no office at the American headquarter	Corporate headquater, Santa Clara (CA), Burlingthon (MA)	Darmstadt, Bonn, Berlin, Munich, Redwood City, Boston,
Favored Exit	Depending on the market	Everything that generates liquid funds (IPO, Trade Sale on cash)	Trade sales, buy-outs	- usually after 3-5 years:IPO (buy back or trade sale are also possible)	No preference	- usually after 5-7 years: IPO or Trade sale
Investment focus: - *Investment stage*	- Early stage and expansion (no seed investm.) - strategic areas of Motorola, but also outside of	- Early stage (first or second round financing) - technology areas along the computing	- Late stage and 'buy-outs'. (1) financial services, auto and healthcare, (2) technology,	-preferably Seed/Early stage (start-up) and Growth stage - electronics, sensors, electro-	- Seed, Early, and Mezzanine (1) Information/ Communication (2) Automation and Control,	- Seed, Early-stage, first growth round. - TIMES markets

- *Investment area*	corporate core business	spectrum	media, healthcare (3) Enterprise services	mechanics, e-business, telematics, m-commerce, mobility services, software development, material technology, fuel cell technology.	(3) Medical Solutions and Power	
Structure						
Structure of CVC unit within the company	Central embedded in Motorola, falls under *corporate headquarter*	Business-department of Intel, not any legal independent company	Subunit from GE Capital, that itself is an affiliate of GE	Subsidiary of DaimlerChrysler in the form of a *limited liability company*, affiliated to the *M&A department*, a sub-unit of *Corporate Development*	Subsidiary of Siemens in the form of a *limited liability company*, affiliated to *Corporate Finance*	Subsidiary of Telekom in the form of a *limited liability company,* affiliated to *Production and Technology*
Capital source	Corporate balance	Corporate balance	Corporate balance	Corporate balance	Corporate Finance	Corporate balance
Internal organization structure of CVC unit	Subdivided into (1) Geography (2) Technology areas	Two modes of subdivision: a.) in the USA: into technology b.) in Europe:(1) by geography (2) by technology	Subdivided into: (1) Geography (2) Technology areas	Reorganization is planned by competence centers	Matrix-organization: 3 Business areas and 4 cross-sectional functions	3 levels: 1. management board 2. investment directors 3. investment managers
Processes						
CVC incentive structure	Corporate-common +1 % bonus, no carry of interest	Corporate-common	Corporate-common	Corporate common	Carried interest	Corporate with variations (Carry under discussions)

Intra-group cost charging	No	No	Corporate rate for DD and long lasting projects	No	No: regarding BU, cost charging with Legal-, Tax-departments	No, as far as it doesn't transcend 'normal' projects Inter-company prices exist regarding the technology expert centers
Possibility of Co-investment with BU	No	No	Only corporate internal co-investment, but CVC unit remains sole investor against investment	No	Yes, but limited interest of BU	Yes, diverse fund models are applied
Company Board seats by BU	Yes	No	Yes	No	No, only if a BU co-invested	Yes, or the investment directors want to be represented
Actors						
Origin of CVC Managers	Mainly external hired	Mainly previous Intel employees	70 % out of corporate M&A department	Mainly previous DaimlerChrysler employees *(intern. career partnership porgram)*	2/3 internal of Siemens, 1/3 external	60 % external, 40 % internal

The set of hypothesis is summarized in the following figure.



Interview Transcripts

Please see separate volume.

Siemens Venture Capital		
• 2Ram,Inc.	• Graviton,Inc.	• Packet Video Corporation
• Accelerated Networks,Inc.	• Hyperchip,Inc.	• PowerNetrix
• Agilience Group GmbH	• InterLink Networks	• RADVision,Inc
• Agility Communications,Inc.	• Interactive Silicon,Inc.	• SignalSoft Corporation
• Appitude,Inc.	• Kenetec Inc.	• Sitara Networks,Inc.
• Aprisa	• Kestrel Solutions,Inc.	• SmartSynch,Inc.
• Asera,Inc.	• Knowledge Junction Syst.	• Stockaccess.com
• BeamReach Networks	• LightLogic,Inc.	• Strix Systems,Inc.
• Blue Pumpkin Software.Inc.	• LuxN,Inc.	• SupplyForce.com
• Caly Corporation	• Maple Optical Systems	• Sycamore Networks
• Cambridge Positioning Syst.	• Mediatrix Telecom,Inc.	• TeleKnowledge Inc.
• Cambridge Silicon Radio	• More Magic Soaftware,Inc.	• Time Domain Corporation
• Chiaro Networks,Ltd.	• Morphics Technology,Inc.	• Unidosclosed Company
• Clustra Systems.,Inc.	• NetContinuum,Inc.	• Undisclosed Company
• Codeon Corporation	• Network Photonics,Inc.	• Venetec International,Inc.
• Cyras Systems,Inc.	• Nishan Systems,Inc.	• Virata Corporation
• Digital Envoy	• Novasonics	• Workstation AG
• Dynamicsoft,Inc.	• Novermber AG	• Zight Corporation
• ElekSen Ltd	• OMM,Inc.	• eYak,Inc.
• Floware Wireless Syst.	• Oblix,Inc.	• emWare
• FoloWAP	• Openwave Systems,Inc.	• webwasher.com AG
Motorola Ventures		
• 4thpass,Inc.	• GMP Companies,Inc.	• Nuance Communic.
• Advent Networks	• GoAhead Software,Inc.	• NxView Technologies,Inc.
• Aerocast	• Gotuit Media,Inc.	• Online Anywhere
• AirClic,Inc.	• Graviton,Inc.	• OpenGrid,Inc.
• Aura Communications	• Home Director,Inc.	• Orchid Bioscience,Inc.
• Balze Network Products,Inc.	• ICTV	• PacketVideo Corporation
• Broadband Innovations	• Iconix Pharmaceuticals,Inc.	• Paratek Microwaves,Inc.
• Broadband Services,Inc.	• Identix,Inc.	• Point.com
• Cacheon,Inc.	• Intellon Corporation	• ReplayTV Inc.
• Centerpost Corporation	• Interactive Enterprise,Ltd.	• SecureOps
• Clinical Micro Sensors	• Internet Appliance Network	• Shellcase
• CodeOnLine	• Ipix,Inc.	• SimpleDevices
• Command Audio Corp.	• Kitchen Etc.	• SportVision,Inc.
• Commerce.TV,Inc.	• Linuxcare,Inc.	• Symbian Ltd.
• Cynergy Systems Design	• LinuxWorks	• Tao Group Ltd.
• DevLab One,Inc.	• Magis Networks,Inc.	• TissueInformatics,Inc.
• E Ink Corporation	• Media Station,Inc.	• Tarq Wireless
• Echelon Systems Corp.	• MeetChina.com	• Undisclosed Gearmany
• Eclipsys Corporation	• Mobileye Vision Techn.	• V-Span,Inc.
• Entera,Inc.	• Molecular Imprints	• Virtus Entertainment
• Epicentric,Inc.	• Morphics Technology,Inc.	• WorldGate Communic.
• First International Digital	• Nanovation Technologies	• Xanboo,Inc.
• FitSense Technology	• Next Level Communications	• broadcast.com
• Foundstone	• Nextel Partners,Inc.	• EmWare,Inc.
• FreeDrive,Inc.	• Nonvolative electronics,Inc.	
DaimlerChrysler Venture		
• Augeo Software	• IDM Infrarot Sensoren	• Venturepark AG
• BS Biometric Systems	• Iteris	• Workscape,Inc.
• Definiens AG	• NanoMuscle,Inc	• benelog.com AG
		• mcn tele.com AG
Intel Capital		
• 2nd Century Communic.	• Formus Communications	• Radiant Networks PLC

• 3DSP	• Framework Technol. Corp.	• Radiant Phonetics
• 3Path	• Frictionless Commerce,Inc.	• RadioLAN,Inc.
• 80-20 Software Pty Ltd.	• G2 Networks,Inc.	• RadioWave.com
• 911 Entertainment,Inc.	• Galian Phonetics,Inc.	• Radish Communications
• @Comm Corporation	• Gemfire,Inc.	• Raindance Communications
• @Motion,Inc.	• GeoCities,Inc.	• RangeStar Wirelss,Inc.
• @Road	• Geodesic Systems,Inc.	• RealTimeImage
• Abaton.com,Inc.	• Get2Chip.com,Inc.	• Realviz SA
• Absolute Software,Inc.	• GigaNet,Inc.	• Recourse Technologies,Inc.
• Accelerated Encryption	• Gilian Technologies,Inc.	• Red Hat Software
• AccessLan Communications	• Global Groupware Solutions	• Red Hat Ventures
• Accordion Networks,Inc.	• Gloss.com,Inc.	• Rell.com,Inc.
• Adero,Inc.	• GoAhead Software	• Relativity,Inc.
• Aduva,Inc.	• Grant Investrade Private	• Resonate,Inc.
• Advanced Data Exchange	• Groove Networks,Inc.	• RiskMetrics
• Airoam Wireless technology	• Group Sense (International)	• Ritechoice Technologies
• Airslide Systems	• Helios Health,Inc.	• Rivals.com
• AllBusiness.com	• HellosAsio.com	• RiverLogic
• Allegis Corporation	• HelloBrain.Com	• Rosenbluth Interactive
• Altitude Software BV	• HeyAnita.com,Inc.	• SMS Managm. and Techn.
• AltoWeb,Inc.	• HighTecnology Solutions	• SSKI Investor Services Pvt.
• Alvesta Corporation	• Homestead.com,Inc.	• STSN
• Amoeba Telecom Limited	• HotOffice Technologies,Inc.	• Sanctum,Inc.
• Ancestry.com	• Hubspan,Inc.	• Sasken Telecommunicat.
• Antrim Design Systems,Inc.	• Hybrid Networks,Inc.	• SearchButton.com
• Anystream	• IMO Communications Priv.	• SelfCare.com
• Aplion Network	• IMX Exchange,Inc.	• Sendmail,Inc.
• Apogee Networks,Inc.	• IP Dynamics	• Sente,Inc.
• AppGenesys,Inc.	• IP Infusion,Inc.	• Sentica
• AppStream,Inc.	• ITXC Corporation	• Servicesoft Inc.
• Applied Psychology Res.	• Ikanos Communications,Inc.	• ShareWave,Inc.
• Arabia Online	• Illustra Information Techn.	• SightPath
• Aristo Technology	• ImpactXoft	• SignalSoft Corporation
• Articulate Systems Inc.	• Incanta,Inc.	• Silicon Access Networks
• Asera,Inc.	• Ind-Telesoft Private Limited	• Silicon Image,Inc.
• Asia Mail.com,Inc.	• Index.hu Rt	• Silicon Wave,Inc.
• Asiacontent.com	• Indiainfoline.com Limited	• Silknet Software
• Assentive Solutions,Inc.	• Indra Networks Private	• SilverStream Software,Inc.
• AssetHouse Technology	• Indus Software Pvt Ltd	• Simplex Soputions,Inc.
• AtomFimls Coporation	• IndusInd Entertainment Pvt.	• SmartPipes
• Audible Words Corporation	• IndusInd Media & Comm.	• Sohu.com
• Aurema Pty Ltd	• Ineto	• Solid
• Atuthentia,Inc.	• InfoGear Technology Corp.	• Solidum Systems Corp
• Auxora Inc.	• Inktomi Corporation	• Solsoft Inc.
• Avalon Phonetics Ltd	• Instill Coporation	• Soltima,Inc.
• Aveo,Inc.	• Insyde Software	• Speech Machines,Inc.
• Avid Sports,Inc.	• Integrated Telecom Express	• SpeechWorks Internat.
• Avigna Technologies	• Interactive Video Systems	• Spinner.com
• Axeda Systems,Inc.	• Intercyclone	• Sportvision,Inc.
• BabyCenter	• International Financial Syst.	• StarMedia,Inc.
• Banderacom	• Intertrainer Inc.	• Steeleye Technology
• Banyan Networks Private	• Intro Networks,Inc.	• Stratify,Inc.
• Baobab Technologies	• Invenmtion Machine Corp.	• Stratus Computer Systems
• BaySpec	• Iridigm Display Corp.	• Streamline Solutions
• Be Here Corporation	• JAMDAT Mobile	• SuSE Linux AG
• Be.Inc.	• Jungo Software Techn.	• Supertracks.com
• Berkley Networks,Inc.	• Juno Online Services Inc	• Supresoft

- Black Pearl,Inc.
- Blaze Network Products,Inc.
- BlueStar Communications
- Bluecurve,Inc.
- Bluesocket,Inc.
- Bluesoft,Inc.
- BoostWorks,Inc.
- Braxtel,Communications
- BroadLogic,Inc.
- BroadbandLiving,Inc.
- Broadbase Software,Inc.
- Broket Infosystems AG
- Bullant Technology Pty,Ltd.
- C Level Design,Inc.
- CDT,Ltd.
- CIE Corporation Sdn Bhd
- Cambridge Positioning Syst.
- Cambridge Silicon Radio
- Capacity Technologies
- CardoNet
- Career Launcher
- Cash-U Mobile Technolog.
- Celion Networks,Inc.
- Celoxia
- CenterBeam,Inc.
- Cereva Networks,Inc.
- ChannelPoint,Inc.
- Chiaro Networks,Ltd.
- China Weal Business Mach.
- ChinaCast Technology (BVI)
- ChipPAC,Inc.
- Chrysalis-IST
- Cidera,Inc.
- Clarent Corporation
- Classroom Connect
- Clear Commerce Corp.
- Co-Design Automation Inc.
- Colibrys SA
- Collab.net,Inc.
- Color-Link,Inc.
- CommerceRoute,Inc.
- Connected Corporation
- Consign Technologies
- Consystant Design Techn.
- Contech Engineering&Cons
- Co Ltd.
- Convergelabs,Inc.
- Copper Mountain Netw.
- CopperCom,Inc.
- Core Networks Inc.
- Corona Optical Systems
- CosmoCom,Inc.
- Covad Communications
- Conventor,Inc.
- Cronos Integrated Microsyst
- CrossWorlds Software,Inc.
- Crossrads Systems,Inc.
- K2 Optronics
- LIFEMASTERS Supported
- lightconnect,Inc.
- Lane15 Software,Inc.
- LaserBit Communications Rt
- Launch Media
- LearnLinc
- Legend Silicon Corp
- Ligos Corporation
- LinkAir Communications,Inc.
- Liquid Audio,Inc.
- Loudeye Technologies,Inc.
- Lutris Technologies,Inc.
- LynuxWorks
- Lytek Corporation
- MaMa Media,Inc.
- Magma Design Automation
- Marvell Technology Group
- Maya Entertainment Limited
- Mediadome
- Mellanox Technologies,Inc.
- Miaxis Biometrics Co Ltd
- Miradores.Com Argentinia
- Moai Technologies,Inc.
- MobileAware Ltd
- Molecular OptoElectronics
- Monet Mobile Networks,Inc.
- MontaVista Software
- Monterey Design Systems
- MuTec Ltd.
- MusicMatch
- My Family.com,Inc.
- MY Simon,Inc.
- NARUS,Inc.
- NC-Virtual Systems
- NFR Security
- Navini Networks
- Neocera,Inc.
- NetBoost Corporation
- NetCentrex,Inc.
- NetCentrum,s.r.o.
- NetDynamics,Inc.
- NetOctave,Inc.
- Netodium,Inc.
- Network Elements,Inc.
- Network Physics,Inc.
- New Edge Networks
- NewMonics,Inc.
- NextPage,Inc.
- NobleNet,Inc.
- Nomadix,Inc.
- Northern Lights Computer
- Nova Crystals,Inc.
- Novalux,Inc.
- Nover Optics
- Nuance Communicat.
- NyView Technologies,Inc.
- Surf Communications Sol.
- Susa,Inc.
- SyChip,Inc.
- Sycon Design,Inc.
- Synchronicity,Inc.
- Syndeo Corporation
- T-Networks,Inc
- Teachscape
- Teja Technologies,Inc.
- Tejas Networks India Pvt.
- Telera,Inc.
- TelesciCOM Ltd.
- Templex Technology Corp.
- TheBeast.com
- Thin Film Electronics
- ThingWorld.com
- Ticketmaster
- TicketsLive
- Times Ten Perform. Softw.
- Tonic Software,Inc.
- Tornado Development,Inc.
- Torrent Systems,Inc.
- Torrex Equipment Corp.
- Total Shopping Network
- TriVium Systems
- Troika Networks,Inc.
- Tru-Si Technologies
- Turbo Squid,Inc.
- TurboLinux,Inc.
- Umachines,Inc.
- UTStarcom,Inc.
- Undisclosed Company
- Unicast,Inc.
- Unicorn Solutions,Ltd.
- United Devices,Inc.
- United Teleshopping & Mark
- Uprizer,Inc.
- VA Software Corporation
- VSK Phonetics,Inc.
- VSYS,Inc.
- ValiCert,Inc.
- VeloCom,Inc.
- Ventirx Systems,Inc.
- Venturcom Inc.
- VeriCenter,Inc.
- Veridicom,Inc.
- Viacore,Inc.
- ViewSonic Corporation
- Village Networks,Inc.
- Virtuak I-O
- Virtual Ink Corporation
- Visual Insights,Inc.
- Volterra Semiconductors
- Vordel
- VxTel
- WANWall Ltd.
- WebGain,Inc.

• CyOptics,Inc.	• Nxt Wave Communications	• WebLine Communications
• Cyber India Online Limited	• Oasis Technology,Ltd.	• Webridge,Inc.
• Dartfish	• Oblix,Inc.	• WellMed,Inc.
• DataCore Software Corp.	• Octiv,Inc.	• Wildfire Communications
• Data Play,Inc.	• Omneon Video Networks	• Wipcore AB
• DataSynapse	• OnLive! Technologies,Inc.	• XLNT Designs
• Deccanet Designs Ltd.	• One Touch Systems,Inc.	• XUMA Inc.
• Damantra,Ltd.	• Onset Technology Inc.	• Yodlee.com,Inc.
• DevelopOnline.com,Corp.	• Open Loop Inc.	• Your Voice
• Digia Oy	• Orchstream,Ltd.	• Zayante,Inc.
• Digital Entertainment Netw.	• P-Cupe,Inc.	• Zight Corporaiton
• Digital F/X,Inc.	• POPcast Communications	• Zone Labs,Inc.
• Digital Media On Demand	• PacketVideo Corporation	• Zope
• Digital Optics	• PakNetX Corporation	• Zygon,Ltd.
• Digital Optics Corporation	• Palace	• Actzero
• Digital Persona	• Paramoney Investment Man	• broadcast.com
• Dotcast,Inc.	• Services Pvt Ltd	• cadMOS Design Techn.
• ENBA PLC	• PassCall Advanced Techn.	• cap-XX Proprietary Limited
• Eastern Software Systems	• PenPower Technology	• eFusion,Inc.
• Eysa Systems Inc.	• Peregrine Semiconductors	• eKIT.com,Inc.
• Ecutel,Inc.	• Persistent Systems Pvt. Ltd.	• eOriginal
• Elind Computers	• Phasebridge Inc.	• eSoft
• Embrace Networks	• Philsar Semiconductors,Inc.	• eTel Group,Ltd.
• Enfish Corporation	• PhotoBit	• eToys
• Engenia Software,Inc.	• PhotomEx Corporaiton	• eVector (India) Pvt Ltd
• Engenious Software,Inc.	• Phonetic Materials Ltd.	• enmail.com Pvt Ltd
• Ensemble Communications	• Pictuere IQ	• epicRalm,Inc.
• Entercept Security Techn.	• Pingtel Corporaiton	• gForce Systems
• Envox Group AB	• PlateSpin,Inc.	• iBeam Broadcasting Corp
• Epylon Corporation	• Plumtree Software,Inc.	• iBuyLine,Inc
• Esterel Technologies SA	• Portland Software,Inc.	• IFlyTech
• ExaNet,Inc.	• Portola Systems	• iMediation SA
• Extricity Software,Inc.	• Power X Ltd	• iPASS,Inc.
• FONS Corporation	• Pramati Technologies (P)	• iPrint,Inc.
• FamilyEducation Network	• Preview Systems,Inc.	• iShip.com
• Fantastic Corporation,The	• Primarion,Inc.	• iTelo Communications,Inc.
• Fast-Chip,Inc.	• Primavera Systems	• iVillage,Inc.
• FeedRoom.com,Inc.,The	• Princeton Optronics,Inc.	• nLine Corporaiton
• Fenestratee BV	• Prio,Inc.	• Pasia
• Fiber Optic Network Solut.	• Prisa Networks,Inc.	• vPakcet Communications
• Corporations	• Prover Technology	• webplan Corporation
• Financial Engines,Inc.	• Pseudo Programs Inc.	• yIPes Communication,Inc.
• FirstLook.com	• Quokka Sports,Inc.	
• FlexICs Inc.	• R Systems,Inc.	
• Fogdog,Inc.	• RAINfinity,Inc.	
• FormFactor,Inc.	• RAW Communications,Ltd.	
GE Equity		
• 80-20 Software Pty Ltd.	• Hydra Mining Tools Intern.	• Quintus Corporation
• @Link Networks,Ltd.	• I-Quest Corp.	• Quisic
• Agilera,Inc.	• IP Communicaitons.Inc.	• R2 Technology,Inc.
• AirCell,Inc.	• Imparta Ltd.	• Raindance Communiations
• AirPrime	• Improbe,Inc.	• Ranpak Corporation
• Alteon Websystems	• InfoLibria,Inc.	• Redfern Phonetics Pvt. Ltd.
• AmericasDoctor.com	• Information Management	• RedsondTV
• Amobea Telecom Ltd.	• InterCom	• RiTdisplay Corporation
• Andritz AG	• InterWise	• Rodriguez Cantieri Navali

• AnnuityNet,Inc.	• Internet Appliance Network	• SAQQARA Systems,Inc.
• AppGate AB	• Intertainer Inc.	• Santera Systems,Inc.
• Appro Systems Inc.	• Intraspect Software	• SciQuest.com
• Aptegrity	• Ipix,Inc.	• SecureWorks,Inc.
• Arch Capital Group ltd.	• Ironside Technologies,Inc.	• Sensitech,Inc.
• Asera,Inc.	• Italtel	• Sharepeople Group,plc.
• Asia Online Ltd.	• Kamtronics Ltd	• Silicon Energy Corporation
• Asiacontent.com	• Keynote Systems,Inc.	• Silicon Motion,Inc.
• Astral Point Communic.	• KnowledgePlanet.com	• Simulis
• Axya Medical,Inc.	• Korea First Bank	• Soft SwitichingTechn.
• BFinance.com Ltd.	• LaserComm,Inc.	• SoftBook Press,Inc.
• Beacon Power Corporation	• Launch Media	• SoftPro
• BetaSphere,Inc.	• LeadScope	• Sontoma Systems,Inc.
• Plaxxum Interactive Inc.	• LendingTree,Inc.	• Space Fitters,Inc.
• Bluestone Software ,Inc.	• Lexar Media Corporation	• StarMedia Networks,Inc.
• Bowstreet Software ,Inc.	• LinkGuard Ltd.	• StarOne AG
• BroadLogic,Inc.	• LipoScience	• StorageWay,Inc.
• BuildNet,Inc.	• Living.com	• Submarino.com,Ltd.
• CB Technologies,Inc.	• Long Term Holdings,Inc.	• Suretel Inc.
• CJM Labels,Ltd.	• LuxN,Inc.	• Synchrony Communiations
• CL Holdings,Inc.	• Magex,Ltd.	• Synergon Informations,Ltd.
• CancerVax Corporation	• Mahi Networks	• T.Square,Inc.
• CardoNet	• Mainspring Communic.	• TNPC
• CarrerBuilder,Inc.	• Mastech Corporaitons	• TeleBanc Financial Corp.
• Carmen Systems AB	• MedSN,Inc.	• Virginia
• Catalytic Solutions,Inc.	• Mediasurface Ltd.	• TeleCommunication Syst.
• Centerprise Advisors,Inc.	• MercadoLibre.com	• TeleNova Corporation
• Cephren,Inc.	• MetriGenix	• TelePacific Communciat.
• Cidera,Inc.	• MilleniaVision Corp.	• Telescan,Inc.
• Circles,Inc.	• Millennia Vision	• Telocity,Inc.
• Citadon,Inc.	• Mosaic Software	• TheBrain Technologies
• Cofiniti,Inc.	• Museum Company.com	• TheraPhysics Corporaiton
• Cognitive Arts,Inc.	• NAREX,Inc.	• Tornado Development,Inc.
• Cohesia Corporation	• NTL Group,Ltd.	• Tradaq,Inc.
• Commerce One,Inc.	• NaviMedix,Inc.	• TradeOut.com
• Context Integration,Inc.	• NeoForma,Inc.	• Travelprice.com
• Convey,Inc.	• NeoVista,Inc.	• Triax Midwest Associates
• CyberBills,Inc.	• Net2Phone Inc.	• TrinTel Communiaitons,Inc.
• Datek Online Holdings Corp.	• NetScreen Technologies	• UltraGuide Inc.
• Decidir Internaitonal Ltd.	• Netschools Corporation	• United Devices,Inc.
• Deja.com	• NewMediary.com	• United Roas Services,Inc.
• Digia OY	• NewView Technologies	• VelQuest Corporation
• Digirad,Inc.	• Nextec Applications,Inc.	• Venturcom,Inc.
• Digital Communiations Ass.	• Novastar Financial Inc.	• Verbind,Inc.
• DigitalThink,Inc.	• Neura Communications,Inc.	• Viajo.com,Inc.
• Docent Software,Inc.	• Nuova Bianchi	• Viasorce Communicaitons
• Dotocast,Inc.	• NxtPhase	• Video Networks Ltd.
• E-Stamp	• OKENA,Inc.	• Virynet,Ltd.
• E-Via Spa	• On-Link Corporation	• VisionAIR
• Eccord Systems	• One.Tel Ltd.	• Visionael Corporation
• EdlerHealth,Inc.	• Online Benefits,Inc.	• Vitessa
• Empi,Inc.	• Onvia.com	• Vutek,Inc.
• Encirq Corporaiton	• OpenNetwork Technologies	• WhatsHotNow.com,Inc.
• Endura Software Corp.	• OpenSite Technologies,Inc.	• White Pine Software,Inc.
• EnergyGuide.com	• Outlook Corporaitons	• White Signs Systmes,Inc.
• Entermetrix	• PDQuick	• Wide Learning
• Enigma,Inc.	• PRN Corporation	• WinWIn

• Eurometric International NV	• PacketVideo	• Wine.com
• Evoke Software Corporation	• Paradigm Holgings,Inc.	• Wink Communiations,Inc.
• Fibercorp	• PayTrust,Inc.	• WomenCONNECT.com
• Fiberlink,Inc.	• Pensare,Inc.	• Yodlee.com,Inc.
• Finet Online	• PeopleLink,Inc.	• Zendor.com
• Florida Digital Networks,Inc.	• Phase2Media	• Zight Corporation
• Fluidigm Corporation	• Pihana,Inc.	• eDocs,Inc.
• France Telecom Real Estate	• Pilot Network Services,Inc.	• eMotion,Inc.
• Freechal	• PinPoint Corp.	• eOriginal
• GMV Martini	• Plateau Systems,Ltd.	• i3 Mobile Inc.
• Gizmoz	• Point Biometrical Corp.	• iMedeon,Inc.
• Global Commerce Systems	• Prescient Markets,Inc.	• iMediation SA
• Grande Communications	• Prisa Networks,Inc.	• SKY,Inc.
• GroupTrade.com,Ltd.	• ProAct Technologies Corp.	• iXL Enterprise,Inc.
• HealthStream,Inc.	• Pronosco A/S	• mPower.com
• Hema Metrics,Inc.	• Proxicom,Inc.	• siteROCK KK
• High Technology Solut.	• Qos Networks,Ltd.	• webplan Corporation
• Homepoint Corporation	• Question Technologies	•
T-Venture		
• @Motion,Inc.	• INTERCOPE GmbH	• Technology AG
• ActiveTouch	• ImageWare Compeonents	• S.Punkt GmbH
• AppGate AB	• Ipanema Technologies	• Silicon.com
• AudioBasket.com,Inc.	• Ivistar Kommunikationssyst	• Speech Design GmbH
• BlueFactory AB	• KeeBoo Corporation	• TelesensKSCL AG
• CargEX GmbH	• Mahi Networks	• Undiclosed Germany
• Categoric SoftwareLtd.	• MessageVine Inc.	• Virtual Phnotecis,Inc.
• Celvibe	• Mobile Commerce Ltd.	• Wap´n`roll
• Ciradence	• NaWoTec	• WebEx Communications
• CoreMedia AG	• NetByTel	• Work-Center GmbH
• DSPecialist GmbH	• NetCentre,Inc.	• Ymarket
• Danger,Inc.	• NetValue	• eCircle AG
• E-Loft	• Newspage Private Ltd.	• human AG
• Eyematic	• Novilit Inc.	• maxxio technolgiesnexnet
• Fantastic Corporation	• OTelNet	• uTOK.com
• Flights.com	• PayMentor ApS	• vrcom GmbH
• Goodex AG	• PlanetProtalPolyTrax Inform	

Summary in German[1]

Die vorliegende Arbeit trägt den Titel „Value Added of Corporate Venture Capital- How do CVC units benefit from their organizational core?“ und beschäftigt sich mit den Problemen und Fragen, die sich im Kontext der intraorganisationalen Zusammenarbeit zwischen der Corporate Venture Capital (CVC) - Einheit und strategischen/operativen Geschäftseinheiten in großen Industriekonzernen ergeben. Ausgangspunkt der Überlegungen ist dabei einerseits die Erkenntnis, dass eine die Entwicklung des Corporate Venture Capital Marktes dem traditionellen Venture Capital Markt zeitlich verschoben folgt, und andererseits die Tatsache, daß trotz dieser Einsicht und der hohen Bedeutung, die dem CVC Markt zugeschrieben wird, dieses Phänomen wissenschaftlich noch nicht ausreichend erfaßt ist.

Für die Erklärung der deutlich ausgeprägten Auf- als auch Abwärtsbewegungen muß das zentrale Charakteristika von Corporate Venture Capital untersucht werden: seine Einbettung in ein Industrieunternehmen. Auf der positiven Seite verschafft diese Einbettung verschafft der Corporate Venture Capital Einheit Zugang zu konzerneigenen Einrichtungen wie z.B. Distributionskanälen, Forschungseinrichtungen, und Hilfestellungen im Prozeß der Bewertung von Start-up Unternehmen. Auf der negativen Seite ist die oft nicht eindeutig festgelegte Mischung von strategischen und finanziellen Zielen, der eingeschränkte Grad and Autonomie und Unabhängigkeit der CVC Einheit, und die angessenen Entlohnungssysteme der CVC Manager zu erwähnen.

Der zentrale Untersuchungsgegenstand dieser Arbeit ist die Zusammenarbeit der CVC Einheit und den Geschäftseinheiten eines Industriekonzerns im Investitionsprozeß. Diese Perspektive wurde gewählt, da (1) diese Beziehung für die Realisierung (1) des Value Added von CVC von zentraler Bedeutung ist und (2) die Zusammenarbeit zwischen der CVC Einheit und den Geschäftseinheiten aufgrund der erheblichen Zielkonflikte eine nicht selbstverständliche Kooperations-

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[1] Diese Zusammenfassung in deutscher Sprache dient zur Erfüllung der Anforderung gemäß §6 Abs. 6 der Promotionsordnung für die Fakultät Sozial- und Wirtschaftswissenschaften der Universität Bamberg vom 14. Juli 1982, zuletzt geändert durch die „Siebte Satzung zur Änderung der Promotionsordnung für die Fakultät Sozial- und Wirtschaftswissenschaften der Universität Bamberg vom 2. April 2001“.

basis mit besonders großen Herausforderungen dar. Eine systematische Analyse, wie diese Herausforderungen gemeistert werden können, führt zu Einsichten und Handlungsempfehlungen, die auch bei anderen intra-organisationalen Kooperationskonstellationen fruchtbar genutzt werden sollten. Das zentrale Forschungsanliegen dieser Arbeit ist es daher darzulegen, wie es den CVC Einheiten gelingt, die interessanten Geschäftseinheiten des Konzerns in den Investitionsprozeß zu integrieren, um einerseits Zugang zu dem dort vorhandenen Wissen und den Technologien zu erhalten, gleichzeitig aber auch den unternehmerischen Geist sowie die Innovationskraft der Start-up Unternehmen in die Geschäftseinheiten zu transferieren. Die CVC Einheiten sehen sich dabei dem Paradoxon gegenüber, dass sie auf der einen Seite die Geschäftseinheiten auf irgendeine Art zur Zusammenarbeit bewegen müssen, um Zugang zu das vermarktete „Smart Money" von CVC zu realisieren, während sie auf der anderen Seite aber keine geeigneten Anreizsysteme und Hierarchien zurückgreifen können, um die Geschäftseinheiten von der Vorteilhaftigkeit einer Zusammenarbeit mit der CVC Einheit zu überzeugen.

Zur genauen Untersuchung dieses Forschungsrätsels ist die Wahl einer geeigneten Forschungsmethodologie erforderlich, die wiederum stark von der Formulierung der Forschungsfrage abhängt. Auf dieser Basis hat sich die Fallstudienanalyse als sinnvollste Vorgehensweise herauskristallisiert. Durch Auswertung von durchgeführten Interviews, basierend auf einem halbstrukturierten Fragebogen, einer ausführlichen Analyse des Branchenkontextes sowie durch Einbeziehung umfangreichen Sekundärmaterials wurden die folgenden Fallstudien im Hinblick auf CVC Aktivitäten erstellt:

- Siemens AG– Siemens Venture Capital, GmbH
- Deutsche Telekom - T-Venture, GmbH
- DaimlerChrysler – DaimlerChrylser Venture, GmbH
- Motorola Inc. - Motorola Ventures
- General Electric – GE Equity
- Intel Corp. - Intel Capital

Im Rahmen dieser Fallstudien wurden dabei insbesondere die Motive der Zusammenarbeit, die übergeordnete Investmentstrategie, das Management des Investmentprozesses (*Deal Screening, Deal Evaluation, Deal Structuring, Investment decision, Portfolio-Management, Exit-Management*), sowie relevante Aspekte der organisatorischen Zusammenarbeit, des Wissens- und Know-how Transfers, und einzelner Kontext- und Unternehmenskultur bezogener Problembereiche erörtert. Nach Untersuchung dieser Aspekte im Rahmen der Einzelfallanalysen wurde eine komparative Fallanalyse zur Identifikation von Gemeinsamkeiten und Unterschieden durchgeführt. Die gewonnenen Erkenntnisse wurden in vorläufigen Hypothesen zusammengefasst, welche die zentralen Aspekte der
intraorganisationalen Zusammenarbeit von CVC Einheiten und strategischen/operativen Geschäftseinheiten von großen Industriekonzernen charakterisieren.

Diese aus der komparativen Fallanalyse gewonnenen Hypothesen bilden die Basis für einen ausführlichen Vergleich der erzielten Erkenntnisse mit den entsprechenden Empfehlungen der bestehenden Literatur. Hierzu wurden unterschiedliche Literaturströmungen und Studien herangezogen, die nicht nur auf die CVC Thematik begrenzt sind, sondern z.B. auch den Ressourcentransfer, die Ermöglichung intra-organisationaler Zusammenarbeit sowie die Steuerung der Zusammenarbeit miteinbeziehen. Dabei wurden die unterschiedlichen Dimensionen untersucht (Motive der Zusammenarbeit, die übergeordnete Investmentstrategie, das Management des Investmentprozesses, sowie relevante Aspekte der organisatorischen Zusammenarbeit, des Wissens- und Know-how Transfers, und einzelner Kontext- und Unternehmenskultur bezogener Problembereiche), die sich im Rahmen der Fallstudienanalyse als wichtig herausgestellt haben. Ziel der Konfrontation der in den vorläufigen Hypothesen zusammengefassten Fallstudienergebnisse mit der existierenden Theorie ist es aufzuzeigen, inwieweit diese Hypothesen mit den bestehenden Konzepten erklärt werden können. Das Ergebnis dieses Abgleichs ist, dass die bereits existierenden Konzepte nicht in der Lage sind, die im Rahmen der Fallstudienanalyse gewonnenen Erkenntnisse ausreichend zu erklären.

Aufgrund der herausgearbeiteten Unzulänglichkeiten der existierenden theoretischen Konzepte wird im Rahmen dieser Arbeit ein neues Konzept entworfen,

welches für das Management der intra-organisationalen Zusammenarbeit von CVC Einheiten und Geschäftseinheiten geeignet ist. Dieses Konzept basiert auf zwei weiteren, weit verbreiteten und anerkannten Konzepten (Formulierung der Organisationsstrategie sowie Organisationsstruktur). Zentraler Punkt des neuen Konzepts ist die Forderung nach einer Verknüpfung zwischen den Investitionsmotiven, der korrespondierenden organisationalen Einbettung der CVC Einheit, sowie der expliziten Involvierung der Geschäftseinheiten im Investitionsprozeß. Dies bedeutet, dass unterschiedliche Investmentstrategien gleichzeitig zwei sehr unterschiedliche, sogar entgegengerichtete Auswirkungen auf Kooperationswilligkeit und langfristigem „Pay-off" für das Unternehmen. Einerseits verfolgen CVC Einheiten Investmentmöglichkeiten, die Verkaufs- und Implementierungsmöglichkeiten gewährleisten, ein „*Leverage of Strategic Assets*", während andererseits CVC Einheiten auf Forschungsmöglichkeiten und technische Synergie-effekte für die Geschäftseinheiten abzielen, ein „Enhancement of Innovation" verfolgen, welche eine gegenläufige Kooperationsbereitschaft der Geschäftseinheiten und Wissenserforschung nach sich ziehen. Dies führt im Ergebnis auch häufig dazu, daß CVC Programme eine gemischte Investitionsstrategie, eine „Goldene Investmentstrategie" innerhalb der Großunternehmen entwickeln sollten. Desweiteren verdeutlicht das Konzept, daß das Top-Management für die Formulierung der CVC Strategie und deren organisatorischen Struktur verantwortlich ist, während ihre Bedeutung im eigentlichen Involvierungsprozeß der Geschäftseinheiten nur zweitrangig ist. Entlang des Investitionsprozesses sind dann vielmehr einzelne Charakteristika der CVC Manager als auch der Geschäftseinheiten von ausschlaggebender Bedeutung.