Entrepreneurship in Intra-organizational Networks: An Entrepreneurial Perspective on the Management of Multi-unit Organizational Systems

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St. Gallen, October 19, 2009

The President:

Prof. Ernst Mohr, PhD
Meinen Eltern
Abstract

Our thinking creates problems that the same kind of thinking will not solve.
—Albert Einstein

The central objective of this research is to question how organizations can achieve higher organizational performance. Admittedly, this question – although it underlies all management research – is not a very Bohemian one.

However, the research aims at approaching the question from a rather unconventional perspective – it understands organizations as networks spanned by entrepreneurial entities and managerial processes. Like the external business environment, these systems are understood as being determined by two fundamental relational characteristics: competition and cooperation.

The research argues that organizations can achieve higher organizational performance by leveraging the mechanisms of competition and cooperation within their systems and thus seizing the game of business via coopetition. This idea is conceptualized in a theoretical framework, which integrates relevant factors from the extant literature. The model was tested using a mix of qualitative and quantitative empirical investigations.

Applying predominantly interorganizational theory, the research inherently argues that the network spanned by multiunit organizational systems can be understood as a system of embedded economic actors. However, there is a fundamental difference of the interorganizational field in this business game – organizational networks have an additional player, the corporate headquarters, which has the role of designing and manipulating the game in appropriate ways. How this manipulation should take place is recommended by formulating a concept of entrepreneurial coordination.
Die vorliegende Dissertation dreht sich im Kern um die Frage, wie Organisationen eine höhere Performance erzielen können. Diese Fragestellung ist, obwohl sie eigentlich jeder Management-Forschung zugrunde liegt, zugegebenermassen nicht sehr ungewöhnlich.


Die Ergebnisse der Untersuchungen deuten darauf hin, dass Organisationen eine höhere organisationale Effizienz und Effektivität erreichen können, indem sie sich die Mechanismen dieser beiden relationalen Charakteristika simultan ausnutzen. Um gleichzeitig Wettbewerb und Kooperation zu erreichen bedienen sich die Empfehlungen dieser Arbeit dem Konzept des Coopetition. Die Idee wird in einem theoretischen Rahmenwerk konzeptionalisiert, welches die relevanten Faktoren aus bestehender Literatur integriert. Dieses Modell wurde durch einen Mix aus qualitativer und quantitativer empirischer Untersuchung getestet und validiert.

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Ulm, October 2009

Thomas Mohr
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Nomenclature

AG ................... Aktiengesellschaft (German: public company)
Alteri ............... The adjacent entities to a subjected ego (SNA)
ASQ ................... Administrative Science Quarterly
BSC ................... Balanced ScoreCard
BU ................... Business Unit
CE ................... Corporate Entrepreneurship
Cf. ............... Confer (Latin: compare)
Co-opetition ...... Coopetition
CoC ................... Center of Competence
CV ................... Corporate Venturing
DC ................... Dynamic Capabilities
E.g. ............... Exempli gratia (Latin: for example / for instance)
Ed. ............... Editor
Eds. ............... Editors
Ego ................... The subjected entity (SNA)
EO ................... Entrepreneurial Orientation
Et. al. ........... Et al/et alii (Latin: and others)
Hrsg. ............... Herausgeber (German: Editor)
Ibid. ............... Ibidem (Latin: at the same place)
ICV ............... Internal Corporate Venturing
IOR ............... Inter-O rganizational Relationships
ISIC ............... International Standard Industrial Classification
KBV ............... Knowledge-based view
M-form ............ Multidivisional-form (of organization)
MNC .............. MultiNational Company
MNE .............. MultiNational Enterprise
MNO .............. MultiNational Organization
No. ............... Number
NPD .............. New Product Development
OEM .............. Original Equipment Manufacturer
OS ............... Organization Science
QAP .............. Quadratic Assignment Procedure
RBV .............. Resource-based view
R&D .............. Research and Development
SMJ ............... Strategic Management Journal
SNA .............. Social Network Analysis
TCE ............... Transaction cost economics
TQM .............. Total Quality Management
Vol. .............. Volume
Chapter 1

Introduction

It is generally not believed that any ant in an ant colony knows how the ant colony works. Each ant has certain things that it does, in coordinated association with other ants, but there is nobody minding the whole store. No ant designed the system. An important part of social biology is relating the world of the individual ant to the world of the ant colony. The colony is full of patterns and regularities and balanced proportions among different activities, with maintenance and repair and exploration and even mobilization for emergencies.

—Schelling (2006, p. 21)

An ant colony is obviously a complex social system. Looking at an individual ant, one can hardly believe that its individual behaviour is directed toward any common objective. What is particularly interesting about these systems is that this organization seems to operate without any recognizable hierarchical structure. Each ant is an independent entrepreneur who acts in coordinated association with its organizational peer ants. We know that the behaviour is coordinated by pheromones and that the entire system of the colony is remarkably efficient. Computer scientists have already seized the mechanisms underlying this behaviour to solve difficult combinatorial problems known as ‘ant colony optimization algorithms’ (cf. Dorigo 1992).

This research addresses the challenge of managing the process of innovation and entrepreneurship within established organizations. Paradoxically, innova-
tion is fostered ideally by diversity and autonomy, whereas the exploitation of innovations requires critical mass and coordination (Grant 2008). According to Drucker (1985, p. 19), ‘innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service’. Thus I question how firms might be able to manipulate their organizational systems entrepreneurially.

To approach this question, this research is fundamentally based on the paradigm that work processes are based on social behaviour and that social behaviour is always embedded in some kind of a social system (Granovetter 1985). The structure of the system is built upon the behaviour of the contained entities and likewise impacts this behaviour and the outcomes of the system itself. Moreover, social behaviour is actually nested in a multilevel structural arrangement (Hitt et al. 2007).

As outlined in the chapter overview provided subsequently, this chapter first highlights the motivation for this research. Then, I formulate the research gap and problem, which leads to a network perspective of the organization. The network perspective aims at filling the gap of addressing today’s dynamic and information-driven environment in the field of intrafirm entrepreneurship; moreover, it addresses a multilevel approach to organization. This leads to a specific research question. The following structural flow of the dissertation outlines how the question is approached within this document.

**Overview Chapter 1**

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1.1 Research Motivation

Innovate or die.
—Peter F. Drucker

The agenda of corporate entrepreneurship research is to question how established organizations are able to combine their advantage of size (i.e. a great resource base) and age (i.e. many substantive capabilities) with the capabilities of small and young firms (i.e. flexibility, speed and innovativeness).

Most of today’s big organizations struggle with the venture paradox described by Buckland et al. (2003, p. 2): while big corporations have all the resources needed to bring new ideas successfully onto market, they lack flexibility, creativity and the organic structures new ideas and business creation demand. A closer look at today’s organizations reveals that their size, accompanied by increased bureaucracy, often prevents the necessary flexibility and innovativeness dynamic markets demand. Indeed, established companies in existing industries are confronted with the fact that newcomers are creating the largest portion of the new wealth (Hamel 1999).

This raises the question, how can big, established organizations be as flexible and innovative as their younger and smaller counterparts? In international competition, efficiency, effectiveness, excellent quality and, first and foremost, continued innovation are key success factors. Modern organizations have to be innovative and find new paths to survive. In other words, today’s organizations have to be ‘entrepreneurial’ to stay competitive on a sustainable basis. This includes developing organizational capabilities like adaptability, flexibility, speed, aggressiveness and innovativeness (Morris and Kuratko 2002).

Corporate entrepreneurship addresses the challenge of embedding the entrepreneurial process into existing organizations and thus of developing entrepreneurial organizations, i.e. organizations which are capable of driving entrepreneurial processes. ‘Corporate entrepreneurship concepts’ provide conceptual frameworks with which to understand internal entrepreneurial behaviour.

Table 1-1 gives an overview of selected corporate entrepreneurship concepts and the corresponding objectives.
Table 1-1: Objectives in corporate entrepreneurship research

<table>
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<th>Reference*</th>
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| Vesper (1984)               | • new strategic direction  
• initiative from below  
• autonomous business creation |
| Guth and Ginsberg (1990)    | • new venture creation within existing firms  
• transformation of existing organizations through strategic renewal |
| Zahra (1993b)               | • innovation and venturing  
• strategic renewal |
| Stopford and Baden Fuller (1994) | • creation of new businesses within or by existing organizations  
• transformation or renewal of existing organizations  
• change of the rules of competition within an industry |
| Dess et al. (2005)          | • creation and pursuit of new venture opportunities  
• strategic renewal |

*Sorted by year of publication

The table shows that entrepreneurship, in general, follows the objectives of innovation and strategic renewal, which aim at increasing a firm’s success in terms of competitive advantage (e.g. Covin and Miles 1999, Dess et al. 2003, 2005, Drejer et al. 2004, Ireland et al. 2003, Kuratko et al. 2001, Lengnick-Hall 1992, Sathe 2003, Zahra, Nielsen and Bogner 1999). Jennings and Lumpkin (1989), define an organization as entrepreneurial if it develops a higher than average number of new products and/or new markets. Backman (1983, p. 489) characterizes an organization as entrepreneurial if it is more innovative than others are. Accordingly, Muzyka et al. (1995) focused on commercialized innovations as an output dimension for corporate entrepreneurship and thus focused on an organization’s innovation capability (Hornaday 1992).

Zahra (1991) summarizes the aims of internal entrepreneurship by formulating the unifying objective of improving competitive position and/or financial performance. This means that entrepreneurship is able to increase the financial success of firms, primarily by fostering the success of innovations (Chaney et al. 1991, Lengnick-Hall 1992). In this way, firms can indirectly gather fi-

A second objective when starting entrepreneurial programs is to achieve a strategic renewal of established organizations (Jones 2005, Seshadri and Tripathy 2006, Stopford and Baden Fuller 1994). Entrepreneurship in this context aims at renewing an organization’s operations, redefining its business concepts or strengthening its capabilities for innovation (Zahra 1996). This aims at transforming a whole organization toward an entrepreneurial posture and corresponds, to some extent, to management innovation (cf. Birkinshaw et al. 2008).

1.2 Research Gap and Problem

Generally, entrepreneurship is based on the same principles, whether the entrepreneur is attached to a large existing organization or is an independent individual (Drucker 1985).

However, in addition to independent entrepreneurship, an intrafirm perspective additionally has to respect the organization in which an entrepreneur is embedded. This makes corporate entrepreneurship, in some respects, more complex than its independent counterpart.

Extant literature on corporate entrepreneurship refers predominantly to the organization as a whole (cf. section 3.2). Questions answered here are how organizations act entrepreneurially, and how organizations can be transformed entrepreneurially, but not how entrepreneurship takes place within organizational systems. The following sections outline how these organizational systems have changed over the course of the rise of today’s information economy.

1.2.1 Evolution of Organization

The good news is that every organization, by definition, was entrepreneurial at its start-up. Every firm or organization starts with a new venture. The entrepreneurial spirit of their founding pioneers, though, seems to get lost
along the way. But why do firms exist in the first place, or why do firms and markets coexist? If it is better to organize in independent groups, why is the economy not organized as single entrepreneurs? If it is better to organize in a firm, why is the economy not organized into one huge corporation?

In fact, the organization has changed throughout history. This evolution of human organizational systems took place through the progression from nomadic lifestyles to agriculture, then industrialization, toward today’s information age (Lipnack and Stamps 1994, Toffler 1980). In terms of business organization, this means a development from small, independent groups to hierarchies, to bureaucracies and, finally, to network-like systems or internal markets (Halal 1994, 1996). Malone (2004) compares this distinction between decision-making systems on independent, centralized and decentralized levels in business with the historic trends of coordination systems in societies (Figure 1-1).

Figure 1-1: Three basic decision-making structures
Source: Adapted from Malone (2004, pp. 16, 28, 189)

Until 1800, most businesses were small and independent family affairs. Come 1870, the railroad industry was one of the first industries with a hierarchic organization, motivated by the lower transaction costs and the benefits
of larger size, e.g. to seize economies of scale and scope. Since the end of the twentieth century, as the costs of communication declined, the development of decentralized and network-like structures arose. This marks two (paradoxical) steps, which are discussed in the following sections:

- the development from (external) markets to hierarchies
- the development from hierarchies to (internal) markets and networks

**From markets to hierarchies**

One theoretical explanation for the first step, i.e. the emergence of hierarchical firms, is transaction cost economics (TCE). In the first place, TCE relates markets and firms as forms of organizational governance (cf. Rindfleisch and Heide 1997).

Based on the considerations formulated by Coase (1937) and belonging to the new institutional economics paradigm, TCE disagrees with neoclassical economics that the market, in the meaning of Adam Smith’s ‘invisible hand’, is the most efficient form of organization. TCE argues that firms (in the form of hierarchies), in some cases, will be better. In this way, TCE gives a general explanation for the existence of firms. Additionally, TCE is able to explain why certain transactions are more and others are less efficient within a particular institutional arrangement. The main approach is that every action is bound to transaction costs. Transaction costs are the costs of performing economic transactions (Coase 1937); that is, the units of analysis of TCE are economic transactions, or more specifically, the costs these transactions evoke.

The principal idea is that the integration of particular market activities into firms can be, under specific assumptions, more efficient than the use of costly transactions in the marketplace. This can explain why transactions were or should be transferred to the institutional frame of firms. Fundamentally, the assumptions of TCE differ from the neoclassical assumption of complete information and put forward the idea of bounded rationality and opportunism. The bounded rationality paradigm argues that economic actors which intend to act in a rational way are limited in doing so (Simon 1976). Additionally, TCE assumes that all economic actors act opportunistically. While not all
economic actors may be opportunistic, one must at least take into account the possibility that the other player will act in an opportunistic way (Williamson 1991).

Hierarchic communication structures can combine the benefit of remote information with low accumulated communication costs (Malone 2004); that is, the best combination between transaction costs and information benefits in general might be achieved by a centralized organization. However, this holds only up to a certain size of organizations. Correspondingly, Coase (1937, p. 395) argues that firms tend to expand until the costs of organizing an extra transaction within the firm become equal to the costs of carrying out the same transaction by means of an exchange on the open market or the costs of organizing in another firm.

Williamson (1975) argues that the optimal choice between different modes of internal governance follows transaction cost–minimizing criteria. He argues that less cost-optimal modes of governance will be wiped out by external competition (Williamson 1991). Most of today’s organizations lie in the ‘swollen middle’ between hierarchy and market (Hennart 1993), building hybrid forms of organization (Williamson 1991).

**From hierarchies to markets and networks**

Today, we can see a strong trend toward the development of networks within organizations, which represents the second step in organizational evolution (Figure 1-1). Many of the formerly hierarchical organizations are disaggregating into miscellaneous forms of networks, with modular organizational structures (Achrol and Kotler 1999).

Scholars repeatedly argue that business networks have dramatically changed in the past few decades. Networks (including computer, information, innovation and social networks) are actually reshaping the global business architecture (Parkhe et al. 2006). Recent research has tried to clarify the mechanisms within networks in interorganizational contexts (cf. Capaldo 2007, Dhanaraj and Parkhe 2006, Koka et al. 2006, Tikkanen and Renko 2006) as well as from an intraorganizational perspective (cf. Contractor et al. 2006, Labianca and Brass 2006, Möller and Rajala 2007, Nebus 2006, Tsai 2001).
Figure 1-2 outlines the results of a study conducted by Wunderer in Switzerland and Germany, about dominating organizational coordination forms, which impressively supports this direction (currently dominating forms are in light colour and targeted forms are in dark colour).

However, if TCE is able to explain the first step in this course of organizational development, which theory can explain the second? The trend might be explained by today’s dynamic and knowledge-dominated environment, which demands information as an important resource. As communication costs increasingly decline, one can see a decentralization of information and knowledge in many areas. One impressive example supporting the advantage of extremely decentralized information and knowledge is the Internet.

Another reason might be innovation and entrepreneurship. Internal markets are often recommended to revitalize organizational processes. In line with this, the organizational innovation and entrepreneurship literature suggests that organizations can benefit from a certain amount of decentralization, diversity and autonomy (Grant 2008).

Table 1-2 gives an overview of further characteristics of this organizational form compared to the hierarchy.

Whereby markets and networks feature enhanced entrepreneurial freedom, they suffer from disorder and risk compared to the hierarchy. Hence, in such decentralized settings, the demand is increased for autonomous and self-
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<td>stable, simple</td>
<td>turbulent, complex</td>
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<td><strong>Goals</strong></td>
<td>efficiency, precision</td>
<td>innovation, change</td>
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<tr>
<td><strong>Motivation</strong></td>
<td>security, equity</td>
<td>challenge, rewards</td>
</tr>
<tr>
<td><strong>Culture</strong></td>
<td>orderly working relations</td>
<td>entrepreneurial freedom</td>
</tr>
<tr>
<td><strong>Main problem</strong></td>
<td>bureaucracy</td>
<td>disorder, risk</td>
</tr>
</tbody>
</table>

*Source: Adapted from Halal (1994, p. 70) and Halal (1996, p. 44)*

reliant behaviour of particular divisions as well as individual employees. These changes also require new methods in management. Malone (2004, pp. 126, 129) states that as the hierarchic structures decline, there is the need for a shift from command-and-control management to coordinate-and-cultivate management to face the problem of disorder and risk.

According to Birkinshaw (2000), this constitutes more of a problem for management processes and managerial behaviour than for structure. Moreover, Birkinshaw stated that transaction-cost theory is ‘not conducive to discussions of management behaviour’ (Birkinshaw 2000, p. 5). With this statement, he referred to Ghoshal and Moran (1996), who stated that while transaction-cost theory has explained a variety of business phenomena, it is not appropriate as a theory for guiding managerial activity.

### 1.2.2 Coordination Problem and Transnational Solution

An approach to strategically and structurally classifying multidivisional organizational networks in a managerial way lies in differentiating the configuration of assets and capabilities, the distribution of managerial responsibilities (decisions) and/or the locus of key resources and knowledge. Bartlett and Ghoshal (1998), in this way, classified companies into multinational, international and global. An overview of these organizational forms is given in Table 1-3.
Table 1-3: Organizational models of multiunit companies

<table>
<thead>
<tr>
<th>Organization model</th>
<th>Characteristics, control and mentality</th>
</tr>
</thead>
</table>
| **multinat. organization** | *decentralized federation:* many key assets and responsibilities, decisions decentralized
|                        | *personal control:* informal headquarters-sub relationships overlaid with simple financial controls |
|                        | *multinational mentality:* management regards overseas operations as a portfolio of independent businesses |
| **internat. organization** | *coordinated federation:* many assets, resources and responsibilities and decisions still decentralized but controlled from headquarters
|                        | *administrative control:* formal management planning and control systems allow tighter headquarters-sub linkage |
|                        | *international mentality:* management regards overseas operations as appendages to a central domestic corporation |
| **global organization**  | *centralized hub:* most strategic assets, resources and responsibilities and decisions centralized
|                        | *operational control:* tight central control of decisions, resources and information |
|                        | *global mentality:* management treats overseas operations as delivery pipelines to a unified global market |

Source: Adapted from Bartlett and Ghoshal (1998, pp. 57, 58, 60)

The density of shading within the graphics indicates the concentration of decision making in the network. The different configurations can be traced back to the eras of the ‘Europeans’ (i.e. *multinational model*), the ‘Americans’ (i.e. *international model* as a coordinated federation) and the ‘Japanese’ (i.e. *global model* as centralized hub)\(^1\); that is, the characteristics can be explained by the conditions each company faced when it went to internationalize itself (Bartlett and Ghoshal 1998). This *administrative heritage* shapes the companies’ organizational models and capabilities even today.\(^2\)
The key strategic capabilities of these organizations are national responsiveness, worldwide transfer of home-country innovations and global-scale efficiency, respectively (Bartlett et al. 2008, p. 339). However, they all face specific constraints; that is, the particular capabilities at the same time represent key constraints for the development of new strategic capabilities (Grant 2008, cited Bartlett and Ghoshal 1998). This induces the key strategic challenge each different company type faces, as outlined in Table 1-4.

**Table 1-4: Key strategic capabilities and challenges**

<table>
<thead>
<tr>
<th>Organization type</th>
<th>Key capability*</th>
<th>Key challenge**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-national</td>
<td>building strong local presence through sensitivity and responsiveness to national differences</td>
<td>→ achieving a greater integration of the ‘international empires’</td>
</tr>
<tr>
<td>International</td>
<td>exploiting parent company knowledge and capabilities through worldwide diffusion and adaptation</td>
<td>→ nurturing the ability of subsidiaries for technology, design and new product ideas</td>
</tr>
<tr>
<td>Global</td>
<td>building cost advantages through centralized global-scale operations</td>
<td>→ gaining knowledge about the market conditions in overseas countries</td>
</tr>
</tbody>
</table>

*Adapted from Bartlett and Ghoshal (1998, p. 18)
**Adapted from Grant (2008, p. 386)

In other words, the key strategic capabilities coevally embody the core rigidities of these organizational models (cf. Leonard-Barton 1992). Some of these challenges can be summarized and explained by a trade-off between global integration and national differentiation (cf. Grant 2008, chapter 14).

**Transnational solution** The strategic objective might be to benefit from all of these configurations simultaneously. Here an important insight is that (Grant 2008, p. 387)

the formal changes in structure are less important than the changes in responsibilities, decision powers and modes of coordination within these structures. The fundamental challenge for MNC has been reconciling the advantages
of global integration with those of national differentiation. Escalating costs of research and new product development have made global strategies with global product platforms essential. At the same time, meeting consumer needs in each national market and responding swiftly to changing local circumstances requires greater decentralization. Accelerating technological change further exacerbates these contradictory forces: despite the cost and ‘critical mass’ benefits of centralizing research and new product development, innovation occurs at multiple locations within the MNC and requires nurturing of creativity and initiative throughout the organization.

This implies what Bartlett and Ghoshal (1998) called their *transnational solution* (and is very similar to the *heterarchy* described by Hedlund (1986, 1994), the differentiated network organization described by Nohria and Ghoshal (1997) or the multifocal organization described by Prahalad and Doz (1987)). The underlying organization model of the transnational organization, referring to the models presented in Table 1-3, follows as outlined in Figure 1-3.

![Figure 1-3: Transnational organization as an integrated network](image)

*Figure 1-3: Transnational organization as an integrated network*

*Source: Adapted from Bartlett and Ghoshal (1998, p. 102)*

The organizational model of the transnational solution represents an *integrated network* of dispersed but also interdependent entities. This network can be characterized as (i) *consisting of* distributed and specialized resources and capabilities; (ii) *shaped by* large flows of components, products, resources, people and information among the interdependent entities; and (iii) *managed by* a complex process of coordination and cooperation in a context of shared decision making (Bartlett and Ghoshal 1998).

In the transnational organization model, organizations can achieve a collective use of their capabilities, although their creation happens in a decentralized way. Here both corporate centre *and* entity level are important sources of or-
ganizational capabilities (Grant 2008): *each of the component units* represents a distinctive source of entrepreneurial ideas, particular skills and competences and capabilities that can be utilized for the entire organizational network. Each unit can accesses global-scale economics by designating them the entire organization’s global source for a particular product or process. *The corporate centre* plays the role of coordinating the relationships among the units less by direct intervention in particular activities, and more by creating a supportive context within the network.

### 1.3 Research Objectives

To capture the ‘complex process of coordination and cooperation and shared decision making’ and to clarify the contributions of the corporate centre and decentralized subunits to performance, the central idea is to investigate the organization as a network. Understanding organizations as networks is accompanied by the central concepts of systems theory in the social sciences. Related to cybernetics, systems theory comprehends organizations as complex and open social systems. These systems are built from and influenced by certain entities and their relationships.

#### 1.3.1 Research Scope

**Network perspective**

The organizational network is determined by the organization structure, but differs from it. Figure 1-4 illustrates the difference between organizational and social structure. From a structural point of view, organizations often look more or less like the fictitious example given on the left, whereas the corresponding social structure, for instance, in terms of informal relations, might look as is illustrated on the right-hand side.

This approach can potentially close an important gap. If a network consists of \( n \) entities, there exist \( \binom{n}{2} \) theoretically possible mutual relationships and even \( n(n-1) \) bilateral relationships among them. Investigations regarding the organizational structure (on the left) might overlook the lateral informa-
1.3. RESEARCH OBJECTIVES

leveraging them means seizing the social capital of the organization (Kostova and Roth 2003, Nahapiet and Ghoshal 1998, Tsai and Ghoshal 1998).

This perspective recalls that management processes are social in nature because they involve not just independent players, but players that are embedded into social systems (Granovetter 1985). Like the contained entities, the environment can influence this social system. Moreover, the structure of organization and the processes within this structure can never really be independent from each other. Fundamentally, this means that the behaviour within and the outcomes of networks are mutually dependent (Definition 1).

**Definition 1 (Social network)**

A social network consists of a clearly defined finite number of entities and their social interactions. The social network is both the framework within which the interactions take place and the result of the interactions (adapted from Bengtsson and Kock 2000, p. 416, cited Hakansson 1987).

However, this definition leaves open the question of which entities these are in particular and which relationships connect them. In today’s information age, networks of relationships exist between firms and within firms on subunit, team or individual levels; that is, networks can be investigated on different organizational levels.

**Multilevel approach**

Hitt et al. (2007) criticize that most management research examines the phenomena at a single level of analysis. They argue that a multilevel perspective
would reveal the actual richness of social behaviour. They stress the importance of respecting the different nesting levels and multi- and across-level effects. By doing this, the authors call for multilevel research in management phenomena. Within such a conceptually nested arrangement, individuals are embedded in several layers of aggregation (Figure 1-5).

![Figure 1-5: Multilevel nesting arrangement](source)

As illustrated in the figure, this research aims at capturing two levels within this nesting arrangement: organizations and subunits. In the understanding of a multilevel nesting arrangement, though, organizations consist of subunits, which in turn consist of specific groups of individuals. With this, the research addresses the need that (Zahra, Jennings and Kuratko 1999, p. 55)

greater attention should be given to entrepreneurship at the divisional (strategic business unit) level of the analysis. A great many entrepreneurial activities occur at the level of organizational divisions (Kuratko et al. 1990, Peters and Waterman 1982, Pinchot 1985, Zahra 1993a,b).

In a multilevel understanding, both the level of the organization and the level of the subunits might be important influencers of organizational performance. To account for this idea and the multilevel embeddedness, I put forward the perspective of ‘two organizational networks’ in the following sections.
Two organizational networks
The following discussion argues that organizational networks are determined by the relationships within different levels of aggregation. Understanding the network in this way, i.e. distinguishing between different types of relationships, leads to the vertical and the horizontal network illustrated in Figure 1-6.

![Figure 1-6: Vertical and horizontal network perspective](image)

One set of relationships within this conception is defined by *vertical interactions* between the headquarters and the subunits (a ‘star’ network graph or a hierarchy). One set of relationships is defined by the interactions among the *network of subunits* (principally, a ‘complete’ network graph).

This viewpoint has four advantages. First, in contrast to the hierarchical organizational structure, the vertical network on the left additionally respects that manipulating the vertical relationships has an impact on the horizontal relationships. Vertical and horizontal networks are built from the same units. Therefore these two networks, i.e. the relationships, are mutually influencing each other. Hence manipulating the vertical relationships will alter the horizontal relationships in a specific way, and vice versa. Second, in contrast to the hierarchical organization structure, the vertical network reflects all the network entities that matter, regardless of hierarchical levels. Third, in contrast to independent networks, the horizontal network covers the additional relationships among the entities and respects the special role of the headquarters entity. Fourth, this perspective does not measure all the relationships by the
same yardstick; rather, it distinguishes between the different characteristics of relationships according to the two dimensions.

The vertical network addresses, according to Mintzberg (1993), that every organizational activity – from making pots to placing a man on the moon – has to deal with two fundamental issues: how to divide the labour into the various tasks and how to coordinate these tasks toward the accomplishment of the activity. Coordinating the network is primarily the task of the headquarters or parent unit within multiunit organizations. In particular, larger firms are often based on decentralized control and decision making, as, for instance, described by the M-form.\textsuperscript{3}

Coordination along the vertical network can take place by manipulating the input or the output. On the side of input, corporate headquarters can control the resource flows to the individual entities. On the side of output, headquarters may set rewards and objectives.

Within the horizontal network, I argue with Luo et al. (2006), Luo (2004, 2005), Tsai (2002) in that the social structure of this network is determined by competition and cooperation.

Because competition and cooperation are not mutually exclusive and often simultaneously existent, one can speak about a coopetitive nature of the relationships within the horizontal network. This leads to Definition 2.

**Definition 2 (Set-up of intraorganizational coopetition)**

Intraorganizational coopetition is defined by coopetitive relationships. A coopetitive relationship is the situational state, i.e. set-up, between competition and cooperation in the particular context of the relationship between two or more entities within an organizational network.

Definition 2 reflects that intraorganizational coopetitive relationships can be dominated by cooperation or by competition and do not have to represent an equal balance of cooperation and competition (Bengtsson and Kock 2000).

Moreover, coopetitive relationships are bound to the specific context in which they are embedded. Therefore an idealistic equilibrium of cooperation and competition can never be existent without taking into account the specific context. This makes it difficult to generalize this state; that is, the specific set-up of coopetition is the state on the continuum between cooperation and
competition which will lead to a specific outcome in a specific situation. This outcome can significantly differ from the same set-up in another situation.

1.3.2 Research Question

Past organizational research suggested that organizations which attempt to realize economies of scope should focus on collaboration between their subunits, whereas organizations that attempt to realize economic benefits from efficiency within the organizations should focus on competition between their subunits (Hill et al. 1992).

The puzzle of leveraging both economical efficiency and social efficiency at the same time might be solved by the right ‘set-up of coopetition’. In terms of economical efficiency, it might increase efficiency in coordinating the intraorganizational network by competition. In terms of social efficiency, it might help to tap the full potential of the social capital of an organization by cooperation (cf. Wunderer 2006). This idea leads to the following research question underlying the problem of this research:

*Can organizations enhance their performance by encouraging entrepreneurial behaviour through an appropriate set-up of coopetition, and if so, how?*

Following the research philosophy of Ulrich (1984), which is outlined in section 5.1 in detail, the research aims at the development of recommendations for practice, not only theoretical explanations; though the latter provide the foundation for the former. Thus answering the research question comprises two underlying objectives:

- understanding the mechanisms within the organizational network, i.e. explaining the relationship between organizational performance, entrepreneurship and coopetition
- recommending how organizations may be able to leverage the mechanisms that can be found within the relationships
Dissertation Structure

The previously mentioned considerations lead to the following logical flow of the thesis, which shows how this document aims at answering the research question in a logical and comprehensible way (Figure 1-7).

Excluding the appendices, this document is divided into eight chapters. These can be grouped into four blocks: an introduction block, a theory block,
1.3. RESEARCH OBJECTIVES

a practice block and an implication block. The blocks can be found on the left-hand side of the figure. Additionally, the figure shows how the eight chapters build logically on each other.

This chapter builds the introduction block. Chapters 2 and 3 are central to the theory block. Here I systematically provide a theoretical background for coopetition and entrepreneurship. Chapter 4 integrates the considerations in a conceptual framework and develops detailed subquestions. Chapter 5 presents the research design, i.e. how the empirical investigation took place. The following practice block is meant to validate and verify the developed theoretical constructs in practice. Within this block, chapter 6 presents the major results of the case studies that are given in the appendices.

The implication block comprises the discussion of the results and the formulation of a concept which can be used in business practice (chapter 7) and the conclusions of this research project (chapter 8). The contents and outcomes of the particular chapters are summarized in the following paragraphs.

Chapter 1: ‘Introduction’ represents the research motivation: while today’s big corporations have all the resources needed to bring new ideas successfully onto market, compared to small and young firms, they have shortcomings in the flexibility, creativity and organic structures that new ideas and business creation demand. Entrepreneurship is important independently and within organizations. The question is how entrepreneurship takes place within organizations and how one can foster it. The formulated research problem claims a lack in the existing theory in reflecting today’s changed context, i.e. the globalization and decentralization of organizations. To capture this changed context, the research suggests viewing organizations from a network perspective which aims at understanding the impact of the social structure, i.e. coopetition, on intrafirm entrepreneurship and organizational performance.

The outcome of this chapter is a formulation of the objectives of this research and the structure of the remainder of this document, aiming at the presentation of how the objectives were met.
Chapter 2: ‘Coopetition’ presents the approach to the research problem by the concept of syncretic rent seeking. This theoretical perspective is based on firm-specific resources (tangible, intangible, human), game theory and socioeconomics. The concept is transferred to the internal context, and the applicability of this perspective is discussed.

The outcome of this chapter is the establishment of a theoretical basis to understand the research problem and a discussion of how the interorganizational theory could be used to achieve the research objectives.

Chapter 3: ‘Entrepreneurship’ describes and explains how entrepreneurship can be understood within multiunit organizational systems. Drawing on relevant conceptions of (corporate) entrepreneurship, the concept of entrepreneurial orientation is presented as a way to conceptualize the entrepreneurship-performance relationship. Three established process models of entrepreneurship show that entrepreneurship within organizational networks depends on both mechanisms along the vertical network and mechanisms along the horizontal network.

The outcome of this chapter is an approach toward how to understand the interplay of entrepreneurship and performance and how entrepreneurship can be conceptually understood within organizational networks.

Chapter 4: ‘Conceptual Framework’ integrates the preceding discussions into a theoretical model. The framework covers the idea of Bartlett and Ghoshal (1998) that the performance of multiunit organizational systems has two dimensions: (i) the strength of each of the component subunits and (ii) the effectiveness of their integration. Considering further literature, issues (sub-questions to the research question) are developed along the framework and address coordination along the vertical network, coopetition within the horizontal network and the hypothesized interplay of these mechanisms.

The outcome of this chapter is the development of issues along the conceptual framework that are implied either by the suggestions or by a lack of extant literature. These issues demand and direct the empirical investigations.
Chapter 5: ‘Research Design’ presents the research philosophy and approach. The chapter outlines how the empirical data were derived and at which steps the selection of the empirical sources took place. According to the two organizational networks, the investigation is designed as a multilevel approach. As a supplementary source of empirical data, I utilize social network analysis.

The outcome of this chapter is the overview of how the empirical investigation took place, what kinds of data were analysed, how the data were analysed and why the field was entered in this way.

Chapter 6: ‘Empirical Investigations’ presents the aggregated findings from two in-depth case studies, which can be found in appendices B and C. The analytic technique is a cross-case analysis, i.e. matching patterns among the two cases and among the within-case cases of particular subunits of the organizations, respectively. The empirical investigations show that organizational development is a stepwise process that takes place in two phases. These can be explained by the underlying mechanisms of competition and cooperation, and thus by the underlying objective of developing a coopetitive organizational network.

The outcome of this chapter is the presentation of the main empirical findings, a cross-case comparison of the empirical data and validation and verification of some of the investigated constructs by a social network analysis within one case.

Chapter 7: ‘Discussion of Results’ brings together the empirical findings and issues and discusses them against the background of the conceptual framework. Based on the answers to these, the chapter establishes a concept of entrepreneurial coordination. In the second part of the chapter, an internal strategy approach is developed, which transfers Brandenburger and Nalebuff’s concept of ‘co-opetition’ to the intraorganizational context. The main difference of this interorganizational concept is manifested in an additional player in the game – the corporate headquarters.
The outcome of this chapter is a strategic approach to entrepreneurial coordination as a recommendation for practice. However, the concrete implementation and operationalization of the strategy falls outside the scope of this thesis, and thus it remains a recommendation.

Chapter 8: ‘Conclusion’ summarizes the contributions of this research for practice and theory. The practical contributions stem from the recommendations in chapter 7. The theoretical contributions, i.e. contributions to the body of knowledge, stem from understanding and refining the conceptual framework, the issues raised during the theoretical phase and the resulting answers. Together with the limitations of the research project, these provide the basis for further research on ‘entrepreneurship in intraorganizational networks’.

Notes

1 Grant (2008) gives some examples for the different organization models: (i) the European multinational organizations, for instance, are Unilever, Shell, ICI or Philips; (ii) the American international organizations, for instance, are GM, Ford, IBM, Coca-Cola, Caterpillar, Gillette or Procter & Gamble; and (iii) the Japanese global organizations, for instance, are Honda, Toyota, Matsushita, NEC or YKK.

2 When the ‘Europeans’ internationalized their operations in the early twentieth century, they faced poor possibilities for transportation and communication and highly differentiated national markets; that is, each national subsidiary was highly autonomous and operationally self-responsible. When the ‘Americans’ conquered the international markets, though, U.S. economic dominance was the basis for their pre-eminence (Grant 2008). While subsidiaries abroad were allowed considerable autonomy in these companies, the capabilities and resources of their headquarters were the source of international competitive advantages (in terms of U.S.-based new product and process technology, management capabilities, management systems and other resources) (Grant 2008). In contrast to these models, the ‘Japanese’ concentrated their R&D and manufacturing predominantly in Japan. The task of overseas subsidiaries here was sales and distribution. The highly standardized, large-scale products provided the cost and quality advantages which made these companies successful (Grant 2008).

3 Organizational structures that provide decentralized control and decision making are, for instance, featured by the multidivisional form of organization. It describes the decentralization of responsibility to subunits within an organization. This form, induced by internationalization, diversification and growth, is predominantly explained
by TCE. Williamson founded the theoretic rationale of this organizational form and identified the four key strategic advantages of the M-form over the U-form (the unitary form). These are as follows: (i) a better adaptation to bounded rationality, (ii) a better allocation of decision making, (iii) minimizing coordination costs and (iv) avoiding goal conflict.

* * *
Chapter 2

Coopetition

We see a similar bias in the history of evolutionary biology. We tend to focus on competition among genes because we were taught that evolution means the ‘survival of the fittest’. But this misses the way genes act cooperatively to create the organisms that we are. It is, in fact, a cultural mindset.

—Brandenburger (1996)

In their seminal work *Co-opetition*, Brandenburger and Nalebuff (1996) showed how firms can benefit from both competition and cooperation on the external market simultaneously.

*Co-opetition* provides a solution how to overcome the old understanding that cooperation and competition have to be mutually exclusive (Brandenburger and Nalebuff 1996). Though Brandenburger and Nalebuff did not limit their scope to an interorganizational context, the concept of coopetition is predominantly studied in the area of interorganizational relationships.

The central idea of this research is that firms can also benefit from competition and cooperation within their organizational networks. As was argued in section 1.3.1, the organizational network is conceptualized along two relational dimensions: vertical and horizontal. This chapter addresses the horizontal dimension and provides the basis for understanding this network as coopetitive.

At the heart of this idea is the assumption that organizational networks can be conceptually understood as systems of embedded economic entities, i.e. entrepreneurs, within a market-like organizational system. Conceptually,
this allows the application of interorganizational theories to this system (cf. Ghoshal and Bartlett 1990).

By taking the viewpoint of syncretic rent seeking (Lado et al. 1997), I base my theoretical considerations on an eclectic theory which stems from resource-based theory, game theory and socioeconomics. Hence one theoretical contribution of this research is the introduction of this concept to the intraorganizational domain. However, the considerations stem from interorganizational theory. Therefore one has to be careful to draw conclusions for an intraorganizational setting.

The chapter starts with an outline of the general mindset of coopetition. This is followed by an outline of the concept of syncretic rent-seeking behaviour and its underlying theoretical conceptions. The concept addresses firm behaviour, i.e. it is oriented toward the external environment of organizations. The concept is discussed against the background of internal competition and cooperation to come to a typology of intraorganizational coopetition. In detail, the contents of this chapter are as follows:

Overview Chapter 2

2.1 Mindset of Coopetition .................................. 29
2.2 Understanding Coopetition ............................... 30
   2.2.1 Concept of Strategic Rent Seeking ................. 30
   2.2.2 Syncretic Model of Strategic Rent Seeking ...... 40
2.3 Coopetition within the Network ......................... 42
   2.3.1 Content of Coopetition ............................. 43
   2.3.2 Typology of Coopetition ........................... 45
Conclusion ...................................................... 47
2.1 Mindset of Coopetition

The central message of Brandenburger and Nalebuff’s (1996) *Co-opetition* is to recognize and leverage the competitive-cooperative duality underlying business relationships. They argue that in doing so, companies are able to simultaneously leverage the benefits of competing and cooperating with all the business players simultaneously. Thus the concept extends Porter’s (1980) five forces framework, which focuses on competition.

By consulting game theory, Brandenburger and Nalebuff (1996, p. xiii) developed a strategy which, in their words,

> offers a theory of value. It’s … about creating value and capturing value … Whereas creating value is an inherently cooperative process, capturing value is inherently competitive.

With this statement, they revealed the fundamental duality coopetition is about: *creating and capturing value*. And so is entrepreneurship, which also is a theory of value creation. Schumpeter comprehends the entrepreneur as a person who recognizes the value of inventions or opportunities and determines how to implement them in the market and thereby transform them into successful innovation. To put it differently, an entrepreneur deals with creating and capturing value, i.e. he should consider coopetition.

The authors argue that by pursuing a coopetitive strategy, every player can create value for himself as well as for the others within the value net of business (Brandenburger and Nalebuff 1996). For instance, a firm can pursue a cooperative strategy to establish a new market or business, and once this market is created, it can follow a competitive strategy to get the most of it.

The central idea is that of an overall business pie: each player within the game gets an individual wedge out of the business. In sum, these individual shares result in a common pie. Doing business consists of cooperation to create the pie and turns to competition for dividing it up. The *overall pie can be increased* by every player, i.e. the overall value of the business is not fixed, which is routed in the assumption that business is a *non-zero-sum game*. 

2.2 Understanding Coopetition

A concept through which to understand coopetition is *syncreric rent-seeking behaviour*. The central idea is that economic actors can realize economic rents through simultaneous competition and cooperation; and even more important, those economic rents are higher than for either cooperative or competitive behaviour alone (Lado et al. 1997).

2.2.1 Concept of Strategic Rent Seeking

Three theoretical perspectives – resource-based theory, game theory and socioeconomics – build the theoretical foundation for strategic rent seeking (Lado et al. 1997): (i) resource-based theory focuses on the antecedents of rent seeking, (ii) game theory explains rent-seeking behaviours and (iii) socioeconomics addresses the consequences of rent-seeking behaviour. (Figure 2-1).

![Figure 2-1: Theoretical perspectives on strategic rent seeking](image)

The model focuses on the *behavioural*, rather than the *structural*, dimensions of cooperation and competition. In that, it addresses the potential of strategic behaviours of *firms* to generate economic rents (Lado et al. 1997). The contributions of the individual theories are given in Table 2-1.
Table 2-1: Theoretical foci of strategic rent-seeking behaviour

<table>
<thead>
<tr>
<th>Line of inquiry</th>
<th>Antecedents</th>
<th>Behaviour</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key research question</strong></td>
<td>What drives the strategic rent-seeking behaviour of organizational entities?</td>
<td>How do entities behave toward others within the organizational network?</td>
<td>What outcomes accrue from inter-entity relationships?</td>
</tr>
<tr>
<td><strong>Perspective</strong></td>
<td>resource-based theory</td>
<td>game theory</td>
<td>socioeconomics</td>
</tr>
<tr>
<td><strong>Key contribution</strong></td>
<td>importance of idiosyncratic organizational competences for explaining the formation of intra-organizational competition and cooperation</td>
<td>distribution of the ‘economic pie’, i.e. the organization’s added value among the organizational entities</td>
<td>importance of socioeconomic outcomes; ethical/moral performance of the organizational network</td>
</tr>
<tr>
<td><strong>Main concepts</strong></td>
<td>resource heterogeneity</td>
<td>patterns of pay-offs</td>
<td>multiple utilities</td>
</tr>
<tr>
<td></td>
<td>imperfect imitability</td>
<td>mutual/unilateral cooperation</td>
<td>balancing self-interest and group (collective) interest</td>
</tr>
<tr>
<td></td>
<td>causal ambiguity</td>
<td>mutual/unilateral competition</td>
<td>social embeddedness</td>
</tr>
<tr>
<td></td>
<td>leveraging invisible assets</td>
<td>shadow of the future</td>
<td>bounded rationality/emotionality</td>
</tr>
<tr>
<td></td>
<td>dynamic capabilities</td>
<td>tit-for-tat strategies</td>
<td></td>
</tr>
</tbody>
</table>

*Original list (not extended)
Not all the elements of the concept could be transferred to the research problem, and others had to be supplemented. The following sections address how the three theories contribute to the problem underlying *this research*. This aims at developing an explanation of internal rent-seeking behaviour.

I will use this model to understand coopetition within the organization. Moreover, I complement the concept with recent considerations about the relevant theories. Lado et al. (1997) used the original concept to develop propositions for organizational competences, directed to the external environment.

**Contribution of the resource-based theory**

The resource-based view (RBV) of the firm focuses on the analysis of firm-specific resources and capabilities; it brings the firm’s resources and capabilities into focus for the question of how firms achieve competitive advantage. The fundamental principle is that the competitive advantage and performance of a firm are based on its resources or resource access. The RBV stems from the fundamental considerations of Penrose (1959).

Resource-based theories argue that organizational strategies have to be determined by a firm’s internal resources (Barney 1991, Grant 1991). In contrast to the market-based view (Porter 1980), it shifts the perspective on strategy elaboration from the external environment toward the internal environment of the firm. However, the theory can be seen as complementary to Porter’s theory in the fact that the competition in the market can also be understood as a competition for the resource positions of firms, meaning that the competitive advantage is located upstream of product markets, based on a firm’s *idiosyncratic* and *difficult to imitate resources*.

**The firm’s resources** Strategies stemming from this view target resources that are heterogeneous, unique and rare in nature, not perfectly mobile, transferable or strategically substitutable (Barney 1991, Hamel and Prahalad 1994, Peteraf 1993). These resources can be translated into a firm’s value that is neither perfectly imitable nor substitutable (Barney and Arikan 2001). Grant (2008, p. 131) classifies the relevant resources as tangible, intangible and human:
Tangible resources are the physical resources (plants, land, equipment, etc.) or financial assets (cash, securities, etc.) that can be seen in the firm’s financial statements or book values. The basic question of strategic management here is how to create additional value from them. These questions may include, what opportunities exist for economizing on their use? What are the possibilities for employing existing assets more profitably? (Grant 2008, p. 132).

Intangible resources are the invisible resources a firm owns. They are often more valuable than tangible resources (because they cannot be substituted that easily). A prominent example of an intangible resource is a firm’s reputation (e.g. brands, relationships, etc.) or a firm’s technologies (e.g. evaluated by patents, copyrights, trademarks, etc.), i.e. a firm’s intellectual property. Another important intangible resource is a firm’s culture or a firm’s knowledge, which builds the basis for knowledge-based theories.¹

Human resources represent the skills, knowledge, motivation, learning capacities, potential for collaboration and so on of an organization’s employees. Like tangible resources, they do not appear in balance sheets due to the fact that people are not owned by the firm – their services are offered by an employment contract (Grant 2008). In this context, a common economic problem (in contract theory) is that contracts generally can never be complete (e.g. Hart 1995).

In this way, the theory explains the competitive advantage of a firm by its pooled valuable resources. Consequently, strategic advantages can be reached by firms if they own more resources and/or utilize these resources more efficiently than their competitors. Therefore successful strategies, based on the RBV, target sourcing different kinds of valuable resources from the inside and outside.

The firm’s capabilities However, resources themselves are not sufficient for competitive advantage; an organization needs capabilities, which describe how they act on these resources. In this understanding, resources are the productive
assets the firm possesses; capabilities are what the firm is actually able to do (Grant 2008).

Capabilities can be defined in terms of resources and result from interactions and coordination between the resources (organizational routines).

Thus capabilities are the real source of superior performance. This means that superior performance depends not only on the size of a firm’s resource base, but also on the firm’s ability to leverage its resources (Hamel and Prahalad 1994), i.e. concentrating, accumulating, complementing and/or conserving resources (Grant 2008).

Hence a strategic objective is the creation and exploitation of core capabilities or the acquisition of additional resources. Core capabilities refer to the capabilities needed for the firm’s core competitive strategy (Prahalad and Hamel 1990). Therefore core capabilities are associated with the firm’s business. Following this, firms are also interpreted as bundles of resources that build up organizational capabilities or core competences (Hamel and Prahalad 1994). The idea is to identify key competences and capabilities and develop them toward a more efficient utilization (Conner 1991, Eisenhardt and Schoonhoven 1996).

Schulze (1992) differentiated the development of economic rents from the RBV in a ‘weak form’ and a ‘strong form’. The strong form is more concerned with the establishment of sustainable economic rents, rather than with the creation of new capabilities. The weak form targets the dynamic creation of new capabilities.

It accounts for the need that organizational capabilities can (and should) change over time, as today’s dynamic markets do. This led to the development of the concept of dynamic capabilities (DC) within recent years (Eisenhardt and Martin 2000, Teece et al. 1997), which can explain how organizations adapt their capabilities in an ongoing dynamic environment.

**Dynamic capabilities (DC)** Teece et al. (1997) defined DC as the ability of a firm to reconfigure, integrate and build internal as well as external competences to address rapidly changing environments. Though there is little consensus about what DC actually are, they are accepted as the foundation
for sustainable competitive advantages in today’s dynamic markets. Generally, this view predicts that the resources and capabilities of a firm are not static, but should be creatively reorganized and continuously improved to take an organization on to higher levels of competitiveness. Therefore substantive capabilities can be distinguished from DC, in the understanding of DC as a (Zahra et al. 2006, p. 921)

*dynamic ability to change or reconfigure existing substantive capabilities.* Thus the qualifier ‘dynamic’ distinguishes one type of ability (e.g. the ability to develop products) from another type of ability (e.g. the ability to reform the way firms develops new products). A new routine for product development is a new substantive capability but the ability to change such capabilities are dynamic capabilities.

With this way of putting DC on a higher level than substantive capabilities, the authors’ formulation fundamentally differs from the definition of Eisenhardt and Martin (2000), who defined dynamic capabilities as the routines a firm uses to reconfigure its resources, which includes R&D, new product development and acquisitions of new capabilities. These capabilities are superior to substantive capabilities because they explain how to alter existing resources and capabilities continually, i.e. in a dynamic way.

Targeting the development of a synthesis among RBV and DCV, Makadok (2001) builds upon two fundamental theories that explain the development of competitive advantage. First, he suggests that firms achieve superior performance by selecting superior resources (resource picking), which is based on the fundamentals of Ricardo (1817). Second, firms create economic rents through a more effective deployment of resources than competitors (capability building), which stems from Schumpeter (1942). Here, especially, the weak form of resource-based theory, which implicated the DCV, can explain how and why firms compete and cooperate at the same time to develop their resource bases.

**Contribution of game theory**

Game theory is the second conceptual basis for rent creation through simultaneous cooperation and competition (Lado et al. 1997).² Principally, a game consists of a set of players, a set of strategies for each player and a set of pay-offs
for each player for each possible configuration of strategies. Game theory can explain behaviour in strategic situations. Particularly, game theory helps to understand situations where one’s own choices depend on the choices of others. Game theory takes a different perspective on the things that are going on in the world. Particularly, it comprehends nothing as fixed. Moreover, it understands the economic environment as dynamic and always evolving. Therefore it is crucial to focus on others, or on ‘putting yourself in the shoes of the other players’, and therefore try to consider all possible reactions to their reactions.

Game theory, in large part, is based on the concepts of rational choice theory; that is, every player intends to maximize his individual value – each player faces the problem of maximizing his own objective profit function, where the contained variables are not exclusively controlled by the player. For instance, if two or more economic actors exchange goods among each other, the result (or pay-off) for each one depends on his own actions and on the actions of the ‘others’. Therefore each player has to consider the actions of others – no action is really independent from others. Consequently, a game is really a mixture of several – to some extent conflicting – maximization problems.

Due to the assumption that economic actors are opportunistic and self-interested, a player will select a particular strategy from a set of alternatives which will satisfy most comprehensively his own goals (Jost 2001). Therefore it is unimportant which goals a player pursues; he will choose the best action according to the constraints he is faced with. To model the constraints of a specific situation, game theory makes assumptions about individuals’ preferences for particular actions. Such preference or utility functions are called pay-off functions; that is, given the pay-off function $u(.)$, a player will choose $a_1$ in favour of $a_2$, if $u(a_1) > u(a_2)$. These functions are assumed to be ‘complete’ and ‘transitive’.

Fundamental to syncretic rent-seeking behaviour, i.e. coopetition, is the understanding of business as a non-zero-sum game; that is, in contrast to zero-sum games (where the sum of the individual pay-offs for every strategy combination equals zero, and hence only one player can be the winner of a round), there exist ‘win-win’ and ‘lose-lose’ outcomes. That is, if one player wins, the other player(s) do not have to lose.
Strategic moves in games can be made either *simultaneously* (as described previously) or *sequentially* (as, for instance, in chess). From the theoretical viewpoint, this distinction is not about time, but about information. In particular, it is about the information available to a player when he decides about his move. In a sequential game, the player is aware about the other player’s move; in a simultaneous game, the players do not know their counterparts’ strategy (to this point). Furthermore, one can distinguish between *cooperative games* and *noncooperative games*. Cooperative games refer to situations where players are able to conclude an agreement, which can explain cooperation. In noncooperative games, cooperation can be exclusively explained by the *rational behaviour* of the players.

Often games are presented by a tableau of two players. Here all available strategies for the two players can be illustrated so that all strategy combinations are visible. The reduction to two actors does not have to be restrictive for the explanation of a situation. One can assume, for instance, that all the other players are represented by player B, while player A is in focus. Players can choose a particular strategy from a set of available strategies within the tableau. The following tableau reflects a situation where two players (players A and B) have a set of the two available strategies. Player A chooses from the set of rows, i.e. \{upper;lower\}, and player B chooses from the set of columns, i.e. \{left;right\}, with the corresponding pay-offs ([pay-off for A], [pay-off for B]). The following tableau is an example:

\[
\begin{array}{c|cc}
 & \text{Player A} & \\
\hline
\text{Player B} & 1 & 2 \\
1 & (1,1) & (-1,2) \\
2 & (2,-1) & (0,0) \\
\end{array}
\]

This game represents the famous ‘prisoner’s dilemma’, whereby, \(1 = \text{‘cooperate’}\) and \(2 = \text{‘defect’}\). As described by Schelling (2006, p. 216), the structure of this game can be described as follows:

(i) ‘Each player has an unconditional preference: the same choice is preferred, irrespective of which choice the other player makes’.

\[
\begin{array}{c|cc}
 & \text{Player A} & \\
\hline
\text{Player B} & 1 & 2 \\
1 & (1,1) & (-1,2) \\
2 & (2,-1) & (0,0) \\
\end{array}
\]
(ii) ‘Each player has an unconditional preference with respect to the other’s choice: this preference for the other person’s action is unaffected by the choice one makes for oneself’.

(iii) ‘These two preferences go in opposite directions: the choice that each prefers to make is not the choice he prefers the other to make’.

(iv) ‘The strengths of these preferences are such that both are better off making their unpreferred choices than if both make their preferred choices’.

This means that player A prefers $y$ because it is the dominant strategy (it is better for either choice of player B). For reasons of symmetry, this is true for player B as well, which leads to his preferred choice of $y$. In this case, both get zero, which represents the equilibrium solution of this game (the Nash equilibrium, cf. Nash 1950, 1996, Rasmusen 2006).

The equilibrium solution of this game can be labelled pareto-suboptimal; that is, the rational choice of the two players leads to (0,0), even though each player’s individual pay-off would be greater if they both would play $x$; that is, rational, self-interested strategies result in both players being worse off than if they would both choose $x$ because in a non-zero-sum game, a Nash equilibrium need not be pareto-optimal. However, if both players make their unpreferred choice instead, they both get 1. Again, from this situation, each player could gain an additional point, at a cost of two points to the other player, by switching back to the preceding row. In terms of pay-off, this means getting from (1,1) to (2,–1) or (–1,2), respectively. The paradox of the situation lies in the fact that the players are playing $y$ in hope that the other will not (even if they both know the other to be rational and selfish).

Axelrod (1984) showed, in his seminal work The Evolution of Cooperation, that such a situation, primarily driven by competition, could be turned into a cooperative situation even among self-interested players by turning this single game into a repeated version. Considering different rounds of the game reveals that if players play the strategy ‘tit-for-tat’ (rewarding or punishing prior moves of the other player), they are likely to end up repeatedly in win-win (both playing $x$). In doing so, players will come up in a win-win situation driven purely by self-interest.
With this, game theory can explain how economic actors (entire organizations or entrepreneurial entities within an organization) are able to achieve economic rents by focusing on the strategic moves of other players within the game, rather than focusing solely on one’s own strategic position. Albeit very insightful, game theory is often criticized because formulations see opportunism as vital to explaining relationships (Lado et al. 1997).

**Contribution of socioeconomics**

Lado et al. (1997) put forward *socioeconomics* as a third theoretical pillar of the syncretic rent-seeking model. Socioeconomics explains that competitive advantages stem from allocating resources strategically on the basis of bounded rationality (Simon 1976) and bounded emotionality (Mumby and Putnam 1992).

It is based on the core assumptions of Etzioni (1990), who placed socioeconomics in contrast to neoclassical economics. At its core, the concept refers to the assumption that humans seek not to maximize one single utility function, but multiple utility functions. This is based on a cost-benefit analysis and on moral sentiments, respectively (Frank 1988).

Furthermore, socioeconomics refers, like the fundamental understanding of this research, to the concept of embeddedness of social action (Granovetter 1985, 2005). Because the actions are never really independent, they impact both individual and collective outcomes, i.e.

> decisions and actions are directed at enhancing both one’s self-interest and the collective (or group) interest (Margolis 1982).

This can explain why economic actors (entire organizations or entrepreneurial entities within an organization) seek competitive and collaborative advantages simultaneously (Lado et al. 1997). In that, cooperation and/or competition can be advantageous for the individual player as well as for the collective system; that is, considerations about cooperative and competitive strategies have to respect the level of the component entities and the collective level of the entire system of these entities.
2.2.2 Syncretic Model of Strategic Rent Seeking

Lado et al. (1997) arrayed the conceivable rent-seeking behaviours into two distinct but interrelated continua, along the intensities of competition and cooperation, respectively (Figure 2-2).

![Figure 2-2: Syncretic model of strategic rent-seeking behaviour](Source: Adapted from Lado et al. (1997, p. 119))

The categories from low to high reflect *degrees of interdependence*, rather than the presence or absence of competition or cooperation (Lado et al. 1997, p. 118). The model focuses on the strategic behaviours of firms in cooperative and/or competitive relationships and on the contribution of these behaviours to the creation of economic rents.

The quintessence of the model is that the *syncretism between cooperation and competition* allows firms to achieve greater knowledge development and greater entrepreneurial and technological progress compared to either cooperating or competing as exclusive strategies. The different rent-seeking behaviours are outlined in the following paragraphs and are supplemented by a brief thought about the intraorganizational effect of the particular behavioural posture.
2.2. UNDERSTANDING COOPETITION

*Competitive rent-seeking behaviour* describes low cooperation and high competition. Here competition stimulates Schumpeter’s process of creative destruction and therefore creates entrepreneurial rents (Lado et al. 1997). This involves renewing the organization itself in the meaning of dynamic capabilities (Nelson 1991). Furthermore, competitive rent-seeking behaviour increases efficiency by the reduction of transaction costs. However, the underlying perception is a zero-sum game, i.e. one player’s wins are the other players’ losses. Therefore competitive rent-seeking behaviour is characterized by either opportunism or the creation of barriers around an organization’s core competences (Williamson 1985).

Within a firm, this does not meet the objective of collective capability development. In terms of entrepreneurship, entities may be blind toward the positive-sum opportunities that exist among them, thus missing their benefits through effective collaboration.

*Monopolistic rent-seeking behaviour* describes low cooperation and low competition. From the viewpoint of firm behaviour, firms applying this kind of behaviour seek monopoly rents by lobbying government(s) to enact policies and regulations to hinder potential new competitors entering their own market (Lado et al. 1997). This behaviour is more short term oriented and will reduce the welfare of the entire system in the long term, and thus it does not represent a ‘sufficient condition for sustained business performance’ (Lado et al. 1997, p. 120). Within an organization, the ‘entire system’ represents the organization itself, and hence this will not provide a preferred strategy.

Intraorganizational monopolistic rent-seeking behaviour might result from a hierarchical organizational structure. Here ‘social dilemmas’ might imply the threat of *cheating* (Osterloh et al. 2002). The vertical relations are the most important here.

*Collaborative rent-seeking behaviour* is characterized by high cooperation and low competition. Firms applying this kind of rent-seeking behaviour target win-win situations by pooling complementary resources and capabilities. This kind of behaviour is characterized by a long-term strategic posture
and is dependent on building trust between partners. To a certain degree, it neglects the risk of opportunistic behaviour as considered by game theory and transaction cost economics. Additionally, collaborative rent-seeking behaviour might induce strategic inflexibility by dependencies of the partner(s).

From an intraorganizational perspective, the threat of collaborative rent-seeking behaviour might be *shirking* (in game theory, this problem is called the ‘free rider problem’) because this viewpoint neglects the risk of opportunistic and selfish players within the game (Osterloh et al. 2002).

*Syncretic rent-seeking behaviour* describes the ‘strategic orientation to achieve a dynamic balance (or syncretism) between competitive and cooperative strategies’ (Lado et al. 1997, p. 122). In this context, cooperation can enhance the competitive position of firms, and competition might stimulate innovation within firms. Thus syncretic rent seeking points out the positive-sum and efficiency-enhancing aspects of both competition and cooperation (Lado et al. 1997). Furthermore, syncretic rent-seeking behaviours provide firms with enhanced efficiency through the use of a wide variety of resources, tangible, intangible and human, and by leveraging the relationships of all the players within the game – customers, suppliers, competitors and providers of complementary products and services (Brandenburger and Nalebuff 1995, 1996). However, syncretic rent seeking also has limitations. These are rooted in the costs and complexity of establishing and maintaining all the possible interdependencies (Lado et al. 1997).

Within the firm, syncretic rent seeking, therefore, has to be concerned about how to maintain all the interdependencies within the organizational network, whilst leveraging the advantages from competition within the system.

### 2.3 Coopetition within the Network

On the basis of the concept of syncretic rent-seeking behaviour, the idea of intraorganizational coopetition is that by leveraging both the mechanisms of competition and the mechanisms of cooperation, an organization can develop
an entrepreneurial network and therefore can achieve and sustain superior performance.

### 2.3.1 Content of Coopetition

To understand coopetition within the organizational network, one has to consider in which areas organizational units might cooperate and compete. The following sections outline

- the dimensions, i.e. the content, of competition
- the dimensions, i.e. the content, of cooperation

#### Content of competition

Competition within the same organization can be categorized by the area’s market expansion, parent resources, parent support and system position (Luo 2005). The following paragraphs outline how this research understands these dimensions of *competition*.

*Market expansion*, i.e. common sales interests or activities in common markets, which often stem from a (technological) overlap in products or services offered. In the abstract, this expresses an overlap in products or services offered by the entities. Here the theoretical definition of intraorganizational competition is ‘parallel or overlapping activities inside the boundaries of the firm’ (Birkinshaw 2001, p. 22), which can arise between two or more business units which offer the same product or technology on the same market.

*Parent resources*, i.e. competition for resources that are distributed from the headquarters. Competing for *parent resources* aims at reducing the units’ dependence on indigenous resources or an increase of their competitive strengths in a local market (Luo 2005). These resources may be technology, equipment, key talents, capital, supplies and/or know-how (Birkinshaw and Morrison 1995, Luo 2005).

*Parent support*, i.e. using different services from headquarters. This can be seen as a specific form of resource competition and targets the use of ex-
erts, expatriates or specialists, maintenance and engineering or logistics and distribution support from the headquarters.

*System position*, i.e. improving the strategic role of the organization’s entire system by capturing a ‘central position’ in the organization network. This might be a value chain position, knowledge flow position, competence excellence position or influencing power position (Frost et al. 2002).

**Content of cooperation**

Intraorganizational cooperation can be categorized into four specific areas; that is, organizational units compete about technological, operational, organizational and financial resources (Luo 2005). The following paragraphs outline how this research understands these dimensions of *cooperation*.

*Technological cooperation*, i.e. sharing knowledge on product/process innovation and conducting collaborative product development projects. This type of cooperation can be planned by the corporate headquarters or on the basis of interunit contracts (Ghoshal and Bartlett 1990, Tsai 2001, Zander and Kogut 1995).

*Operational cooperation*, i.e. sharing and exploiting operational resources and developing mutual capabilities. It comprises the use of common distribution channels, common supply bases, quality control programs and so on (Gupta and Govindarajan 1986, Kogut and Zander 1996).

*Organizational cooperation*, i.e. sharing, developing and exploiting management experience and organizational capabilities. It addresses the development, transfer and sharing of managerial knowledge (Kostova 1999, Kostova and Roth 2003, Szulanski 1996).

*Financial cooperation*, i.e. financing/internal financial initiatives (including currency swaps and transfer pricing). It addresses the transfer of financial capital among the units.

The preceding dimensions represent *possibilities* of competition and cooperation within organizational networks. In the first place, this does not mean
that all these possibilities must be present within an organizational network, nor that organizational units seize these possibilities (cf. the discussion about the existence of network links in section 1.3.1). However, the areas represent a way of characterizing competition and cooperation within the network.

2.3.2 Typology of Coopetition

As was argued in chapter 1, similar to the external business environment, competition and cooperation might also not occur in pure forms. It is more a question of the intensities of competitive versus cooperative behaviours. Thus, similar to the model of syncretic rent-seeking behaviour, one might categorize the subunits within an organization along the dimensions of competition and cooperation.

In this manner, Luo (2005) classified the roles subunits take within multinational enterprises as silent implementer, ardent contributor, aggressive demander and network captain. In the following paragraphs, I briefly outline the characteristics of these roles relevant for entrepreneurship.

The silent implementer (low competition/low cooperation) is characterized as an autonomous entity which has low levels of proactiveness. Usually, silent implementers operate relatively isolated within a rather unimportant market for the organization. These entities do not have to cooperate or compete with other entities for resources on the market or about their position. The innovativeness of these units is not expected to be very high because they are considered to execute projects from the headquarters; that is, the vertical network might be predominantly important for these units.

The aggressive demander (high competition/low cooperation) has a competitive attitude toward resources and support from the headquarters, with high competition and low cooperation with the other units. Often such units operate in important or promising markets or with important technologies. Following Luo, two situations justify aggressive demanders. First, the development of competitive advantage in the particular market demands localized competences and capabilities (requires strong parent support and fewer horizontal connections). Second, the particular unit may
take an important leadership role in a technology or competence that might be used later in a niche market.

*The ardent contributor* (low competition/high cooperation) has many resources and capabilities that are shared and deployed by other units. Due to their outstanding resource and network position, they do not need to compete with others for support or resources from the headquarters. Often they are centres of excellence for a specific technology or organizational or operational resource or capability. This unit’s distinctive set of capabilities has been recognized throughout the whole organization as an important source for creating value, in terms of leveraging the capabilities of organizational partners (Frost et al. 2002). Such units have a global mandate or responsibility in their specific area of expertise (e.g. a specific technology).

*The network captain* (high competition/high cooperation) possesses, on one hand, many distinctive resources and capabilities that are shared with the horizontal partners, and takes a leadership role in developing these technologies. Often such units operate in an important market or product area. Such units have high distinctive competences but cannot act in isolation to transform them into competitive advantage. Therefore cooperation takes place bilaterally along the horizontal network, in terms of resource and knowledge sharing. Such entities contribute to both objectives of local responsiveness and global integration, which is achieved with high levels of coordination. On the other hand, these units are still in competition along the horizontal network for parent resources or support, their system position or the external market. These units are very competent in their specific area of expertise but cannot act autonomously – they are still dependent on the organizational network.

To sum up, one might find *strategic rent-seeking behaviours also within organizations*. Leveraging both competition and cooperation might bear competitive advantages for organizational units as well as for the entire organizational network.
Conclusion

In this chapter, it was argued that a dynamic balance between competition and cooperation is expected to create *superior performance* over competition and cooperation alone. Syncretic rent-seeking behaviour might explain how organizations can leverage competition and cooperation simultaneously. However, syncretic rent seeking represents a theory directed toward the interorganizational environment.

The viewpoint of this research, of organizations as nested systems of embedded entrepreneurs, makes an application of this model suitable to the research problem, i.e. the intraorganizational context.

It was outlined that organizational subunits can benefit from both competition and cooperation with their peer units. With this, the organizational network not only represents a constraint for the embedded entrepreneurs, but also a distinctive advantage. Whereas the corporate strategy limits the entrepreneurial freedom of the units to some extent, it is, on the other hand, easier for them to access additional resources and capabilities within their corporate network.

The next chapter focuses on how entrepreneurship can be understood within organizational networks and how it might be connected to coopetition.

Notes

1 The knowledge-based view (KBV) can be interpreted as a particular subform of the RBV (cf. Davenport and Prusak 1998, Leonard-Barton 1998). The KBV predominantly deals with the resource ‘knowledge’. This resource has unique characteristics ahead of all the other resources: (i) it is inexhaustible, i.e. it cannot be used up and (ii) it is additive, i.e. it will not be divided, but added up, if shared. This makes knowledge an important predictor for *cooperation*. In knowledge-based theories of the firm, the knowledge captured within an organization represents the strategic resource that creates sustainable competitive advantage (Conner and Prahalad 1996, Davenport and Prusak 2000, Grant 1996, Spender 1996). Kogut (2000) stated that organizations are a repository of knowledge. Felin and Hesterly (2007) argued that knowledge-based theory and research has to start with individuals, rather than on a collective level, to understand new value creation induced by knowledge. Indeed, tacit
knowledge (the knowledge stored within the people’s heads, i.e. part of the human capital) is the real source of competitive advantage. Therefore Drucker (1967, 1985) states the importance of the ‘knowledge worker’, who combines resource knowledge via Schumpeter’s entrepreneurial process of creative destruction to create new value. The value of intangible resources is hard to calculate, even though this makes them one of the most valuable resources.

2 Economic game theory is founded on the theories of von Neumann and Morgenstern (1944).

3 Completeness refers to the assumption that all actions can be ranked in an order of preference (indifference possible). Transitivity means that if action $a_1$ is preferred to $a_2$, and action $a_2$ is preferred to $a_3$, then $a_1$ is preferred to $a_3$.

* * *
Chapter 3

Entrepreneurship

Entrepreneurship is based on the same principles, whether the entrepreneur is an existing large institution or an individual starting his or her new venture singlehanded. [...] The rules are pretty much the same, the things that work and those that don’t are pretty much the same, and so are the kinds of innovation and where to look for them. In every case there is a discipline we might call Entrepreneurial Management. Yet the existing business faces different problems, limitations and constraints from the solo entrepreneur.

—Drucker (1985, p. 131)

This research focuses on entrepreneurship within intraorganizational networks. In this context, the chapter addresses the question of how entrepreneurship might take place within the organizational network.

Entrepreneurship is more than just innovation; it additionally includes (Birkinshaw 2000, p. 17) ‘a predisposition towards proactive and risk taking behaviour; use of resources beyond the individual’s direct control; or a ‘clear departure from existing practices’ (Damanpour 1991, Miller 1983, Stevenson and Jarillo 1990).

Central to entrepreneurship is the entrepreneur. Schumpeter comprehends the entrepreneur as a person who drives the process of ‘creative destruction’; that is, the entrepreneur recognizes the value of business opportunities (e.g. in the form of inventions), determines how to implement them toward the market, and turns them into successful innovation. In other words, an entrepreneur is
a person whose merit is not limited to inventions and good ideas, but who also brings them as profitable products to the market (Schumpeter 1939, p. 129).

Entrepreneurs combine previously separated resources to seize business opportunities (Schumpeter 1934). These resources can be located within or outside organizations. Within organizations, opportunities can be affiliated with a single organizational unit or across several organizations’ units; that is, entrepreneurial opportunities can be seized within and between the network entities. The latter suggests cooperation as an important feature within the organizational network.

As outlined in the subsequent overview, the chapter starts with establishing a general understanding of entrepreneurship. Here the basic entrepreneurial process, the objectives of corporate entrepreneurship, and two specific forms of corporate entrepreneurship are outlined in detail. This leads to the concepts of entrepreneurial management and entrepreneurial orientation. To understand how entrepreneurship takes place within established multiunit organizations – especially in the context of organizational networks – three process models of entrepreneurship are reviewed. In detail, the contents of this chapter are as follows:

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3.1 Mindset of Entrepreneurship

The definitions for entrepreneurship, especially at the firm level, vary greatly. For this research, I adopt a rather open definition, coined by Stevenson and Jarillo (1990, p. 23):

entrepreneurship is a process by which individuals – either on their own or inside organizations – pursue opportunities without regard to the resources they currently control (Stevenson et al. 1989).

Entrepreneurship – no matter if independent or within organizations – drives innovation and change. It generates economic growth through the process of creative destruction, which is the process by which different resources are combined for new value creation (Schumpeter 1934).

The entrepreneurial process is characterized by an interaction between individual, organization and environment (cf. Sathe 1989). Models presented by Gartner (1985), Bird (1988) and Greenberger and Sexton (1988) follow the idea of the interaction between environment and individual; that is, the entrepreneur faces particular environmental conditions, which have particular consequences for entrepreneurial behaviour.

Following Schumpeter, the entrepreneurial process follows the three phases of invention, innovation and diffusion (Arthur 2007). This denotes mechanisms that concern the generation and evaluation of ideas, the selection of promising ones, and the implementation of them into innovations and/or profitable products (Burgelman and Sayles 1985, Covin and Slevin 1991). Figure 3-1 visualizes this understanding by focusing on the two major steps in the entrepreneurial process: exploration and exploitation of business opportunities.

That is, supporting or encouraging entrepreneurship demands supporting (i) the generation and selection of promising ideas and (ii) the implementation of these inventions into innovation and profitable products (cf. Bird 1988, Hayton and Kelley 2006, Hisrich and Peters 1986, Hitt et al. 1999, Jones 2005, Olson 1985). The presence of ‘something new’ or ‘innovative’ as an outcome of this process is of central concern. Moreover, the processes can be understood in terms of an entrepreneurial initiative, which is the execution of an
entrepreneurial process in terms of opportunity identification and exploitation (Birkinshaw 2000).²

The process starts with recognizing a market opportunity (this can be an invention, a technological novelty, etc.). These business ‘opportunities’ trigger the exploration step of entrepreneurship. The opportunity recognition itself can be triggered by various ‘precipitating events’ (Hornsby et al. 1993). These events initiate the process on the individual level by triggering the ‘decision to act entrepreneurially’.³ As illustrated in Figure 3-1, the opportunity, i.e. the triggering event, can stem from the outside of the organizational boundary (environmental context) or from the inside of the organization (individual and organizational context).

Exploiting the opportunity, i.e. recognizing the market value of inventions and the market demand for innovations (commercialized new technologies, a new process, etc.), respectively, is the second major step within the entrepreneurial process. Consequently, entrepreneurship research also deals with the process of turning opportunities or individual ideas into successful innovation (Antoncic 2001, Burgelman 1983b, Chung and Gibbons 1997, Dess and Rasheed 1991, Hornsby et al. 1993, Russell 1999, Uittenbogaard et al. 2005). This process, again, is dependent on the resources involved in it, especially the human resources (Endler 1983, Potkay and Allen 1986); that is, involved individuals are crucial for the success of this process (Gartner 1988).
The process is driven by an entrepreneur. His skills, competences and motivation represent the individual context. The organizational context can be understood as an organization’s strategy, structure and culture. The environmental context, for instance, can be the market within which a firm operates. For the intraorganizational problem of this research, the organization itself constitutes one element of the environmental context (viewpoint of the entrepreneurial subunits).

3.2 Understanding Entrepreneurship

Intrafirm entrepreneurship is not a new topic in management research. Peterson and Berger (1971) studied this phenomenon almost four decades ago. Several special issues of major academic management journals have dealt with entrepreneurship and, particularly, with intrafirm entrepreneurship. This section develops an understanding of entrepreneurship in intraorganizational networks by outlining

- the basic forms of firm-level entrepreneurship and
- the entrepreneurship-performance relationship via the concept of entrepreneurial orientation.

3.2.1 Forms of Corporate Entrepreneurship

A possible differentiator between forms of internal entrepreneurship, i.e. how firms embed the entrepreneurial process into their organization, is in separating between focused and dispersed forms (Birkinshaw 1997, 2000, Buckland et al. 2003, Nielsen et al. 1985). Birkinshaw (1997, p. 208–209) defines the two forms as follows:

*Focused corporate entrepreneurship* (also called corporate venturing) works on the premise that entrepreneurship and management are fundamentally different processes that require different modes of organization to occur effectively (Burns and Stalker 1961, Galbraith 1982, Kanter 1985b).

*Dispersed corporate entrepreneurship* (also called intrapreneurship) rests on the premise that every individual in the company has the capacity for both managerial and entrepreneurial behaviour more or less simultaneously.
**Internal corporate venturing** In corporate venturing (CV), separate new venture divisions are formed, which are in charge of identifying and exploiting opportunities for the corporation, i.e. carrying out the entrepreneurial process (Burrows 1982, Christensen 2004, Kuratko et al. 1990, Peterson 1967, Stopford and Baden Fuller 1994, Sykes 1986, von Hippel 1977). The venture unit is typically a separate entity, instructed to develop creative ideas and to take risks. In this way, such a new venture unit can combine the advantages of size (e.g. a bigger resource base) of a large company with the entrepreneurial spirit that is found in small businesses (Peterson 1967, p. 68). The mission of such a unit is principally broader and more ambiguous than that of R&D (Birkinshaw 1997). Supporting this, Scholhammer (1982) differentiates the venture division from corporate R&D as a case of ‘incubative entrepreneurship’, whereas new product development (NPD) is more ‘administrative entrepreneurship’. CV can be further subdivided into internal CV and external CV.

**Intrapreneurship** In intrapreneurship, the whole organization is actually the target for developing entrepreneurial capabilities, which refers more to an entrepreneurial management style (Finstad 2005, Gayarre 1992, Kanter 1985a, Pomerantz 1998, Steier et al. 2004, Stevenson and Jarillo 1990).

Here concepts focus on developing an entrepreneurial culture or posture as the key capability for firm success by entrepreneurship (Chung and Gibbons 1997, Covin and Slevin 1991, Ireland et al. 2003, Kanter 1985a, Nielsen et al. 1985, Stopford and Baden Fuller 1994). With this, entrepreneurial behaviour is not limited to the top management or the firm’s founder. Therefore, for instance, Reich (1987) used the term collective entrepreneurship. He stated that by entrepreneurship, individual skills can be integrated into groups, whose collective innovation capacity is greater than the sum of individual capacities.

To summarize, CV rests upon the understanding that entrepreneurship and bureaucracy are diverse modes of management that cannot coexist (e.g. Morse 1986). An internal or external CV unit is typically rather independent from the actual organization and operational business. These units need and possess
entrepreneurial freedom and high levels of autonomy to explore and exploit new businesses out of the usual scope of an organization’s business.

Intrapreneurship puts forward that, differing from independent entrepreneurial behaviour, internal entrepreneurial behaviour is meant to actively and innovatively support the superordinated corporate strategy and likewise is dependent on it (Wunderer 2006); that is, intrapreneurship aims at developing an *entrepreneurial organization*, i.e. an organization which is able to drive entrepreneurial processes. This requires a particular *management style*, i.e. *entrepreneurial management*. Entrepreneurial management can be distinguished from ‘administrative management’ (Michael et al. 2002, p. 46, based on Chandler 1994):

administrative management primarily focuses on loss prevention and coordination, while entrepreneurial management focuses on value creation, opportunity recognition or discovering tomorrow’s business today.

A well-established concept with which to describe and understand entrepreneurial management processes and their connection to organizational performance is *entrepreneurial orientation* (EO).

### 3.2.2 Entrepreneurial Orientation

While the term *entrepreneurship*, in general, refers to the *content* of entrepreneurial behaviour, i.e. which (innovative) businesses an entrepreneur or entrepreneurial organization should enter, EO targets the entrepreneurial *process*, i.e. the methods, practices and decision-making styles that are used to explain entrepreneurial firm behaviour.

This is consistent with the managerial approach emphasized in chapter 1 and similar to Stevenson and Jarillo’s (1990) concept of entrepreneurial management, pointing toward the organizational processes, methods and management style that are used to be entrepreneurial (Lumpkin and Dess 1996). It refers to the entrepreneurial character of an entire organization and stems from the considerations of Miller (1983, p. 771), who characterized an entrepreneurial firm as
one that engages in product-market innovation, undertakes somewhat risky
ventures, and is first to come up with proactive innovations, beating competitors
to the punch.

The approach of characterizing entrepreneurship in innovativeness, risk tak-
ing and proactiveness has been adopted in several studies (see e.g. Becherer
and Maurer 1997, Covin and Slevin 1986, 1989, Frishammar and Hörte 2007,
Knight 1997, Les Tien-Shang and Sukoco 2007, Naman and Slevin 1993, Zahra
and Covin 1995). I consider them to be the core elements of entrepreneurial
orientation. However, the original EO concept of Lumpkin and Dess con-
tains additional entrepreneurial characteristics, ‘autonomy’ and ‘competitive
aggressiveness’, to explain the entrepreneurial process and its linkage to organi-
izational performance. The understanding of these dimensions is reflected in
Table 3-1.

<table>
<thead>
<tr>
<th>Element</th>
<th>Stands for</th>
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<tbody>
<tr>
<td>Innovative-ness*</td>
<td>• emphasizing the introduction of innovation by creativity and experimentation, aiming at developing new products, processes and services</td>
</tr>
<tr>
<td>Proactive-ness*</td>
<td>• a progressive posture of seizing business opportunities in anticipation of future market demands</td>
</tr>
<tr>
<td>Risk taking*</td>
<td>• making decisions and taking action without regard to the resources currently controlled or knowledge of possible outcomes</td>
</tr>
<tr>
<td>Autonomy</td>
<td>• the independent action which aims at bringing forward a business idea (an opportunity) and moving it toward completion (an innovative product)</td>
</tr>
<tr>
<td>Competitive aggressiveness</td>
<td>• the intensity of the efforts to outperform one’s rivals, characterized by an aggressive attitude toward improving a competitive position</td>
</tr>
</tbody>
</table>

*Core elements of EO; cf. Lumpkin and Dess (1996, 2001)

That is, EO relates to the strategy-making processes within an organization
and characterizes an organization as entrepreneurial if it has (Lumpkin and
Dess 1996, p. 137)
a propensity to act autonomously, a willingness to innovate and take risks and a tendency to be aggressive toward competitors and proactive relative to marketplace opportunities.

These factors may vary independently among each other and in their effect on performance, depending on the context in which the entrepreneurial process takes place (Lumpkin and Dess 1996, 2001). Therefore Lumpkin and Dess (1996) propose two moderating effects on EO performance dependency: environmental factors, including (i) dynamism, (ii) munificence, (iii) complexity and (iv) other industry characteristics; and organizational factors, including (i) size, (ii) structure, (iii) strategy, (iv) strategy-making processes, (v) firm resources, (vi) culture and (vii) top management team characteristics. In the original model, performance can be (i) sales growth, (ii) market share, (iii) profitability, (iv) overall performance or (v) stakeholder satisfaction.

To sum up, the core elements of EO can explain the corporate entrepreneurship-performance relationship (Zahra and Covin 1995, p. 45):

Product innovation refers to the ability of a company to create new products or modify existing ones to meet the demands of current or future markets. Proactiveness refers to a company's capacity to beat competitors in introducing new products, services or technologies to the market. Finally, CE indicates that a company is willing to engage in business ventures or strategies in which the outcome may be highly uncertain. Together, product innovation, proactiveness and risk taking capture the essence of CE.

To summarize, the concept of EO provides useful direction; however, the impacts of autonomy and competitive aggressiveness remain open. These elements of EO are often treated as less relevant or are passed over in investigations because, it is argued, these refer more to the level of analysis of the firm or are more relevant in the start-up phase of firms, respectively (e.g. Frishammar and Hörte 2007). However, it is exactly the relational nature of these elements (autonomy as a feature of the vertical network and competitive aggressiveness as a feature of the horizontal network) that makes them particularly interesting for this research.
3.3 Entrepreneurship within the Network

The preceding discussion did not explicitly include the network perspective; their aim was rather to develop a general understanding of entrepreneurship. The following sections introduce the network context. The subsequent review of three process models of entrepreneurship in multiunit organizations aims at understanding how entrepreneurship takes place within the organizational network. In the following sections, I outline the key arguments of three process models of entrepreneurship, i.e.

- Burgelman’s model of internal corporate venturing (1983 in Administrative Science Quarterly)
- Bartlett and Ghoshal’s model of beyond the M-form (1993 in Strategic Management Journal)
- Eisenmann and Bower’s model of the entrepreneurial M-form (2000 in Organization Science)

3.3.1 Process Model of Internal Corporate Venturing

Burgelman (1983b) developed a process-oriented approach toward ICV. Herein, he differentiates between the three hierarchical levels ‘group leader/venture manager’ (operational management), ‘new-venture-development management’ (middle-level management) and ‘corporate management’, each with different tasks within the ICV process.

He concluded that the corporate entrepreneurship process is actually driven by individuals at the operational levels; that is, new business ventures are typically autonomous initiatives from entrepreneurially motivated people at the group leader level, who sometimes even risk their careers to put forward a new business idea. They are motivated by the prospect of becoming the general managers of important new businesses. Middle-level managers play the key role in this process, i.e. (Burgelman 1983b, p. 241)

the venture manager’s manager performs the crucial role of linking successful autonomous strategic behaviour at the operational level with the corporate concept of strategy.
That is, the two bottom levels play a major part in driving the ICV process, whereas corporate management’s role is confined to indirect influence. Burgelman (1983b, p. 242) calls this the ‘retroactive rationalization of autonomous strategic initiatives that have been selected by both the external environment at the market level and the internal corporate environment’.

His process model shows that internal corporate venturing ‘primarily is a bottom-up process and depicts the key role performed by middle management’ (Burgelman 1983b, p. 229). Operational managers initiate the process by defining the new business project and resources needed. Middle-level managers take the role of managing the resources and facilitating collaboration between R&D and businesspeople for defining new business opportunities (supporting, not driving, this process).

Corporate management takes the role of monitoring resource allocation to a new venture project. After the definition of the new business opportunity, corporate management authorizes further development. It also influences the process by manipulating the structural context.

3.3.2 Beyond the M-Form

Bartlett and Ghoshal’s ‘new managerial perspective’ on the management of a multidivisional organization, which they call ‘beyond the M-form’ of organization, has many parallels to the ICV model. From their viewpoint, diversified organizations rely on three central processes: the entrepreneurial process, the integration process and the renewal process.

The model, primarily illustrated by the corporation ABB, says that the responsibilities for these processes and the resulting roles of the three management levels (front-line, mid-level and top level) are as follows.

The entrepreneurial process is predominantly driven by front-line managers. It comprises the creation and implementation of entrepreneurial opportunities. Front-line managers, therefore, are understood as entrepreneurs who build up new and alter existing businesses and who are able to ‘build their businesses as if they owned them’ (Ghoshal and Bartlett 1997, p. 248). Each of the units is allowed to retain one-third of its net profits, a fact that makes
units, to a certain degree, financially autonomous. Additionally, about 90 per cent of ABB’s R&D expenditures are made in decentralized centres of excellence (the front-line companies).

The integration process is foremost the responsibility of middle-level management. This process is not meant to foster integration along the vertical network; moreover, it targets enhancing integration along the horizontal network. In this way, this process supports the entrepreneurial process by fostering cooperation and collaboration between the autonomous entities, i.e. by pooling the resources and capabilities of the entities.

The renewal process is principally driven by top-level management. Top-level managers normatively support the entrepreneurial and integration process. This comprises creating an environment in which entrepreneurship is facilitated, whilst manipulating the system in a way that it meets the overall strategic objectives of the firm.

Two directions can be distinguished, in principle, here (cf. Gooderham and Ulset 2002): the creation of entrepreneurial opportunities is driven by the front-line, supported by the mid-level, and made possible by top-level management in the first place. Strategic renewal is developed and communicated by top-level management, balanced by mid-level management, and realized by the front-line. Here entrepreneurship is fundamentally a bottom-up process, as in the process model of ICV, but involves the entire organization.

3.3.3 The Entrepreneurial M-Form

Eisenmann and Bower (2000, p. 348) criticize this viewpoint in their concept of the ‘entrepreneurial M-form’ in arguing that

CEOs [chief executive officers] in global media firms frequently drive strategy in a ‘top-down’ manner, especially when their firms seek to expand by integrating the activities of two or more existing divisions.

The ‘top-down manner’ means that an activist CEO is substantively part of the entrepreneurial process of strategic integration. Strategic integration is
the task of combining the resources from different units to create new businesses (Eisenmann and Bower 2000). In contrast to operational integration, it pertains to the strategic pooling of resources from different organizational units toward creating a new business (Eisenmann and Bower 2000).

Here the corporate centre plays an important role in identifying *opportunities for strategic integration* and in initiating interunit collaboration to seize these opportunities; that is, opportunities are identified by the corporate centre, which oversees the possibilities and then initiates interunit collaboration between the relevant units to exploit the opportunities.

Although their empirical investigation is limited to global media firms, they state that this form is also relevant in other industries. The *top-down* approach (along the vertical network) can help in highly dynamical environments, mainly because of two advantages: first, it is quicker and less bureaucratic than the often too slow bottom-up processes (cf. Eisenhardt 1989b); and second, it shifts the burden of high personal risk to the top-level management, i.e. the CEO, who should be more willing to take such risk (cf. Bower 1986).

Here the CEO initiates the entrepreneurial process, and the subunits engage in the collaboration afterward. This aims at overcoming the problem that division managers often tend to be focused (and measured/rewarded) by the constricted objectives of their own areas of expertise. ‘Even if they recognize corporate opportunities, the associated risks are not commensurate with their responsibilities’ (Eisenmann and Bower 2000, p. 353).

To summarize, Figure 3-2 illustrates the relevant network relations as described by the models.

Underpinning all these concepts is the insight that entrepreneurship actually has to be different on the various (hierarchical) levels within an organization. Kanter (1985a), for instance, distinguishes front-line employees as players and innovators, whereas she interprets mid- and top-level managers as coaches and supporters, who integrate tasks, foster the players’ entrepreneurial skills, emphasize organizational learning, and support others in achieving better results.

*Burgelman*’s model refers to a bottom-up process, driven and initiated by the venturing unit, supported by middle-level management, and facilitated by
top-level management. The most relevant relationships are within the vertical network. *Bartlett and Ghoshal* portrayed a bottom-up process driven by one unit, which recognizes a specific opportunity. This model points out the importance of the horizontal network in addition to the vertical network. However, the entrepreneurial process is not driven or initiated along the horizontal network. The integration takes place on the next higher level, the mid-level management level (correspondingly, Geisler (1993) identified mid-level managers as corporate entrepreneurs). *Eisenmann and Bower* see the centre, or an activist CEO, as driving a top-down process along the vertical network by strategic integration, to initiate collaboration along the horizontal network.

Moreover, the entrepreneurial process might be defined by the affiliation of the opportunity, i.e. whether (i) the competences, (ii) the technological know-how or (iii) the market knowledge of solely one unit or several units is affiliated with the nature of the opportunity.
Conclusion

This chapter set out to explain how entrepreneurship takes place within intra-organizational networks and how to characterize the entrepreneurs (i.e. the organizational units) within an intraorganizational network.

Following many other scholars, it was argued that the concept of EO can explain the entrepreneurship-performance relationship. EO has five dimensions, i.e. (i) innovativeness, (ii) proactiveness, (iii) risk taking, (iv) autonomy and (v) competitive aggressiveness. Dimensions (i)–(iii) are nonrelational characteristics, whereas dimensions (iv) and (v), i.e. autonomy and competitive aggressiveness, are relational characteristics, which are bound to the organizational network(s).

Autonomy is an element of the vertical network, whereby competition points toward the relationships within the horizontal network. Consequently, developing an entrepreneurial network might be possible by emphasizing the EO of the component units.

The process models of entrepreneurship suggest that successful corporate entrepreneurship also depends on the lateral relationships among the subunits, i.e. cooperation within the organizational network, especially when opportunities are affiliated with more than one unit, i.e. are ‘located across units’. Therefore it has to be a second strategic aim to integrate the entrepreneurial units to pool their entrepreneurial resources, i.e. utilize the social capital of the system.

Notes

1Burgelman (1983a, p. 1349) defined corporate entrepreneurship as ‘the process whereby firms engage in diversification through internal development. Such diversification requires new resource combinations to extend the firm’s activities in areas unrelated, or marginally related, to its current domain of competence and corresponding opportunity set’. Vesper (1984, p. 295) defined it as ‘employee initiative from below in the organization to undertake something new. An innovation which is by subordinates without being asked, expected or perhaps even given permission by higher management to do so’. Nielsen et al. (1985, p. 181) called intrapreneurship the ‘the development within a large organization of internal markets and relatively
small and independent units designed to create, internally test-market and expand improved and/or innovative staff services, technologies or methods within the organization’. Zahra (1993a, p. 321) defined entrepreneurship at the firm level as ‘a process of organizational renewal that has two distinct but related dimensions: innovation and venturing, and strategic renewal’. Chung and Gibbons (1997, p. 14) referred to ‘an organizational process for transforming individual ideas into collective actions through the management of uncertainties’.

For conception of entrepreneurial initiative, the long-term success of the resulting business is a secondary issue (Birkinshaw 2000); the core of an entrepreneurial initiative is to come from a business idea to the allocation of resources for pursuing this opportunity. Birkinshaw (1997) classified the characteristics of subsidiary initiatives by the locus of the opportunity within his model as (i) local market initiatives (ii) global market initiatives and (iii) internal market initiatives.

Hornsby et al. (1993) showed that precipitating events are very important for initiating the entrepreneurial process. Examples of precipitating events include (i) the development of new procedures, (ii) a change in the organization’s management, (iii) a competitor’s move to increase market share, (iv) a merger/acquisition, (v) the development of radical new technologies, (vi) cost reduction, (vii) a change in consumer demand or (viii) changes in the economic environment (Zahra 1991).

Definitions as well as designations of intrafirm entrepreneurship are diverse and often not consistent. In other words, corporate entrepreneurship has ‘many faces’ (Zahra, Jennings and Kuratko 1999, p. 51). Denominations for intrafirm entrepreneurship include, for instance, corporate entrepreneurship (Burgelman 1983a, Chung and Gibbons 1997, Jennings and Lumpkin 1989, Vesper 1984, Zahra 1993a), internal corporate entrepreneurship (Jones and Butler 1992), internal corporate venturing (Burgelman 1983b), intrapreneuring (Pinchot 1985), intrapreneurship (Nielsen et al. 1985), collective entrepreneurship (Reich 1987), entrepreneurial management (Stevenson and Jarillo 1990), firm-level entrepreneurship (Zahra, Jennings and Kuratko 1999) and strategic entrepreneurship (Ireland et al. 2003, Ramachandran, Mukherji and Sud 2006).


* * *
Chapter 4

Conceptual Framework

*Competition is essential to the innovation process and to capitalist economic development more generally. But so is cooperation. The challenge to policy analysts and to managers is to find the right balance of competition and cooperation, and the appropriate institutional structures within which competition and cooperation ought to take place.*

—Teece (1992, p. 1)

Following this insight, it is not only the mechanisms of competition and cooperation, but moreover the specific balance of these mechanisms within the system, that are key for achieving organizational performance.

The following conceptual framework incorporates the relevant relational mechanisms that might impact entrepreneurial behaviour and organizational performance. The framework puts forward the idea that organizational performance might be achieved by entrepreneurial behaviour in the first place, but moreover, by a suitable organizational configuration of coordination, competition and cooperation (Figure 4-1).

The model reflects that both networks, vertical and horizontal, are important for entrepreneurship and that both are interdependent, like the constructs within the model. Engineering such a network includes coordination activities from the headquarters unit, i.e. the relationships along the vertical network. The mechanisms of cooperation and competition, which are relevant within the horizontal network, and their impact on entrepreneurial behaviour are ad-
dressed in the bottom part of the model. With this, the chapter puts forward the idea that achieving a dynamic balance or equilibrium between competition and cooperation corresponds to the general objective underlying business organizations: to achieve organizational performance.

As outlined in the subsequent overview, the chapter starts with a short discussion of how to understand organizational performance from the network perspective. This is followed by a discussion about organizational coordination. Then, each trisection of the conceptual framework is discussed by reviewing further literature, whereby subquestions are developed along the model. In detail, the contents of this chapter are as follows:

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4.1 Organizational Performance

In the end, everything in business obviously has to target performance (i.e. profit in financial terms). Examining multiunit organizations, Bartlett and Ghoshal (1998), Ghoshal and Bartlett (1997) argued that overall performance is dependent on the strength of each of the component units and the effectiveness of their integration. On the basis of this assumption, they developed a corporate renewal model along the axes of ‘quality of performance of each unit’ and ‘quality of integration across units’ (Figure 4-2).

The overall quest is to reach the upper right quadrant, which represents highly effective individual units which work efficiently together to create competitive advantages none of them is able to achieve independently; this applies equally to the integration of individually strong functional groups along an organization’s supply chain, the synergistic linking of a company’s portfolio of business units, or the global networking of its different national subsidiaries.

Though it might be attractive to develop along the diagonal path from low/low to high/high, the authors illustrate, in several case examples, that this is often
too difficult and complex. Additionally, they illustrate, with the example of Philips, that it is also not recommended to push integration first, a move which might be driven by the idea of achieving synergistic benefits through integration first (Ghoshal and Bartlett 1997, p. 247):

As corporate performance continued to decline in the late 1980s, the gallows humor among Philips managers held that ‘four drunk fat guys do not make an effective team’.

Consequently, such an organizational development is a stepwise process of ① rationalization, i.e. to embed entrepreneurial drive and build up front-line initiative; ② revitalization, i.e. to develop integrative synergies by realigning cross-unit relationships; and ③ regeneration, i.e. to achieve continuous self-renewal by continuous learning (Figure 4-3).

These process steps are very similar to Halal’s (1994, 1996) ‘new management’, where he claims that only those organizations which use their organizational infrastructure to guide behaviour and foster collaboration between decentralized subunits would be successful. His three principles are as follows (Halal 1994, p. 72ff): (i) transform the hierarchy into internal enterprise units, (ii) create an economic infrastructure to guide decisions and (iii) provide leadership to foster collaborative synergy.
4.2 Entrepreneurship and Coordination

Entrepreneurship and coordination represent the middle of the conceptual framework Figure 4-4.

In the context of entrepreneurship, the concept of EO was found to be able to explain the entrepreneurship-performance relationship. Ghoshal and Bartlett's corporate renewal model suggests to 'embed entrepreneurial drive' to enhance the individual performance of organizational subunits. The issue at point is whether EO can be applied to the intraorganizational context – this leads to the following Issue 1:

**Issue 1 (EO and individual performance)**

*Is entrepreneurial orientation (core elements) associated with the individual performance of organizational units; and if so, how?*

Furthermore, the process models in the second part of chapter 3 suggest that some entrepreneurial opportunities might be affiliated with more than one of the subunits. Seizing them might be dependent on EO *and* the integration among the units. The issue at point here is whether EO is associated with the second performance objective of integration – this leads to the following Issue 2:
ISSUE 2 (EO AND EFFECTIVE INTEGRATION)

Is entrepreneurial orientation (core elements) associated with the effectiveness of integration among organizational units; and if so, how?

A further relational element of EO is autonomy, which is determined within the vertical network and represents a specific form of organizational coordination.

One of the central paradigms of corporate entrepreneurship is that the successful implementation of entrepreneurship is bound to the firm’s ability to provide the freedom and encouragement that internal entrepreneurs need to develop their ideas (Slevin and Covin 1990). Schuler (1986) stated that the structural arrangements have to be autonomous and functionally complete business units to gain high entrepreneurial activity. Thus organizational structures should be organic and flat, with high potential for flexibility. Davis et al. (1991) argued for minimizing bureaucracy and maximizing adhocracy.¹

The more autonomous (in terms of both resources and decisions), the less constrained the entities may be in carrying out the entrepreneurial process. By flattening the hierarchies and by assigning authority to decentralized organizational entities, power and entrepreneurial responsibility are delegated to them. This might foster the identification of new business opportunities.

Once the idea is identified, the entrepreneurs require resources and support from the top to engage in the entrepreneurial process. This corresponds to the claim for management support for the internal entrepreneurs (e.g. Hisrich and Peters 1986, Stevenson and Jarillo 1990, Sykes 1986, Zahra 1993a). Among the resources that are needed for entrepreneurship is the availability of time, i.e. employees have to perceive the availability of resources to engage in entrepreneurial initiative (Birkinshaw 2003, Kanter 1985a, Sathe 1985, Schuler 1986, Souder 1981, Sykes 1986, Sykes and Block 1989, von Hippel 1977). Well known is, for instance, the ‘15 per cent rule’ of the company 3M, which allows employees to spend 15 per cent of their time on conceivable new venture ideas.

Several corporate entrepreneurship concepts stress the availability of flexible resources to encourage the entrepreneurial process (Hamel 1999, Stevenson and Jarillo 1990). This is in line with Fry (1987) or Hisrich and Peters (1986), who argued that resource availability is an essential organizational factor to implement an intrapreneurial idea successfully. The EO element ‘autonomy’

¹ For instance, Davis et al. (1991) argued for minimizing bureaucracy and maximizing adhocracy.
addresses this resource access and availability by the interplay of decentralized
decision making and resources and support along the vertical network.

Following this argumentation, autonomy might be an important feature of
organizational networks that aim at entrepreneurial behaviour of their subunits
– this leads to the following Issue 3:

**Issue 3 (Autonomy and EO)**

*Is autonomy associated with the entrepreneurial orientation of organizational units; and if so, how?*

The question of this research is not only *which* elements are relevant for organi-
zational performance and entrepreneurship, but moreover, *how* organizations
can approach the relevant constructs – this leads to the following Issue 4:

**Issue 4 (Lever of Autonomy)**

*How can organizations leverage autonomy within their organizational networks?*

### 4.3 Leveraging Coopetition

Leveraging coopetition means to leverage the mechanisms of competition and
cooperation simultaneously. To clarify *how* organizations might achieve this,
this section outlines

- the mechanisms of competition and
- the mechanisms of cooperation

#### 4.3.1 Mechanisms of Competition

The mechanisms of competition represent the left trisection of the conceptual
framework Figure 4-5.

Scholars repeatedly advise organizations to *encourage* nascent entrepre-
neurs to exercise their gained autonomy (Quinn 1979). This means that there
has to be a certain incentive for people to behave entrepreneurially.²

This corresponds to the idea of EO within the organization. An entrepre-
neurial organizational entity might be characterized by high levels in the EO
dimensions autonomy, innovativeness, proactiveness, risk taking and competitive aggressiveness. These are important elements of EO which can explain how single organizations (here the subunits) achieve performance through entrepreneurship.

Moreover, a competitively oriented unit might have better resource access because resources and support are areas for competition – this leads to the following Issue 5:

**Issue 5 (Competition and EO)**

*Is the intensity of competition among organizational subunits associated with the level of entrepreneurial orientation; and if so, how?*

Following this presumption, firms often adopt competitive, market-like organizational structures, which are aimed at achieving increased efficiency (Birkinshaw and Lingblad 2005, Hill 1990, Hill et al. 1992). The effects include an optimized way of allocating scarce resources (Nelson 1991, Schumpeter 1934) and a reduction of transaction costs between exchange parties (Williamson 1985). Managed in a proper way, competition can create flexibility, challenge the status quo and motivate employees for greater effort (Birkinshaw 2001).

To achieve this, organizations often coordinate their networks as profit centres, spin-offs and holding organizations (Osterloh and Frey 2000, Osterloh
et al. 2002). Here business unit managers are responsible for the units’ operating decisions. Objective financial criteria are used to measure the performance of the units, and in particular, *rewards for the business unit managers are often directly bound to the units’ profitability*. Because they are compared on their individual profitability, they often compete among each other. This is sometimes enhanced by the fact that individual goals and strategic priorities are often contrary (Houston et al. 2001).

Correspondingly, decentralized, diversified and globally acting enterprises have often been conceptualized as *internal market* systems (Cerrato 2006). The idea of ‘bringing the market inside’ is founded on considerations of how organizations can make structural changes to encourage entrepreneurial behaviour (cf. Birkinshaw 2003). The idea is to utilize the mechanisms of the market within the internal organization of large firms. Like competition on the external market, Adam Smith’s ‘invisible hand’ is meant to generate economic efficiency through providing the impetus for innovation and entrepreneurship, also within organizations. In this way, the mechanisms of competition in internal markets are meant to *motivate* for entrepreneurial behaviour (Foster and Kaplan 2001, Hamel 1999). Developing the internal system toward an internal market, i.e. introducing market mechanisms into the firm, is a popular conception in corporate entrepreneurship literature. The mechanisms of competition are an important element within the concept of EO (competitive aggressiveness). Thus competitive systems aim at encouraging the *extrinsic motivation* of employees (cf. Osterloh and Frey 2000). The development of flat hierarchies, decentralized decisions, and competitive objectives appeared to be the best solution to embed entrepreneurial drive and stimulate entrepreneurial behaviour.

The question of whether this is the right instrument leads to the following Issue 6:

**Issue 6 (Lever of Competition)**

*How can organizations leverage the interrelation between competition and entrepreneurial orientation?*
The idea of internal markets is adopted by many of the entrepreneurship concepts and is almost always bound to the mechanism of internal competition (cf. Birkinshaw 1995, 1997, 1998, 2000, Nielsen et al. 1985). The underlying idea is to utilize autonomy and the mechanisms of competition within such systems.

Aimed at inducing entrepreneurial drive, managing the organizational network as an internal market, however, might lead to competitive rent-seeking behaviour of the organizational entities. High competitive pressure might increase the opportunistic posture of the units.

### 4.3.2 Mechanisms of Cooperation

The mechanisms of cooperation represent the right trisection of the conceptual framework Figure 4-6.

![Figure 4-6: Cooperation within the conceptual framework](image)

Interfirm research conceptions, in particular, put forward the advantages of cooperation for economic actors. Cooperation or strategic alliances aim at increasing market power or market share (Hagedoorn 1993). Complementary to internal resources, cooperation can help to provide additional tangible resources (Hamel 1991, Teece et al. 1997) or specific relational resources (Dyer and Singh 1998), or can help to share costs among cooperating partners (Freeman 1991).
Cooperating partners are able to gain access to critical knowledge assets via cooperation (Cohen and Levinthal 1990, Davenport and Prusak 2000, Felin and Hesterly 2007, Grant 1996). In the knowledge-based theory of the firm, the knowledge captured within an organization represents the strategic resource that creates sustainable competitive advantage (Conner and Prahalad 1996, Davenport and Prusak 2000, Grant 1996, Spender 1996). From this viewpoint, firms exist because they are specialized in the speed and transfer of knowledge (Kogut and Zander 2003). The ability to access distributed knowledge and to integrate it effectively represents an important source of competitive advantage (Capaldo 2007, Felin and Hesterly 2007, Müller and Svaln 2006). This topic is also discussed in the field of absorptive capacity (Cohen and Levinthal 1990). Kogut (2000) stated that organizations are a repository of knowledge. Therefore an effective management of individual knowledge within the workplace is critical to business success (Cohen and Levinthal 1990).

Within decentralized multiunit organizations, the specific technological knowledge needed for the exploration and exploitation of opportunities is usually disseminated among the decentralized entities. The entrepreneurial process emphasizes the (re-)combination of organizational resources and capabilities into something new. To create new value, the different parties cannot act in isolation. Therefore organizations need to base the process on mutual interaction to accomplish complex objectives like innovation (Brandt 1987). This is part of the development of what Stewart called intellectual capital (Stewart 1998, 2001). It represents the skills and, above all, the knowledge of an organization’s participants, and therefore the knowledge of the organization itself.

In this context, organizations can be seen as ‘collaborative communities’ (e.g. Heckscher and Adler 2006). Relations herein are arranged for a long-term time horizon and can be characterized by strong connections between internal groups or individuals (Wunderer 2006). Moreover, networks and subunit relationships are an important determinant in the theories of the learning organization and intraorganizational learning processes (Huber 1991); that is, intraorganizational networks can help in creating new knowledge and, therefore, value (Kogut and Zander 1996). Powell et al. (1996) stated that the
principal determinant of innovation is found within the network of learning. This supports Tsai and Ghoshal (1998), who spotlighted the positive effects of knowledge sharing on business units’ product innovation. Supporting this, Tsai (2001, p. 1002) argued that ‘a unit’s innovative capability can be significantly increased by its (knowledge) centrality in the intra-organizational network’.

Well-connected units might be more innovative and profitable. Informal relationships to other intraorganizational entities can support the realization of new business opportunities and represent individual social capital. In that, a cooperation-oriented unit might be better in acquiring resources from different sources (resource access). Moreover, Hisrich (1985/1986) found that information-sharing activities impact positively the potential for employees to become idea developers. Hansen (1999) even identified a positive impact of network centrality on project completion time, and Hill et al. (1992) stated that knowledge networks can help to reduce operating costs — leading to the following Issue 7:

**Issue 7 (Cooperation and EO)**

*Is the intensity of cooperation among organizational subunits associated with the level of entrepreneurial orientation; and if so, how?*

Facing rent-seeking behaviours, cooperation must be watched critically. Tsai (2001), for instance, found no significant interrelation between a subunit’s network position (he utilized centrality as a network measure for a unit’s knowledge-sharing intensity) and its business performance. Therefore he hypothesized that (p. 1002 Tsai 2001, italics added)

> ‘it seems that the benefits of centrality may not always outweigh its costs. Although a central unit can gain a lot of information benefits, maintaining a central position may require intensive coordination efforts that lead to high administrative costs.

That is, cooperation is important to seize across entity opportunities, i.e. opportunities that are located beyond their individual boundaries. The process models showed that whenever opportunities are located between two or more subunits, the next higher hierarchical level can act as an integrator along the
vertical network. One can refer to the headquarters in such a triadic relation (headquarters unit and two subunits) as the *tertius iungens* (cf. Obstfeld 2005), who can be seen as the actual entrepreneur. Questioning whether cooperation is the right instrument leads to the following Issue 8:

**Issue 8 (Lever of Cooperation)**

*How can organizations leverage the interrelation between cooperation and entrepreneurial orientation?*

### 4.4 Coordination and Coopetition

Coopetition, or the phenomenon of simultaneous competition and cooperation, represents the bottom part of the conceptual model (Figure 4-7).

![Figure 4-7: Coopetition within the conceptual framework](image)

The previously discussed theories point out the need for cooperation and competition, i.e. the need for a dynamic balance between cooperation and competition within the horizontal network.

As was argued in chapter 1, cooperation and competition are interdependent. More precisely, increased competition may also increase cooperation within the network. For example, Tsai (2002, p. 180) states that

the cooperative aspect of such knowledge sharing refers to the collective use of such knowledge to pursue common interests. The competitive aspect refers to
the use of shared knowledge to make private gains in an attempt to outperform the partners (Khanna et al. 1998).

This idea stems from the interorganizational research context, which claims the importance of interacting with competitors and learning from them, particularly when competition is high. Strong competitors often represent the best partner for cooperation (Hamel et al. 1989). Indeed, business players with high market overlap are more likely to cooperate with each other than business players with low market overlap (Baum and Korn 1999).

In this meaning, competition between business units might create a higher stimulus for the units to understand each other, that is, to discover what the ‘opponent’ thinks and plans and what the others know, to prepare for the implications of competition (Tsai 2002). That means that (Tsai 2002, pp. 189, italics added)

```
interunit knowledge sharing can enhance overall organizational capabilities through collective learning and synergistic benefits generated from the processes of exchanging information, know-how or local expertise among competing units.
```

Questioning this interdependency leads to the following Issue 9:

**Issue 9 (Competition and cooperation)**

*Is the intensity of competition among organizational subunits associated with the intensity of cooperation; and if so, how?*

To engage in coopetition, the implied question is how organizations might be able to steer competition and cooperation within their networks.

Bringing forward the argument of an organizational configuration, which allows the generation of an optimal balance between cooperation and competition, *entrepreneurial coordination* aims at *how* to achieve a system that can leverage the syncretism between competition and cooperation – this leads to the following Issue 10:

**Issue 10 (Syncretism of Coopetition)**

*How can organizations leverage the interrelation between competition and cooperation?*
Conclusion

This chapter argued that achieving high organizational performance depends on both individually high-performing component subunits and the efficient integration of these entrepreneurs on the network level.

Together with the argumentation of chapter 3 and 2, the conceptual framework puts forward the idea that organizations can achieve performance via entrepreneurship within their organizational networks. The framework reflects that both networks, vertical and horizontal, are important for entrepreneurship and that both are interdependent, like the constructs within the model. Engineering such a network includes coordination activities from the headquarters unit, i.e. the relationships along the vertical network.

The idea of the conceptual framework developed within this chapter is that successful and performance-enhancing entrepreneurial behaviour can be achieved by a specific configuration of coordination, competition and cooperation.

Implied either by extant theory or by missing theory, the chapter raised issues that demand empirical investigation. The next chapter describes how the empirical data were gathered and how the constructs were analysed in practice.

Notes

1 Slevin and Covin (1990) identified effective entrepreneurial firms by an entrepreneurial management style (core EO elements) and an organic organizational structure, whereas they called firms with an entrepreneurial management style but a mechanistic organizational structure pseudo entrepreneurial firms.

2 Reward systems are frequently used as an explanation for employee motivation (Alderfer 1972, Maslow 1970, McClelland 1975, McGregor et al. 1966). The appropriate use of rewards is also a central element of many of the past corporate entrepreneurship concepts (cf. Block and Ornati 1987, Sathe 1985, Scanlan 1981, Souder 1981). Extending the scope of explicit financial rewards for entrepreneurial behaviour, Kuratko et al. (2005) stated eight possible outcomes in their study of mid-level managers’ entrepreneurial behaviour: (i) promotion, (ii) career derailment, (iii) reassignment within the corporation, (iv) development of political skills, (v) es-
tablishment of a new social network, (vi) enhanced self-image, (vii) financial rewards and (viii) scorn of more conservative organizational members. This shows that rewards are very complex and that the outcomes of entrepreneurial behaviour might even cause negative results. Here considerations also distinguish between intrinsic motivation and extrinsic motivation. The two motivation types are dependent on each other and therefore cannot be consulted separately. Under certain conditions, unfortunate incentives in the form of extrinsic rewards can lead to the problem of displacing intrinsic motivation (cf. the ‘crowding-out effect’; see Frey 1997).

* * *
Chapter 5

Research Design

All organizations are in important respects social networks and need to be addressed and analysed as such.

Nohria and Eccles (1992, p. 4)

By understanding the mechanisms within the network, this research aims to explain the impact that the specific characteristics of the twofold organizational network has on entrepreneurship.

According to the perception of business management as an applied social science, as taught at the University of St Gallen, the research aims to explain how the mechanisms that are discovered in (business) reality function (Ulrich 1981). This viewpoint has a long tradition, founded on the central concepts of systems theory in the social sciences, which in turn correspond to cybernetics (cf. Ulrich et al. 1976, von Bertalanffy 1968).

This approach aims at describing, explaining and solving practical problems. Directed to the development of recommendations to practice and theory, this demands real-world investigation. At the end of the research, a research framework ideally reflects the relevant components that influence the practical problem, explains them, and shows how they are likely to react if changed.

Both of the relevant networks, the vertical and horizontal network, are interdependent and therefore cannot be investigated in isolation. To approach this complex and interdependent setting, I followed a qualitative approach.
In particular, I followed three stages of investigation to gather the empirical data. More precisely, the research follows a multiple-case study design with the application of a selective sampling proceeding; that is, the number of cases was reduced in each step of the investigation.

The first step was aimed at investigating and shaping the preliminary concepts and at developing the relevant constructs presented in chapter 1. The second step consisted of shaping the constructs in practice by analysing two in-depth case studies. The concrete process underlying the theory-building approach of this step stems from Eisenhardt’s (1989a) concept of building theories from case study research. The third step consisted of conducting a social network analysis (SNA) aimed at proofing selected constructs of the emerging theory in a quantitative manner.

This chapter presents the frame of reference, i.e. the focus within which the research questions are answered. Following from the research approach and the research process, I then present the structure of the data. The chapter closes with a presentation of how the research design addressed the issues of quality of the research. In detail, the contents of this chapter are as follows:

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5.1 Research Approach

5.1.1 Frame of Reference

To answer the research question and address the developed issues, I limit my focus to the following frame of reference (Figure 5-1).

As outlined, I base the analysis on the questions where, who, when and what. Answering these questions leads to the geographical focus, which was set on the German-speaking regions of Switzerland, Austria and Germany (headquarters of the investigated companies); however, the networks investigated are international.

The industry focus is on manufacturing companies (ISIC code D), in which I investigated new product development (NPD) of large, multidivisional organizations. This focus is justified through the past experience of the author in these areas and for reasons of accessibility of the respective companies. Within the context of NPD, I investigate the network spanned by organizational sub-units.

The case study approach represents ‘an empirical inquiry that investigates a contemporary phenomenon within its real-life context’ (Yin 2003b, p. 13, italics added). Thus the time focus is contemporary.
Because the network is defined in terms of the relationships between an organization’s units, the relationships represent the unit of analysis.

5.1.2 Research Process

The research follows the philosophy of the generic research methodology developed by Ulrich and Krieg (1974), Ulrich (1981) and Bleicher (1991). According to Kubicek (1977), Tomczak (1992) and Gassmann (1999), the research process is here interpreted as an iterative learning process (Figure 5-2).

![Iterative learning process of research](source: Kubicek (1977, p. 13), Tomczak (1992, p. 84) and Gassmann (1999, p. 13)

The iterative learning process describes how an initial model is developed during the research process. The preliminary picture of reality, which is created by an initial reference framework and data from practice, has to be reflected critically and observed from changing perspectives. Conclusions from practice again have an impact on this theoretical frame. Generally, these have a subjective character, and therefore they always have to be reflected critically by taking alternative theoretical perspectives (Tomczak 1992). Consequently, phases of the development of theories are followed with a check of reality, followed by conclusions and further development of the theories, and so on. Ideally, at the end of the process, rules and models are derived that aim at helping to solve practical problems in a broad context.

To ‘question the reality’, I aim at covering the common journalistic six W’s (who?, what?, where?, when?, why? and how?). This concept ensures
that if a report or investigation is able to answer these questions, it can be considered complete.\footnote{1} Out of the questions what? and how?, hypotheses may be developed. However, these questions are exclusively descriptive. Only by the addition of the why? can one achieve a theory which is both descriptive and explanatory (cf. Kubicek 1977).

**Research process following Ulrich** The research process follows the six-step approach of Ulrich (1984): (i) begin with the identification and classification of problems relevant to practice; (ii) select and interpret theories relevant to the problem; (iii) investigate research questions in detail; (iv) develop evaluation criteria, decision rules or descriptive models; (v) test rules and models in practice; and (vi) consult the practice. The process that is shown in Figure 5-3 resulted from supplementing this process with the research concepts of Kubicek (1977) and Punch (2006).

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**Figure 5-3: Adapted research process**

*Source: Adapted and extended from Ulrich (1981), Kubicek (1977) and Punch (2006)*

The process shows the interplay of theory and practice. On the basis of the identification of a problem relevant to business practice, appropriate theories
have to be identified, and a frame of reference is assessed during the theoretical phase. Then a model is built which incorporates relevant theories. The practical phase is dedicated to the solution of the problem and gives answers to the research questions, i.e. the theoretical model is proofed within an empirical context. At the end, recommendations for management practice follow.

In detail, this means that *phases I–IV* specify the research objective. On the basis of my project work at the University of St Gallen and the Swiss Federal Institute of Technology, Zürich; intensive desk research; and my preliminary understanding of the practical phenomenon, I developed the first research framework, i.e. the practical problem to investigate (*what?*). Then I conducted expert interviews and interviewed practitioners to investigate the research questions in detail (first (possible) *how?*). Additionally, I studied relevant theories and evaluated them in extensive desk research to derive a theoretical reference framework (*why’*) that represents the basic understanding of the research objective and serves as an anchor to keep focus throughout the research work. The desk research continued throughout the entire process to question the *why?* and *how?* throughout.

*Phases V–VII* address the iterative learning process by specifying the proposed interconnections (*how?* and *why?*) in increasing detail. This means investigating the practical data (*who?, where?* and *when?*), testing the model and drawing conclusions with necessary adjustments. These phases loop back to phase V, as long as there are no further adjustments necessary (*why?* and *how?*). Here propositions and hypotheses are developed and/or refined, which is always followed by a proof in practice.

The *first iteration* resulted in the adjustment of the propositions by expert interviews and personal experience. A pilot social network study represented the *second iteration*. The *third iteration* comprised the analysis of data of a dozen mini-cases. These data are not given explicitly, but some findings of these cases can be found within the examples or within quotations throughout the document. The *fourth iteration* was manifested in the collection of data from two selected qualitative in-depth cases. The *fifth iteration* was the validation of some of the emerging theoretical constructs by a social network analysis
within one of the investigated companies. Expert interviews were conducted during all these phases (see section A.1).

Phase VIII answers the research questions with the final model, subject to the frame of reference (why?, where? and how?). Finally, phase IX draws conclusions and gives implications for ‘consulting the practice’ (how?).

5.2 Research Methodology

The concrete research methodology is qualitative research in the form of a multiple-case study design (Yin 2003b).

Choice of a qualitative research approach is justified by two facts. First, underpinning this research is the assumption that networks play a predominant role in today’s organizational environment. The main goal is to understand the phenomena within networks, explain them and derive recommendations from the investigations. The network perspective actually refers to the two networks as highly interdependent. Because of the interdependency, it is not possible to conduct a single-directed quantitative empirical investigation without having proper hypotheses from established theory. Therefore a single-directed quantitative investigation might be not sufficient here. Second, quantitative research has more of a theory-testing than a theory-development character. Without having an already established concept of entrepreneurship in intra-organizational networks to date, and with only poor empirical proofs of how the constructs are connected to each other, the research aims at theory building, rather than testing established theoretical models. In turn, this implies a qualitative approach, which was realized in the form of a case study approach in this research.

Here cases studies may be exploratory, descriptive or explanatory (Yin 2003b). This research applied a case design consisting of 12 exploratory mini-cases. The elaboration of early-stage mini-cases in collaboration with experts from theory and practice helped to tighten the focus and explore which cases are suitable for in-depth analysis. For the concrete theory development, two in-depth cases, i.e. the intraorganizational network of subunits, were selected.
as explanatory in-depth cases. A social network analysis was conducted in one of those companies to validate some of the emerging theoretical constructs.

5.2.1 Research Process

Overview of process
Case studies systematically relate theoretical constructs and practice. The principal goal is to reach a balance between abstraction and concrete observation (Harrigan 1983). For this theory-building undertaking, I adopted the case study approach of Eisenhardt (1989a). The underlying process is founded on the following eight steps, which are detailed in the following two sections:

Research process (section 5.2.1)
(i) getting started
(ii) selecting cases
(iii) crafting instruments and protocols
(iv) entering the field

Methods of analysis (section 5.2.2)
(v) analysing data
(vi) shaping hypotheses
(vii) enfolding literature
(viii) reaching closure

The research process along this concept involves a perpetual iteration among the steps (Eisenhardt 1989a), which is in line with the entire understanding of an iterative learning process.

To (i) get started, I determined an appropriate focus in terms of a fixed research question, the conceptual framework (with further questions) and a frame of reference. After that, the elaboration of the theory took place in close interaction with practical work, as did the elaboration of the first constructs. Through an intense literature review, preliminary interviews with practitioners and scholars and exchanges with other researchers (at several academic conferences; see section A.1) and practitioners (see section A.1), the
5.2. RESEARCH METHODOLOGY

problem has been shaped, and several companies have been identified for further investigation.

On the basis of relevant theories, initial working propositions were developed which reflected hypothesized relations between the relevant variables and preliminary definitions of the constructs that matter. Mayring (2002) posits that qualitative research should be open toward the investigated content. Therefore additions and revisions, both on the side of theory/hypotheses and on the side of applied methods, should be obtainable, if the investigation demands it. In this way, the early versions of the theoretical part have been sharpened in several iterations.

**Stages of investigation**

Given the relatively small size of samples in case study research, (ii) selecting cases, i.e. the sampling procedure, is an important issue. In case study research, contrary to the sampling that is used in quantitative studies, the recommended strategy is selective sampling (Miles and Huberman 1994, Yin 2003b). This follows the logic of replication, rather than the logic of sampling. This proceeding is somewhat contrary to random sampling logic but increases the efficiency of qualitative research (King et al. 1994).

Cases were selected in terms of their suitability for (Yin 2003b, p. 47) (i) predicting similar results (literal replication) or (ii) producing contrary results but for predictable reasons (theoretical replication). Here each case can be considered an experiment (Yin 2003b). The ‘experiments’ do not have to be identical for this logic; the use of a certain variation is even recommendable (Guba and Lincoln 1989). The selection process aims at choosing cases which are likely to replicate or extend the emergent theory as well as illustrate extreme situations (Eisenhardt 1989a). The selection process of this research is outlined in Figure 5-4.

As is outlined, the selection process followed a three-stage approach. The individual steps resulted in a stepwise reduction of the number of cases.

*The first stage* consisted of the elaboration of mini-cases to revise the conceptual framework. Data from the mini-cases are given in several short
examples or exhibits, whenever they fits the particular context. However, not all the data are used within this dissertation because the data were not used for \textit{theory building}, but rather, for exploration. The mini-cases were used to test initial propositions in practice and to validate the applicability of the theory. Additionally, they served as an important base for the second stage.\footnote{2}

\textbf{The second stage} targeted on investigating and analysing the intraorganizational networks of two selected case companies, company \textit{RhoCo} and company \textit{MuCo}. These have been selected out of the former ones. As outlined in chapter 1, this research interprets the organization as a network of particular entities and their interrelations. Three subcases within each case study reflect the level of the subunits to account for the multilevel nesting nature of the problem (cf. section 1.3.1). The main objective is to further investigate the networks and to identify the main mechanisms of coopetition.

\textbf{The third stage} consisted of a SNA, which was conducted in one of the two case companies, to further proof the mechanisms in a quantitative-like manner. This last step aims at validating some of the developed constructs and raising additional questions for further research. Here data according to the entire
network were collected where all pairs of relations have been measured. Thus network sampling was not used (see e.g. Wasserman and Faust 2006, p. 732).

The systematic reduction to two networks for in-depth case analysis and one network for the social network analysis was motivated by two reasons. First, the fewer the actual number of cases to investigate for a given time span, the more in detail one can investigate them (Leonard-Barton 1990). Second, the analysis has to respect the interdependency of the network levels. This demands investigation of subunits of established organizations and a systematic relation of their perspectives with the perspective of corporate management, and vice versa.

**Structure of the data set**
Multiple data collection methods were combined to (iii) craft instruments and protocols and gather as many aspects as were relevant to the research topic as possible.

The two in-depth case studies are based on 35 interviews (all in all, more than 48 interviews), which were conducted between May 2007 and November 2008. Interview partners were primarily general managers of the subunits, R&D directors, senior R&D managers, project managers and people from corporate management. The interviews were semistructured and included open-ended questions, where possible, to gather as much information as possible (see section A.1).

The interviews were conducted by telephone or in face-to-face meetings and took from one and a half hours up to four hours. All the interviews were conducted by the author himself and were carried out either within the research project of this dissertation or within one of the prior projects. Additionally, I attended workshops in both of the case companies. Here several interviews took place along the side.

**(iv) Entering the field** I (iv) entered the field based on the conceptual framework. Due to the multilevel nature of the research question and the constructs to investigate (see section 1.3.1), I interviewed people from both levels of the organization, i.e. people from *corporate management up to the*
executive board (CEO at RhoCo, vice president of engineering at MuCo) and people from the subunits (general management, director level and project management level). This resulted in a ‘within-case case’ structure of the data set. This proceeding aimed at capturing the multilevel nature of the organization and, moreover, respecting cross-level mechanisms (Figure 5-5).

![Figure 5-5: Multilevel, multicase data structure (within-case cases symbolized in dark colour)](image)

5.2.2 Methods of Analysis

The next step, (v) analysing data, consisted of two phases. First, within-case analysis allowed me to uncover the underlying patterns of each case. Within each case, I actually investigated three within-case cases, i.e. I investigated three subunits within each case in detail (see Figure 5-5). Together with the data from the headquarters, these data formed the two in-depth cases.

Hereinafter, I generalize the patterns found within the two cases RhoCo and MuCo across cases to develop the concepts and constructs and propose relationships between the variables. The gathered data aims at deriving hypotheses for further quantitative empirical investigations, as this is the goal of theory-building research. Results of the analysis are embodied in the identifi-
cation of the factors that are most relevant and able to explain the underlying mechanisms.

Then, (vi) shaping hypotheses took place, which involves sharpening constructs and understanding the dynamics underlying the proposed relationships. An essential feature of qualitative research is a comparison of the emergent concepts, theory or hypotheses with the existent literature. Therefore the constructs that were developed from literature were contrasted with the findings in this stage. The next step, (vii) enfolding literature, was applied by examining literature that discusses similar findings as well as literature that conflicts with the developed theory. Consequently, the chapters 1 to 2 (theory block) have been shaped several times.

At the end of the process, two issues for (viii) reaching closure have to be considered: when to stop adding cases, and when to stop iterating between theory and data (Eisenhardt 1989a). Ideally, one should stop adding cases and iterating when the study reaches theoretical saturation. However, there exists no accepted set of decisive factors for this assessment. Nevertheless, several criteria seem appropriate. The research process can be finalized once the concept or the hypotheses that emerge from the research are testable and logically coherent, or when the developed theory is likely to be testable with constructs that can be measured and hypotheses that can be proven false, respectively. Both aspects have been adopted.

5.2.3 Social Network Analysis

*If you can’t measure it, you can’t manage it.*

—Peter F. Drucker

Consequently, managing the intraorganizational relationships requires measuring them. *Network* is a buzzword used in many disciplines of the social sciences, although it is predominantly used without the correct and precise use of network measures (Wasserman and Faust 2006). Social network analysis (SNA) emphasizes relationships in terms of information, resources or other flows between people, groups, organizations and other information-processing entities. It provides approaches around two principles. First, it is an explicitly
relational and structural approach. Second, it is able to explain individual behaviour (Foster and Seidman 1989). The goal is to find patterns of behaviour within complex systems to explain the behaviour of the contained entities.

SNA approach
SNA focuses on relationships and interactions in a predefined ‘social network’. The SNA in this research followed a two-step approach, as done by several other social network analysts (cf. Hansen 1999, Tsai 2002). The first step aimed at assessing the formal social network structure. The second step focused on the relationships between the identified network entities.

To assess a social network in particular, it is recommended that one define egocentric networks in the form of ego and alteri. Ego is the particular respondent, whereas alteri are the others about whom the respondent is asked. Through this, one can assess the relationships and interconnections between all the entities of the social network (Jansen 2006).

This proceeding is illustrated with an abstract example in the following paragraphs. In a network which consists of four people, A, B, C and D, one would start by asking respondent A about his conceivable unilateral relationships $\delta$ to person B ($\delta(A, B)$), person C ($\delta(A, C)$) and person D ($\delta(A, D)$). Afterward, B is asked about his the unilateral relationships to A, C and D. The process continues in the same way and results in egocentric social networks (from the viewpoint of individuals). In the case of the fictive four persons, one will get $n(n - 1) = 12$ relationships between the four persons (see Figure 5-6).

![Example of interpeople relationships](image)

Figure 5-6: Example of interpeople relationships

These network data are asymmetric in nature, as shown on the left-hand side of Figure 5-6. Often, out of this asymmetric data, one builds the social
network of bilateral (asymmetric) relationships, for instance, for the relationship between A and B, as a function $\Delta = f(\delta(A, D); \delta(D, A))$, as shown on the right-hand side of Figure 5-6.\(^3\)

The unit of analysis of this research is the *relation between network entities*. These entities ‘contain’ individuals, but they are not single individuals; that is, the relations across the entities have to be assessed from single respondents, but must concern the relationships between particular entities in the social network of an organization (cf. nesting levels in section 1.3.1).

As illustrated in Figure 5-7, unit I might consist of respondent a and respondent b. Unit J might consist of respondent c and respondent d. We are interested in the relationship $\delta_{IJ}$ between entity I and entity J.

![Figure 5-7: Interunit relationships $\delta_{ij}$ of unit I and unit J](image)

The idea is to ask the respondents not about their relationships to other individuals within the organizational network, but about the unilateral relationship of their entity to the other entities within the network. This yields $\delta(i, J), \forall i \in I = \{a, b\}$; and $\delta(j, I), \forall j \in J = \{c, d\}$; and so on. On the basis of *interrater agreement* measures (cf. James et al. 1984, 1993), one can then calculate, for instance, the relationships $\delta(I, J) = g(\delta(i, J)) \forall i \in \{a, b\} = I$, and so on.\(^4\) The bilateral relationship can again be calculated, as described earlier.

An important advantage of this methodology is that compared to the direct assessment of relational data between people, the data can be collected on an *anonymous basis*, which can help in acquiring organizations willing to reveal their sensitive network data.
Data analysis

The result of this assessment is relational data. Relational data contain observations corresponding to pairs of network entities. Conceptually, each observation corresponds to a cell in a square matrix. An example for such a matrix $\Gamma$ is given in Equation (5.2.1):

$$
\Gamma = (\gamma_{ij})_{k \times k} = 
\begin{pmatrix}
\gamma_{11} & \cdots & \gamma_{1k} \\
\vdots & \ddots & \vdots \\
\vdots & & \gamma_{ii} \\
\gamma_{k1} & \cdots & \gamma_{kk}
\end{pmatrix}_{k \times k}.
$$

(5.2.1)

Every cell contains a measure $\gamma_{ij}$, which reflects the relationship between the corresponding two entities $i$ and $j$ (the diagonal is not defined); that is, each network comprises $n(n-1)$ observations.

Central to social network theory is the assumption that no observation is really independent; that is, if one actor is meant to be investigated (ego), then one has to respect all the other actors with which the actor has direct or indirect ties because these relations might influence the actor, and thus its relations as well (see Figure 5-6; the ego network of node A includes all the relations between the alteri that are directly connected to it).

This means that the data are systematically interdependent, and using conventional statistical methods on network data might result in underestimating this interdependence. This can result in too much confidence in the statistical results (discussed in detail by Wasserman and Faust 2006).

The quadratic assignment procedure (QAP) (Krackhardt 1988) is therefore commonly used to analyse relational data. QAP enables correlation and regression analyses on relational data because it corrects the previously mentioned ‘autocorrelation problem’ (Krackhardt 1988). For the correlation analysis, I used QAP correlation. For the regression analysis, I used the multiple regression quadratic assignment procedure (MRQAP), using the Double
5.3. QUALITY OF THE RESEARCH DESIGN

Dekker semipartialling method. All analyses were carried out using UCINET 6 (Borgatti et al. 2002).

MRQAP regresses a dependent matrix on one or more independent matrices. The algorithm performs a standard multiple regression between the $\gamma_{ij}$ of two or more matrices. Second, it randomly permutes the matrices according to their density and recomputes the regression with the manipulated matrices. This sequence is run several times (e.g. 10,000 times) to derive the standard error of the interesting statistics on the relational data.

The results can be interpreted similarly to standard correlation and/or regression results. However, one has to be aware that the results regard matrices; that is, the results suggest whether the association of the matrices is an outcome of dependence or whether this is randomly accomplished (Kilduff and Krackhardt 1994). For example, in the case of binary data, the correlation coefficient of two networks expresses the percentage chance that if $\gamma_{ij}$ of the independent matrix is 1, then $\gamma_{ij}$ of the dependent matrix is also 1.

5.3 Quality of the Research Design

The main criterion for high quality in (case study) research is to achieve high reliability and validity (Eisenhardt 1989a, Yin 2003b). **Reliability** is the extent to which the results can be achieved again under the same conditions of measurement. **Validity** can be divided among construct validity, internal validity and external validity (Yin 2003b).

*Construct validity* addresses an establishment of correct operational measures of the studied constructs.

*Internal validity* addresses a correct establishment of causal relationships among the studied constructs.

*External validity* addresses the possibility of generalizing results to a wider scope, e.g. whether the results might be transferred to other companies.

Table 5-1 gives an overview of specific tactics proposed by Yin (2003b) to address high quality and how they have been applied in this research. The
various methods of triangulation, the dialogical approach, the specific case structure and the documentation and storage are detailed in Table 5-1.

**Triangulation**

Triangulation is the combination of different (cf. Flick 2002, Patton 1987) (i) data sources (data triangulation), (ii) evaluators (investigator triangulation), (iii) perspectives on the data set (theory triangulation) or (iv) methods (methodological triangulation). As outlined in Table 5-1, I used various types of triangulation. Specifically, I applied data triangulation, theory triangulation and methodological triangulation.

*Data triangulation* was addressed by using different sources for the data, in the form of observations, archival sources, interviews (telephone and on-site) and workshops. Supplementary, secondary data like project plans, presentations, meeting notes, company Web sites and several other documents have been provided to me by the key contacts and are partly confidential. Combining the data from the semistructured interviews with the study of secondary data and primarily measured data within the previously mentioned third stage of investigation (SNA) was aimed at achieving validity and reliability.

*Theory triangulation* was addressed inherently by the eclectic theoretical perspective of the research. Each of the theories that builds the theoretical foundation in chapter 2 represents a distinctive perspective on the topic. Many rival explanations have been used to construct the conceptual framework to cover the literature on the multinational organization, cooperation, competition, organizational behaviour and entrepreneurship.

*Methodological triangulation* can be addressed by the use of quantitative data, which can be used for a perceptual triangulation within qualitative case studies (Bonoma 1985, p. 203). This is founded in the postulation that case studies should be founded on multiple data sources, e.g. qualitative as well as quantitative (Eisenhardt and Graebner 2007). In this way, the data analysis can benefit from different data-gathering techniques, which is manifested in the SNA in this research.
Table 5-1: Case study tactics for four design tests

<table>
<thead>
<tr>
<th>Tests</th>
<th>Case study tactic</th>
<th>Phase of research</th>
<th>Application in this research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construct validity</strong></td>
<td>- use multiple sources of evidence</td>
<td>data collection</td>
<td>$\rightarrow$ triangulation (data triangulation)</td>
</tr>
<tr>
<td></td>
<td>- establish chain of evidence</td>
<td>data collection</td>
<td>$\rightarrow$ dialogical approach</td>
</tr>
<tr>
<td></td>
<td>- have key informants review draft case study reports</td>
<td>composition</td>
<td>$\rightarrow$ dialogical approach</td>
</tr>
<tr>
<td><strong>Internal validity</strong></td>
<td>- do pattern matching</td>
<td>data analysis</td>
<td>$\rightarrow$ case structure</td>
</tr>
<tr>
<td></td>
<td>- do explanation building</td>
<td>data analysis</td>
<td>$\rightarrow$ triangulation (theory triangulation)</td>
</tr>
<tr>
<td></td>
<td>- address rival explanations</td>
<td>data analysis</td>
<td>$\rightarrow$ triangulation (theory triangulation)</td>
</tr>
<tr>
<td></td>
<td>- use logic models</td>
<td>data analysis</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>External validity</strong></td>
<td>- use theory in single case studies</td>
<td>research design</td>
<td>$\rightarrow$ triangulation (theory triangulation)</td>
</tr>
<tr>
<td></td>
<td>- use replication logic in multiple case studies</td>
<td>research design</td>
<td>$\rightarrow$ triangulation (methodological triangulation)</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td>- use case study protocol</td>
<td>data collection</td>
<td>$\rightarrow$ documentation and storage</td>
</tr>
<tr>
<td></td>
<td>- develop case study database</td>
<td>data collection</td>
<td></td>
</tr>
</tbody>
</table>

Source: Yin (2003b, p. 34) and this research
**Dialogical approach**

Gathering the data, elaborating the case study and analysing the data took place within dialogue with representatives from the case companies as well as with several other practitioners and scholars. Attending several academic conferences helped to tighten the focus and to build the explanatory theory.

*Interviews* were made on both the corporate (headquarters) level (level of organizations) and the *subunit level*, to account for the multilevel nature of the problem (see section 1.2). Semistructured interview guidelines allowed a balance between appropriate guidance during the sessions and open questions, to gather as many data as possible.

*Reviews* of people from the case companies supported the completion of the interview protocols (transcriptions). The final case study reports were reviewed by company representatives and other practitioners and theorists as well.

*Workshops and presentations* regarding the research topic were attended at the companies’ sites. The consolidated findings were presented at internal meetings (at MuCo in Italy and at RhoCo in Germany, respectively) to validate and amend the findings. In MuCo, the complete ‘network’, i.e. representatives (general managers) of all the entities, attended this meeting.

**Case structure**

Most of the constructs from the first case could be replicated in the second case, and could even be validated by the SNA in company MuCo. Interviews in both cases were based on the same interviewing guidelines, which, however, were developed further during the process, while the conceptual framework was sharpened. The detailed interview guidelines for the semistructured interviews can be found in appendix A.1. Due to the similar structure of the two cases in appendix B and appendix C, the elaboration of a cross-case case comparison is immediately transparent (Yin 2003a, p. 148).
**Documentation and storage**

All in all, about 70 hours of interviews were conducted, which resulted in transcripts totalling about 450 typewritten A4 pages.

*Protocols* of all the interviews and workshops ensured thorough documentation of the data collection and analysis; that is, the documentation can be traced back even to single interviews.

*Tape recordings* of all the interviews were made. Recordings were *transcribed* and then sent to the interviewees (per interview protocols) for double-checking, to exclude possible misinterpretations (one interviewee even made a presentation of 10 slides to clarify his opinions).
Conclusion

This chapter described the research approach and proceeding which has been applied to address the research problem and to answer the research questions. The choice of a qualitative research design was motivated by the lack of existing theoretical models in the research field and therefore by the nature of the research problem – to develop theory, rather than proof theory.

Because of the specific research problem, i.e. its multilevel nature, it was necessary to view the network from several perspectives to reach a ‘complete’ understanding of the underlying mechanisms. Therefore the empirical investigations aimed at gathering empirical data from different perspectives – the subunit and headquarters levels. Subsequently, the SNA in MuCo addresses all the entities, i.e. the complete network.

However, the research design also has some limitations. These stem predominantly from the general weaknesses of qualitative case research and the frame of reference (discussion in section 8.3).

Notes

1Kubicek (1977) advises that a reference framework should cover the questions what?, how? and why?: What? – in the meaning of an identification of relevant measures, which factors, variables, constructs and concepts, with which dimensions, should be consulted to explain the problem in a proper way? How? – in the meaning of an identification of the relevant interactions, this aims at explaining how constructs are connected. Why? – in the meaning of an identification of relevant mechanisms, this might explain why the constructs are connected in the explained way.

2This multiple case proceeding is sometimes also called ‘T-design’ (Thölke et al. 2001, cited van Aken 1994). The horizontal axle of the /it T represents the explorative mini-cases, and the vertical axle of the /it T represents the in-depth cases. Thus this research would have a horizontal axle of 12 mini-cases and a vertical axle of two in-depth cases.

3For instance, the bilateral relationship Δ between A and B could be calculated from the arithmetic mean as \( \Delta(A, B) = \frac{(\delta(A, B) + \delta(B, A))}{2} \), or analogous by the maximum, the minimum or other functions.
Considering interrater agreement measures, the unilateral relationship between unit \( I \) and unit \( J \) could follow, in this example, as 

\[
\Delta(I, J) = \frac{(\delta(a, J) + \delta(b, J))}{2} = C_{ij} = \frac{\sum_{\forall i \in \{a, b\} = I} \delta(i, J)}{N},
\]

which represents the arithmetic mean.

* * *
Chapter 6

Empirical Investigations

If theory talks only to theory, the collective research exercise runs the danger of becoming entirely self-referential and out-of-touch with reality, of coming to be considered irrelevant.


This research addresses the concrete practical problem of how organizations can develop an entrepreneurial organization. In particular, the investigation focuses on the question of how firms can coordinate their organizational networks entrepreneurially, i.e. how an organizational environment that facilitates entrepreneurial behaviour can combine individually high-performing subunits that are effectively integrated.

An examination of previous research suggested that both competitive and cooperative mechanisms are important for achieving sustained organizational performance. By developing a dynamic balance, or certain equilibrium of cooperation and competition, organizations might be able to leverage internal syncretic rent-seeking behaviour, i.e. coopetition. The point at issue is how organizations can leverage this equilibrium and how they can achieve it in the first place.

The findings that are presented in this chapter are based on the two in-depth case studies that can be found in appendices B and C. As outlined in the previous chapter, I aimed at filtering the number of cases as much as possible, guided by a selective sampling logic. Before investigating RhoCo
and MuCo in detail, I was in contact with more than 120 R&D employees and managers from more than 75 companies, primarily from the automotive and manufacturing industries, in the form of collaborative projects, consulting, benchmarking, working circles, management seminars, and so on. Interviews with management scholars, experts from industry and an extensive literature review provided an additional foundation for the research.

This chapter presents the main empirical findings stemming from within-case analysis and cross-case analysis of the two case studies RhoCo and MuCo, including three selected subcases (within each case study) that are representative of the organizational networks and descriptive quantitative data that were measured during the network assessment. Some redundancy and repetition of the content from the cases in the appendices was accepted due to a more detailed presentation of the findings in this chapter. The chapter starts with an overview of the case companies. Then, it presents a cross-case comparison between the two cases and/or between the specific subcases. The presentation of the empirical findings is explicit, without valuation, and takes place in the discussion of the findings in the next chapter. Finally, the chapter presents the results of a QAP multiple regression analysis that was conducted within MuCo.

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6.1 Choice of In-Depth Cases

From the initial set of pilot studies, the two companies RhoCo and MuCo were identified to be best suited for a detailed investigation of the specific research problem of this research:

- They fit into the frame of reference (rationales for this specific frame of reference can be found in section 5.1.1).
- They provide the organizational network structure needed to proof the theoretical constructs (i.e. a network of decentralized subunits within a larger organization).
- They fulfil the replication logic (literal replication/theoretical replication; see section 5.2.1) and, additionally, extend the findings of each other.

Furthermore, the cases were chosen because of their accessibility due to prior projects undertaken at the University of St Gallen. In particular, the prospect of being able to conduct a subsequent SNA at MuCo was a motivation to investigate this organizational network in detail.

The names of companies and products had to be disguised to preserve the anonymity of RhoCo and MuCo. This shows that the management of the intraorganizational network is a sensitive and important topic of extreme relevance for competitive advantage.

Though the empirical base is founded on just two organizational networks, investigations actually concern 17 subunits in the network-embedded entrepreneurial entities (9 subunits in RhoCo and 8 subunits in MuCo). To account for the multilevel nature of the research (cf. section 5.2.1), each case study includes three subcases, which describe three subunits within the organizational network; that is, the empirical findings that are presented in this chapter reflect each organization from four perspectives: the headquarters perspective and perspectives of three different subunits.\(^1\)

6.2 Entrepreneurship within the Networks

Table 6-1 shows an overview of the characteristics of the subcases within RhoCo and MuCo.
Table 6-1: Characteristics of subcases within RhoCo and MuCo

<table>
<thead>
<tr>
<th></th>
<th>$\varrho_1$</th>
<th>$\varrho_2$</th>
<th>$\varrho_4$</th>
<th>$\mu_1$</th>
<th>$\mu_5$</th>
<th>$\mu_7$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>perception</td>
<td>network/bureaucracy</td>
<td>hierarchy/network</td>
<td>market</td>
<td>network/bureaucracy</td>
<td>market</td>
<td>hierarchy/network</td>
</tr>
<tr>
<td><strong>Vertical</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>network</td>
<td>high autonomy in decisions</td>
<td>high autonomy in decisions</td>
<td>high autonomy in decisions</td>
<td>high autonomy in decisions</td>
<td>high autonomy in decisions</td>
<td>high autonomy in decisions</td>
</tr>
<tr>
<td><strong>Entrepreneurial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>orientation</td>
<td>high innovativeness and proactiveness</td>
<td>moderate innovativeness and proactiveness</td>
<td>high innovativeness and proactiveness</td>
<td>high innovativeness</td>
<td>moderate innovativeness</td>
<td>low innovativeness</td>
</tr>
<tr>
<td></td>
<td>moderate risk taking</td>
<td>high risk taking</td>
<td>moderate risk taking</td>
<td>moderate risk taking</td>
<td>high proactiveness and risk taking</td>
<td>high risk taking</td>
</tr>
<tr>
<td><strong>Content of</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>competition</td>
<td>resources and support</td>
<td>resources and support</td>
<td>resources and support</td>
<td>resources and support</td>
<td>resources and support</td>
<td>resources and support</td>
</tr>
<tr>
<td></td>
<td>system position</td>
<td>system position</td>
<td>system position</td>
<td>system position</td>
<td>system position</td>
<td>system position</td>
</tr>
<tr>
<td></td>
<td>market share</td>
<td>market share</td>
<td>market share</td>
<td>market share</td>
<td>market share</td>
<td>market share</td>
</tr>
</tbody>
</table>
6.2. ENTREPRENEURSHIP WITHIN THE NETWORKS

6.2.1 Entrepreneurship on the Subunit Level

Core elements of entrepreneurial orientation

As can be seen by the cross-case comparison in Table 6-1, the core elements of EO (innovativeness, proactiveness and risk taking) seem to be relatively high throughout all the investigated entities.

The qualitative data additionally suggest that the bigger entities are more innovative. Size was found to be important for a unit’s resource base and therefore as an explanation for a unit’s innovation capacity. Additionally, the findings in MuCo showed that the bigger (and older) entities have developed distinctive organizational competences that can be used to engage in innovation. However, the flexibility, proactiveness and risk taking propensity to engage in entrepreneurial initiatives is often missing in the bigger entities.

In the quantitative part of the empirical investigation, I measured the core elements of EO, i.e. innovativeness, proactiveness and risk taking, within the network survey in MuCo. Figure 6-1 shows the scale values for the three core elements, which were measured on a five-point Likert scale, and their interrelation with the size (bar chart on the left) of the units within MuCo (see section A.2 for details on the measures).

![Figure 6-1: Core elements of EO\textsubscript{1} within MuCo](image)

*Figure 6-1: Core elements of EO\textsubscript{1} within MuCo (bar chart on the left indicates sorting by size, sub-cases shaded solid)*
Figure 6-1 suggests that size and the core elements of EO do not have a significant relationship. ‘Risk taking’ seems to be high for all the units and especially high for μ₈, which has relatively low innovativeness and proactiveness.

Generally, the core elements of EO do not have to correlate. Figure 6-1, however, shows a rather strong correlation between innovativeness and proactiveness (correlation coefficient of 0.805). In the following section, I calculated a composite measure of EO, which reflects the core elements innovativeness, proactiveness and risk taking (in the following EO₁).

**Autonomy and EO₁**

Entrepreneurial freedom, i.e. autonomy in decisions and resources, was found to be a vital factor for entrepreneurial behaviour on the level of the subunits and on the individual level:

Ideas exclusively evolve by autonomy and entrepreneurial freedom, on the level of individuals. This includes giving them the time to explore new ideas and prospective opportunities. However, because of the high operational workload of the employees, this is not given in a sufficient way. (informant ϱ₁,₄)

The organizations provide their entities with a great deal of power in taking decisions regarding their business strategies. This supports, again, the understanding of the entities as small enterprises that are embedded within a larger network:

Basically, there is nothing that constrains you in your decisions. Concerning your business, you can pretty much do whatever you want. (informant μ₀,₈ to the general managers)

In both companies, most of the units are legally independent companies. Some of their functions are redundant. Even though it would be possible to pool some of the functions centrally, the functions have to stay decentralized and on-site because they have to be adapted to the entities’ specific processes and technologies (e.g. informant ϱ₀,₁).

Figure 6-2 shows the measures of EO₁ (composite measure consisting of innovativeness, proactiveness and risk taking) in comparison with decision au-
6.2. ENTREPRENEURSHIP WITHIN THE NETWORKS

Autonomy of the individual units (see section A.2 for details on the measures). Again, the entities are in order of their size (bar chart).

![Bar chart showing autonomy and EO₁ within MuCo](image)

**Figure 6-2: Autonomy and EO₁ within MuCo**
*(bar chart on the left indicates sorting by size in number of employees)*

It can be seen that autonomy and the composite measure of EO₁ (innovativeness, proactiveness and risk taking) are correlating quite strongly (correlation coefficient of 0.523). Whereby μ₅ has the highest levels in autonomy and is amongst the highest in EO, μ₇ does not affirm the relationship between autonomy and EO. This can be explained by an only moderate level of innovativeness and proactiveness within μ₇ because this entity is presently focusing on the effectiveness of its operations, instead of growing by innovation (see within case μ₇ in appendix C). In the following sections, I integrate autonomy into the composite measure of EO₁, which reflects the elements autonomy, innovativeness, proactiveness and risk taking (in the following EO₂).

**Competition and EO₁**

The findings from the qualitative data suggest that the companies tried to embed entrepreneurial drive predominantly by building competitive organizational systems. They did so by introducing market elements like profit centre structures and competitive reward systems for the entities’ managers.
This suggests that competition is an important mechanism within the organizational network. The investigations additionally show that the different contents of competition are not directly or systematically fostered within the networks. Moreover, Table 6-1 shows that the different types of competition often occur simultaneously. In fact, the three types of competition are highly correlated on the network level, which is outlined in Table 6-2 (QAP correlations).

Table 6-2: Means, standard deviations and correlations of interunit competition

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>s.d.</th>
<th>X₁</th>
<th>X₂</th>
<th>X₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>X₁ resource competition</td>
<td>2.487</td>
<td>0.763</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₂ market competition</td>
<td>2.625</td>
<td>0.801</td>
<td>0.786*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₃ system competition</td>
<td>2.515</td>
<td>0.663</td>
<td>0.891**</td>
<td>0.917**</td>
<td>1.000***</td>
</tr>
</tbody>
</table>

* p < 0.01 ** p < 0.001

The highest correlation could be found between competition over resources and support (X₁) and competition over system position (X₃). More precisely, the qualitative data revealed that resource and market competition often induce system competition. Within both networks, they are considered to be at a healthy level. Resource competition increases efficiency, whereby market competition increases a unit’s proactivity, i.e. entrepreneurial orientation. System competition often has no direct effects, though a better position within the (vertical) network leads to better access of critical resources from the top. Therefore competition over resources and support might induce competition over system position.

Because all three competition measures correlated on the network level, I averaged them on the entity level to create a composite measure of competition for further analysis. Cronbach’s alpha for this composite measure was, on the level of the individual respondent (N = 39), 0.90. This measure reflects the elements competition over market share, competition over resources
and support and competition over system position, as perceived by the single entities.

To measure competition on the level of the entities, I calculated the in-degree and out-degree centrality measures of competition, which aim at characterizing the intensity with which an organizational unit competes with other entities and how others compete with the entity, respectively. After that, I calculated the mean of these two measures to get a measure of the relative competition intensity of each unit.

Figure 6-3 shows the measures of EO2 (autonomy, innovativeness, proactiveness and risk taking) compared to the relative competition intensities of the entities within MuCo (see section A.2 for details on the measures). Again, the entities are in order of their size (bar chart).

![Graph showing competition and EO within MuCo](image)

Figure 6-3: Competition and EO within MuCo
(bar chart on the left indicates sorting by size in number of employees)

Figure 6-3 shows that size does not matter for the scores in competition, somewhat contrary to the qualitative finding and theoretical considerations that the bigger entities have higher competition intensities. EO2 and competition seem to have a rather strong positive correlation (correlation coefficient of 0.561).
One has to be aware that measuring and characterizing competition in this way embodies a new approach and thus has to be considered carefully. Conventionally, in-degree and out-degree measures are used for knowledge flows or cooperation intensities.

**EO<sub>2</sub> and performance**

The findings from the qualitative data suggest that the entities are predominantly focused on achieving individual performance. This finding points toward competitive/monopolistic rent-seeking behaviours of the units. The fact that in the profit centre model, each entity, i.e. the (general) managers of the entities, is measured on the basis of the entity’s profit additionally points toward this kind of behaviour.

Figure 6-4 shows the measures of EO<sub>2</sub> (autonomy, innovativeness, proactiveness and risk taking) compared to the individual performance of the entities within MuCo (see section A.2 for details on the measures). Again, the entities are in order of their size (bar chart).

Figure 6-4: Performance and EO within MuCo
*(bar chart on the left indicates sorting by size in number of employees)*

Figure 6-4 shows that size does not matter for the scores in performance, whereby EO<sub>2</sub> and performance seem to have a rather strong positive correla-
tion (correlation coefficient of 0.713). This correlation is not supported by the three bigger entities; though they vary a lot in their EO, performance is on the same level for these entities.

6.2.2 Entrepreneurship in a Relational Context

The qualitative data from both cases RhoCo and MuCo suggest different entrepreneurial processes. Following from the multilevel investigation, two entrepreneurial processes were found to take place within intraorganizational networks.

The two entrepreneurial processes

Induced by the nature or affiliation of the opportunity, the following entrepreneurial processes can be distinguished:

- intraunit entrepreneurship and
- interunit entrepreneurship

**Intraunit entrepreneurship** is an independent and autonomous entrepreneurial process by one subunit. The intraunit entrepreneurial process is driven by the entities individually. It corresponds to the basic idea of EO and thus can be characterized by the elements autonomy, innovativeness, proactiveness and risk taking. Basically, a unit detects and exploits an opportunity within this process. The opportunity is, so to speak, *located within one entity*; more precisely, it is affiliated with the unit’s specific area of expertise (technology/technological competence).

**Interunit entrepreneurship** is an entrepreneurial process that involves at least two different organizational units. This second entrepreneurial process regards the combination of resources across the units in terms of knowledge, human resources, technological expertise, and so on. Here a unit recognizes a business opportunity that demands complementing of its own technology, or competence with another specific technology, or competence that *can be found within the network*; that is, the opportunity is beyond the border of one single unit, i.e. *located between two or more entities.*
Underlying mechanisms

Entrepreneurial opportunities can be located within one of the organizational units or can be located across two or more units. This locus of the opportunity determines the type of entrepreneurial process and, moreover, what kind of network relationships are relevant for these processes. Following this, Figure 6-5 illustrates which networks were found to be important for the two processes.

![Figure 6-5: Relevant networks for entrepreneurship](image)

Hence, if an opportunity is located within one single entity, it engages in intraunit entrepreneurship. For this entrepreneurship process, predominantly, the vertical network matters. This is the direction from which the units get their resources to drive the entrepreneurial process. Lateral cooperation is not important for this process because the specific (technological) competences are already within the entity. Competition within the network as well as external competition serve as important drivers for this process.

In contrast, if an opportunity demands the application of two (technological) opportunities, the corresponding entities must engage in interunit entrepreneurship. This process is fundamentally based on collaborative behaviour. However, vertical relationships again are the source of important resources to drive this process. Internal competition does also play a role here, in that the entities typically try to get the biggest share out of the project.
6.3 Course of Organizational Development

The preceding is based on a rather static reflection of the organization. This section presents how the organizations evolved over time in a dynamic way.

6.3.1 Stepwise Process of Organizational Development

After focusing on the individual performance of the entities in the past, the organizations now put major emphasis on the development of integrative synergies. Hence organizational development can be understood as a stepwise process.

In the past, both organizations built internal, market-like organizational structures. This development is predominantly manifested in the profit centre structures. On the level of the decentralized subunits, this resulted, within both companies, in the development of an autonomous and rather competitive system:

Principally, all of the entities have to be able to ‘exist on their own’; otherwise they do not have ‘the right to exist’. That is, they simply have to be profitable.

(informant μ0.8)

Coordinating the network in this competitive manner supported the development of entrepreneurial drive at the level of the subunits and thus encouraged intraunit entrepreneurship. Presently, the organizations put major effort into integrating the system. The corporate strategic directions of RhoCo and MuCo, which support this direction, are given in Table 6-3.

Both organizations follow the strategy of developing an efficiently integrated and, at the same time, diversified network of effective component entities; that is, they aim at networks that consist of strong but decentralized organizational capabilities that can be leveraged within the whole network. This is predominantly motivated by the following reasons:

Serving a changed market demand Possessing a network that represents a wide variety of technologies and competences provides a distinctive competitive advantage. Customers increasingly demand systems, rather than individual modules (or applications composed of only one technology). Therefore one
Table 6-3: Corporate strategies of RhoCo and MuCo

<table>
<thead>
<tr>
<th>Extract of RhoCo’s mission statement</th>
<th>Extract of MuCo’s mission statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>... the worldwide benchmark</td>
<td>... can be customized and used globally</td>
</tr>
<tr>
<td>... both, specialized and integrated</td>
<td>... highly modular and flexible system</td>
</tr>
<tr>
<td>... we are where our customers are</td>
<td>... there, where the customer needs us</td>
</tr>
</tbody>
</table>

Source: Corporate Web sites of the companies

of the central strategic directives of both companies is to become a systems and solutions provider (informants ϱ₀₁). It is not solely the local proximity to the customer, but also the specific competences that can be combined, which provide real competitive advantage (informant μ₀₄).

Seizing additional opportunities for innovation Whereby intraunit entrepreneurship features rather incremental innovation, interunit projects normally exhibit radical innovation. The greatest potential for innovation actually lies in the relationships in which one does not see an immediate relation; these provide future market opportunities and real competitive advantage (informant ϱ₂₅).

Leveraging unexploited synergies Organizational capabilities of the companies are developed within the subunits. The problem here is that the developed capabilities remain decentralized in one unit and are not used within the network because they represent the competitive advantage on the subunit level. Enhanced cooperation/integration is expected to yield to a better global usage of these capabilities.

6.3.2 Challenges in Organizational Development

Several challenges for this strategic direction could be found within the networks. The following sections present three of the key challenges, including

- rent seeking and opportunism of the entities
• local/vertical orientation of the entities
• complexity and heterogeneity of the organizational system

Rent seeking and opportunism

One challenge for achieving higher cooperation intensity is that in the profit centre models, units are exclusively interested in projects that provide an added value. As autonomously operating profit centres, the business units are responsible for their individual performance. The units (and their managers) are measured against these objectives. One logical consequence of the fact that units’ managers are predominantly measured by the individual profit of their units is that they only will cooperate if cooperation represents an added value for them. It was found that in both companies, the entities act in a rent-seeking manner.

Moreover, rewards for unit managers are rather short term oriented within the profit centre models. Collaborative projects tend to be more about future business, and thus they do not have an immediate outcome:

Every entity has his own business, and because they are measured regarding their operational results, they are exclusively interested in their own job and in delivering the demanded results at the end of the year. (informant ϱ0.2).

In both companies, collaborative projects currently have a negative influence on the individual performance of the entities because they are not as efficient as autonomous projects. Complicated interunit coordination causes high transaction costs within collaborative projects. Stemming from their individual backgrounds, the entities speak different ‘processual languages’ and approach the projects in different ways. Coupled with a high operational pressure, this again nurtures the opportunistic posture of the entities. Here the rent-seeking entities are predominantly interested in their own added value:

If you end up in a situation where what is good for an individual engineering centre is not necessarily good for the whole group or for other engineering centres, you will end up in a conflict situation. Without being able to manipulate the general managers effectively, there is no way to resolve that. This manipulation has to be made by the head office – if they are not able to manipulate it in a way that the individual entities are doing what is best for the whole company [long-term orientation], the whole won’t be successful. (informant μ1.7)
Local/vertical orientation

A challenge for higher cooperation intensity is that units are rather orientated toward their own business (the outputs by which they are measured) and vertical network relations (the direction from which they get their resources). In part, people within the entities have a very strong identification with their entity and not a very high identification with the overall company:

*How do you mean ‘you have to follow one common objective’? We don’t have a common objective, we all have our own objectives!* (μ₄,₁₃ – a general manager)

Part of the network survey within MuCo was therefore the assessment of how people within the entities feel a sense of connection with their entity relatively, compared with their feelings toward the company and/or organizational network as a whole. Figure 6-6 shows the composite measure of EO with the identification of people within the entities (1 is identification with the unit and 5 is identification with the entire organization; see section A.2 for details on the measures). Again, the entities are in order of size (bar chart).

![Figure 6-6: Autonomy versus identification within MuCo](image)

*Figure 6-6: Autonomy versus identification within MuCo (bar chart on the left indicates sorting by size in number of employees)*

It can be seen that size does not have a relationship with identification with the entity versus identification with the overall company. Interestingly, EO₂
correlates rather strongly with identification (correlation coefficient of 0.644), indicating that people in units with higher EO$_2$ (this measure includes autonomy in decisions) tend to identify themselves more with the overall company than people in units with low EO$_2$.

**Complexity and heterogeneity**

An important challenge for higher cooperation intensities is that units often are not aware of the competences of the others. Without having knowledge of the competences of the others, cooperation is not likely to take place.

Both cases revealed that the organizational systems are highly complex and heterogeneous. Principally, this has a positive impact on the number of potential business opportunities, i.e. it features many structural holes (Burt 1992); however, this also means that entities are actually not aware of the competences of the other entities, i.e. with whom to cooperate for a specific desired outcome.

**6.3.3 Instruments for Organizational Development**

According to the present developmental states of the case companies, the firms have put major emphasis on the development of competitive systems. Now they focus on the development of cooperation within their organizational networks. The following describes the relevant initiatives and tools that are used by RhoCo and MuCo to achieve this objective. Within the following sections, I outline these initiatives and show that they can be traced back to four underlying mechanisms: (i) added value, (ii) network knowledge, (iii) goal compatibility and (iv) informal relations. The mechanisms have been investigated in detail in the context of the relationship between competition and cooperation in section 6.4. In the following sections, I group them into

- building an infrastructure for coopetition
- managing the network actively
- establishing informal relationships
Building an infrastructure for coopetition

Introducing a new NPD process presents a platform for cooperation within RhoCo. Establishing this common processual infrastructure was found to be the major initiative in the development of RhoCo’s organizational network:

The new NPD process represents a motorway with stipulated exits (the milestones); the project manager has the responsibility to drive on his own. Because every driver is meant to drive on the same motorway, this represents a common view and additionally grants high adaptability and compatibility. (informant ϱ₀,₁).

The process constitutes a common ‘language’, which helps keep the entities working together along the value stream of NPD. When subunits speak the same processual language, even globally dispersed entities can work together efficiently.

The process is designed on a meta level, which (i) makes it adaptable to the specific needs of the projects and (ii) does not constrain the entities driving it with too much control. The organizational change project of conceptualizing and implementing the NPD process was found to have an important side effect. The project brings together promoters from the different entities in regular face-to-face meetings, where the NPD process is further improved. This gives the involved people the possibility to establish personal social networks. Hence the main mechanisms of this strategic initiative are as given in Table 6-4.

<table>
<thead>
<tr>
<th>Strategic initiative</th>
<th>Observed in</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RhoCo</td>
<td>MuCo</td>
</tr>
<tr>
<td>Common processual infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing the efficiency and reducing the costs of collaborate projects*</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Increasing the transparency and mutual awareness among the entities</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

cont.
Table 6-4: (continued)

<table>
<thead>
<tr>
<th>Strategic initiative</th>
<th>Observed in</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RhoCo</td>
<td>MuCo</td>
</tr>
<tr>
<td>Organization-wide change project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creating awareness of the common process and the common objectives</td>
<td>•</td>
<td>network knowledge</td>
</tr>
<tr>
<td>Developing personal social networks among the people of the entities</td>
<td>•</td>
<td>informal relations</td>
</tr>
</tbody>
</table>

*For example, by lower coordination costs through more compatible processes

This represents also an added value for the entire organization – due to lower transfer prices within the projects, prizes are more competitive. It was found that MuCo takes the orientation along a common NPD process as a foundation for its network as well.

Both organizations distribute the strategic objectives among the units by the balanced scorecard. The principal direction is given by the headquarters. Then, the decentralized strategies are elaborated in a dialogue with the entities. Recently, this was done in workshops together with representatives (e.g. general managers) of the entities. Hence the main mechanisms of this initiative are as given in Table 6-5.

Table 6-5: Mechanisms of aligning the units’ objectives

<table>
<thead>
<tr>
<th>Strategic initiative</th>
<th>Observed in</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RhoCo</td>
<td>MuCo</td>
</tr>
<tr>
<td>Increasing the transparency and mutual awareness among the entities</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Creating awareness of the common process and the common objectives</td>
<td>•</td>
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</tbody>
</table>

cont.
Table 6-5: (continued)

<table>
<thead>
<tr>
<th>Strategic initiative</th>
<th>Observed in</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>RhoCo MuCo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensuring a fair distribution and the compatibility of individual objectives</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

*RhoCo is currently introducing the project management concept of PMI (Project Management Institute). Within this initiative, project managers are trained to become project management professionals. These people are systematically geared up for managing difficult projects, and especially for across-entity projects. Here project managers come together from different entities for this training. Hence the main mechanisms of this initiative are as given in Table 6-6.

Table 6-6: Mechanisms of building collaboration competence

<table>
<thead>
<tr>
<th>Strategic initiative</th>
<th>Observed in</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>RhoCo MuCo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing the transparency and mutual awareness among the entities</td>
<td>•</td>
<td>network knowledge</td>
</tr>
<tr>
<td>Developing personal social networks among the people of the entities</td>
<td>•</td>
<td>informal relations</td>
</tr>
<tr>
<td>Increasing the efficiency and reducing the costs of collaborative projects</td>
<td>•</td>
<td>added value</td>
</tr>
</tbody>
</table>

*For example, by lower coordination costs through enhanced project management skills

Managing the network actively

Three years ago, *MuCo* installed a central and globally responsible network management team. Network management consists of two elements: a centralized team and globally dispersed lead engineers. The *globally dispersed lead*
engineers are not bound to a specific entity; rather, they are global go-to people with one competency, which increases transparency and the development of network knowledge. The network chart in Figure 6-7 was developed within a central workshop. It presents the relations of the two-mode organizational network, i.e. the relations between the engineers (squares) and the entities’ management (circles).

Figure 6-7: Intermeshing the network by lead engineers

Figure 6-7 shows how the lead engineers intermesh the network. These people are responsible for one specific core competency throughout the whole network. Lead engineers can be physically located within any entity, and their organizational role is not bound to hierarchical constraints.

The functions of the globally responsible network management team $\mu_0$ are several ‘network marketing activities’ (informant $\mu_{0,4}$). Besides several internal information initiatives (e.g. a leaflet about the core data and competences of each entity, which was distributed globally), a major instrument is the organization of a global conference for the general managers of the entities. These meetings usually take place at least two times per year for several days and bring together people from several entities at one of the subunit sites. Here important issues concerning the network and the objectives of the single entities are discussed. Giving the key people (i.e. the general managers of
the subunits) more face-to-face time strengthens the personal networks among them. Hence the main mechanisms of the global network management are as given in Table 6-7.

<table>
<thead>
<tr>
<th>Strategic initiative</th>
<th>Observed in</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Globally dispersed network managers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermeshing the network of entities through globally dispersed go-to people</td>
<td>RhoCo</td>
<td>informal relations</td>
</tr>
<tr>
<td>Increasing the transparency and mutual awareness among the entities</td>
<td>MuCo</td>
<td></td>
</tr>
<tr>
<td>Central network support team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developing the personal social networks among the people of the entities</td>
<td>RhoCo</td>
<td>informal relations</td>
</tr>
<tr>
<td>Increasing the transparency and mutual awareness among the entities</td>
<td>MuCo</td>
<td></td>
</tr>
<tr>
<td>Increasing the efficiency and reducing the costs of collaborative projects*</td>
<td>RhoCo</td>
<td>added value</td>
</tr>
<tr>
<td>Sensitizing for the network advantage the entities could seize by cooperation</td>
<td>MuCo</td>
<td>added value</td>
</tr>
</tbody>
</table>

*For example, by reducing the coordination costs during project kick-offs

This is very similar to the establishment of centres of competence (CoC) within the network. However, stipulated CoC are used neither within RhoCo nor within MuCo.

An initiative in the same direction is establishing an ‘entrepreneurial product management’ within RhoCo. Due to better market knowledge, which is independent of entity borders and knowledge of the businesses and technologies of the entities, collaborative across-entity projects can be initiated by such
a market-oriented function. Such a function is ideally not bound to a specific entity and has a general overview of business opportunities – especially across the units.

Establishing informal relationships
Within MuCo, people are transferred among the entities. This can be motivated by several diverse targets. If people are transferred, for instance, from one of the older, more established entities (e.g. $\mu_1$) to one of the emerging entities (e.g. $\mu_7$), these people are often experienced engineers who are sent to train local people within the smaller entity. Because labour is much more reasonable within $\mu_7$ (compared to $\mu_1$), the local people can provide less expensive labour within the project in return (win-win situation). Hence the main mechanisms of this tool are as given in Table 6-8.

**Table 6-8: Mechanisms of establishing informal relationships**

<table>
<thead>
<tr>
<th>Strategic initiative</th>
<th>Observed in</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RhoCo</td>
<td>MuCo</td>
</tr>
<tr>
<td>Transferring people among entities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing the transparency and mutual awareness among the entities</td>
<td>•</td>
<td>network knowledge</td>
</tr>
<tr>
<td>Developing the personal social networks among the people of the entities</td>
<td>•</td>
<td>informal relations</td>
</tr>
<tr>
<td>Key people at the interfaces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developing the personal social networks among the people of the entities</td>
<td>• •</td>
<td>informal relations</td>
</tr>
</tbody>
</table>

Additionally, it was found that entities with key people who maintain a good personal network exhibit much higher cooperation intensities:

Each entity has further key persons, so-called eminences grises, who actually run the operational business within the units. Our experience shows that
the network can only exist if the personal networks of these people work well. (informant $\mu_{0,3}$)

Often, lateral cooperation fails because of missing or bad personal networks among key people within a collaborative project. What is remarkable about this finding is that it is single people who contribute to the success of the overall relationships:

Personal contacts contribute 80 percent of the success of the cooperation. A cooperative relationship does not have to work just because the cooperation makes sense and because it is ordered by the headquarters – without the social network behind the scenes, it won’t work. (informant $\varrho_{1,4}$)

Therefore, often, long-term employees with distinctive personal networks are put on position at the interfaces between the units.

### 6.4 Pooling Competition and Cooperation

The empirical investigation revealed that the organizational systems are based on competition. The initiatives showed that the organizations now aim at achieving a higher intensity of lateral cooperation among their subunits.

The following section analyses the relationship between competition and cooperation. The statistical model is temporally ordered in the sense that I argue that cooperation is the dependent variable. Other directions of causality, i.e. the impact of cooperation on the other variable, are not ruled out by this argumentation.

Principally, all the relations for lateral cooperation exist (as outlined in section 2.3.1) within the networks. Though operational and organizational cooperation aim at leveraging the synergistic potential of the organization, technological cooperation aims at creating new businesses by combining the technologies or technological expertise of two or more entities.

For the statistical model, cooperation was measured on a four-item, five-point Likert scale reflecting the quality and intensity of cooperation between two units (see section A.2 for details on the measures).
6.4.1 Relational Characteristics Influencing Cooperation

The previously presented data show that organizations aim at facilitating and challenging cooperation by various instruments. However, after all, they can be summarized by only a few underlying mechanisms. Following from that, I propose that the intensity of cooperation between two organizational entities is a function of

- the extent to which an entity *knows* the competences of another
- the extent to which an entity *values* the competences of another
- the extent to which an entity’s objectives are *compatible* with another’s
- the extent of *informal relationships* that exist between the entities

That is, based on the preceding empirical findings, I argue that the mechanisms (i) added value, (ii) network knowledge, (iii) goal compatibility and (iv) informal relations predict cooperation. This argumentation follows solely from the empirical investigation and is utilized to state empirically testable hypotheses in the following sections.

**Extent of network knowledge**

In both companies, it was found that a major challenge for cooperation is the complexity and heterogeneity of the organizational systems. Almost all the presented instruments aim at increasing ‘network knowledge’, i.e. what the entities know from each other.

Therefore cooperative relationships are expected to be higher between units that know the competences of the conceivable partner; that is, unit *i* must have the knowledge of unit *j*’s competences and technological expertise to engage in a cooperative relationship. Hence

**Hypothesis 1.** *The intensity of cooperation between two intraorganizational entities *i* and *j* is a positive function of the extent to which the competences of entity *j* are known by entity *i*.*

Of course, the opposite direction of causality might be valid as well: units that maintain a good cooperative relationship with each other may know their partners better.
Extent of added value
In both companies, it was found that the units are only willing to engage in collaborative projects with their peers if they expect an added value from the project; that is, the qualitative investigations revealed a strong affirmation that subunits behave in a rent-seeking manner.

Therefore cooperative relationships are expected to be higher between units that value the competences of the conceivable partner. Units usually pick specific partners with which they develop intensive relationships, which leads to certain clusters of cooperating entities within the networks. Accordingly, Hypothesis 2. The intensity of cooperation between two intraorganizational entities \( i \) and \( j \) is a positive function of the extent to which the relationship to entity \( j \) is valued by entity \( i \).

Again, the opposite direction of the causality might be valid as well: units that maintain a good cooperative relationship to each other may value their partners more.

Extent of objective compatibility
In both companies, it was found that by introducing the balanced scorecard, companies try to distribute the objectives of the entities on a fair basis.

Therefore cooperative relationships are expected to be higher between units that exhibit objectives compatible with their conceivable partners’ objectives; that is, unit \( i \) must perceive a compatibility of its objectives with unit \( j \)’s objectives to be willing to engage in a cooperative relationship. Hence Hypothesis 3. The intensity of cooperation between two intraorganizational entities \( i \) and \( j \) is a positive function of the perception of the compatibility of the objectives with entity \( j \) by entity \( i \).

Extent of informal relationships
In both companies, it was found that personal relationships matter a great deal to the quality of interunit relationships. It was found that it is often single people who contribute to the quality of a relationship.
Therefore cooperative relationships are expected to be higher between units that maintain more informal relationships; that is, if unit $i$ exhibits many informal links to unit $j$, the cooperative relationship is expected to have a much higher quality and intensity. Hence

**Hypothesis 4.** The intensity of cooperation between two intraorganizational entities $i$ and $j$ is a positive function of the extent of informal relationships between entity $i$ and entity $j$.

**Mediated influence of competition**

The qualitative empirical data suggest that enhancing cooperation does not have to mean abandoning competition. Moreover, organizational subunits with a high individual performance may exploit both intraunit entrepreneurship and interunit entrepreneurship (and thus syncretic rent-seeking behaviour). Moreover, I argue that competition even has a positive impact on cooperation, which is mediated by the previously mentioned mechanisms. Hence

**Hypothesis 5.** Network knowledge, valuation of the relationship and informal relationships mediate the relationship between competition and cooperation.

**Control variables**

Two control variables were integrated into the statistical models: autonomy and performance. Autonomy was found to be an important feature of entrepreneurial networks. Highly autonomous and high-performing units are likely to engage in lateral cooperation to seize new business opportunities. It might be easier for such units to maintain many cooperative relationships. To account for this alternative explanation, I included these two matrices in the statistics.

### 6.4.2 Regression Results

Table 6-9 gives the matrix of correlations among all variables. Here several observations may be made. First, control variables do not correlate among each other or with cooperation, with competition being the only
control variable correlated with cooperation. Second, except for informal relation, all the independent variables are positively and strongly correlated with cooperation, providing some preliminary evidence for my hypothesis. Table 6-10 gives the results of the QAP multiple regression analysis. Several models are estimated, and the coefficients presented in the table are standardized regression coefficients.

In the first model, I enter only the four control variables. The results show that the controls have only little effect on cooperation, but competition is significant. In the fourth model, I simultaneously add knowing, added value, compatibility of objectives and informal relations and find that the variance accounted for considerably improves to 81.7%. The results provide clear support for hypothesis 1 (knowing another unit’s competences leads to a higher cooperation intensity), hypothesis 2 (valuing another unit’s competences leads to a higher cooperation intensity) and hypothesis 3 (perceiving compatible objectives with another unit leads to a higher cooperation intensity). However, hypothesis 4 (informal relationships to another unit lead to a higher cooperation intensity) is supported only fairly with lower significance \( p < 0.05 \).

Per hypothesis 5, I was also interested in assessing whether the variables mediated the relationship between competition and cooperation. To establish mediation, three conditions must hold (Baron and Kenney 1986). First, competition must predict the mediating variables (knowing, valuing and informal relations). Competition was a significant predictor of knowing \( (0.610, p < 0.001) \) and valuing \( (0.543, p < 0.01) \), but not of informal relationships. Second, competition must predict the dependent variable (cooperation). In model 1 of Table 6-10, I show that competition predicted cooperation within \( \mu \text{Co} \) \( (0.566, p < 0.001) \). Third, the coefficient for competition must become nonsignificant when I control for the mediating variables. As shown in Table 6-10, the results are consistent with the mediation hypothesis for two of the four relations (model 2a and model 2b). Specifically, the knowing and valuing relations mediate the effect of competition on cooperation (model 3). Compatibility of objectives was not hypothesized to relate to competition. The mediating effect of informal relation is not supported because although the relation is significant in model 4, model 2d shows no support for mediation.
Table 6-9: Correlations of control, relational variables and cooperation intensity

<table>
<thead>
<tr>
<th>Variable</th>
<th>$X_1$</th>
<th>$X_2$</th>
<th>$X_3$</th>
<th>$X_4$</th>
<th>$X_5$</th>
<th>$X_6$</th>
<th>$X_7$</th>
<th>$X_8$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X_1$ Autonomy</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_2$ Performance</td>
<td>0.324</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_3$ Competition</td>
<td>-0.053</td>
<td>0.111</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_4$ Network knowledge</td>
<td>0.131</td>
<td>0.051</td>
<td>0.610***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_5$ Added value</td>
<td>0.080</td>
<td>0.218</td>
<td>0.543**</td>
<td>0.700***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_6$ Goal compatibility</td>
<td>0.144</td>
<td>0.163</td>
<td>0.513**</td>
<td>0.597***</td>
<td>0.708***</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_7$ Informal relations</td>
<td>0.197</td>
<td>0.198</td>
<td>-0.260</td>
<td>-0.054</td>
<td>-0.017</td>
<td>0.018</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>$X_8$ Cooperation</td>
<td>0.146</td>
<td>0.251</td>
<td>0.570***</td>
<td>0.793***</td>
<td>0.786***</td>
<td>0.812***</td>
<td>0.089</td>
<td>1.000</td>
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<tr>
<td>Means (abs. values)</td>
<td>6.781</td>
<td>7.160</td>
<td>2.487</td>
<td>3.071</td>
<td>3.089</td>
<td>2.604</td>
<td>3.018</td>
<td>2.702</td>
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<tr>
<td>Standard deviation</td>
<td>0.400</td>
<td>0.504</td>
<td>0.763</td>
<td>0.526</td>
<td>0.727</td>
<td>0.706</td>
<td>0.618</td>
<td>0.606</td>
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</tbody>
</table>

* $p < 0.05$, ** $p < 0.01$ , *** $p < 0.001$

All significance based on 10,000 permutations
Table 6-10: Predicting cooperation within organizational networks

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2a</th>
<th>Model 2b</th>
<th>Model 2c</th>
<th>Model 2d</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>( X_1 ) Autonomy</td>
<td>0.161</td>
<td>0.062</td>
<td>0.092</td>
<td>0.051</td>
<td>0.134</td>
<td>0.054</td>
<td>-0.001</td>
</tr>
<tr>
<td>( X_2 ) Performance</td>
<td>-0.006</td>
<td>-0.010</td>
<td>0.015</td>
<td>-0.009</td>
<td>-0.026</td>
<td>0.005</td>
<td>-0.018</td>
</tr>
<tr>
<td>( X_3 ) Competition</td>
<td>0.566***</td>
<td>0.155</td>
<td>0.203</td>
<td>0.177*</td>
<td>0.591***</td>
<td>0.070</td>
<td>0.001</td>
</tr>
<tr>
<td>( X_4 ) Network knowledge</td>
<td></td>
<td>0.695***</td>
<td></td>
<td></td>
<td>0.437***</td>
<td>0.403***</td>
<td></td>
</tr>
<tr>
<td>( X_5 ) Added value</td>
<td></td>
<td>0.669***</td>
<td></td>
<td></td>
<td>0.438***</td>
<td>0.206**</td>
<td></td>
</tr>
<tr>
<td>( X_6 ) Goal compatibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.709***</td>
<td></td>
<td>0.425***</td>
</tr>
<tr>
<td>( X_7 ) Informal relations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.156</td>
<td>0.119*</td>
</tr>
</tbody>
</table>

\( \text{Adj. } R^2 \)

|          | 0.315 | 0.625 | 0.635 | 0.663 | 0.326 | 0.718 | 0.817 |

* \( p < 0.05 \), ** \( p < 0.01 \), *** \( p < 0.001 \).

All significance based on 10,000 permutations.
Conclusion

In NPD networks, the technological capability and knowledge are located at the individual entities. The entrepreneurial process principally comprises the (re-)combination of resources (i.e. technologies or competences) to create new business opportunities; that is, how the entrepreneurial process takes place is actually determined by the nature of the opportunity. More precisely, it is determined by the affiliation of the opportunity.

Today’s organizations predominantly implement entrepreneurial structures by a profit-centre organization. Here the objective for the component units is to maximize their individual performance, with a tendency toward competitive and/or monopolistic rent-seeking behaviour.

Present strategic initiatives and organizational instruments put major emphasis on leveraging mechanisms for developing cooperation within the network and thus on fostering interunit entrepreneurship. Although various instruments could be investigated within the companies, they rely, after all, on a few underlying mechanisms, which are network knowledge, added value, compatibility of objectives and informal relationships. Network knowledge and added value were found to mediate the positive relationship between competition and cooperation; that is, under certain conditions, competition can enhance cooperation in that it increases the perceived value of a relationship and the knowledge about each other within an intraorganizational dyad.

Notes

1 The three subcases were chosen together with the initial contact persons of RhoCo and MuCo with the aim of accomplishing a representative sample of entities in terms of size, network position, considerations about theoretical sampling (predicted dissimilarity and variety of findings) and other criteria.

2 In social network analysis, the in-degree centrality is the sum of the ingoing relations and the out-degree is the sum of outgoing relations. Further actor centrality measures would be betweenness, closeness or eigenvector centrality.

3 Please note the parallels to the study and analysis of Borgatti and Cross (2003).
Chapter 7

Discussion of Results

Big companies are not markets, they’re hierarchies. The guys at the top decide where the money goes. You wanna try something new, something out of bounds, something that challenges the status quo? Good luck.
—Hamel (1999, p. 74).

The empirical findings of this research showed that creating internal market systems aimed at developing entrepreneurial systems is only half the truth of how to engineer superior organizational performance. The findings stemming from two in-depth case studies and a SNA suggest that organizations also have to ensure cooperation within their organizational networks to achieve competitive advantage. This comprises, in engineering, a coopetitive organizational network.

With reference to the research question and the underlying objectives (see section 1.3.2), the following discussion is organized by

- explanations for understanding the mechanisms within the network
- recommendations for leveraging the mechanisms within the network

The first part of the chapter explains that though internal competition can be easily achieved by market-like structures within the organization, achieving cooperation is a much more difficult task. However, both competition and cooperation are underlying mechanisms of corporate entrepreneurship.
Moreover, engaging in competition and cooperation simultaneously requires organizational coordination. Here issues 1, 2, 3, 5 and 7 are discussed and answered against the background of the qualitative empirical findings.

The aim of the second part of the chapter is to formulate a strategic approach to leverage coopetition within the organizational network by utilizing a combination of the findings from the previous chapter and the fundamental constructs of coopetition and applying them to the internal context. However, the concrete implementation and operationalization of the strategy falls out of the scope of this thesis – thus it remains a recommendation. The strategy draws on the basic idea and logic of coopetition and the PARTS of the coopetition strategy (see 7.2.1). Hereby, issues 9 and 10 are discussed and answered against the background of the quantitative empirical findings.

At the end of the chapter, a summary condenses the recommendations for practice. In detail, the contents of this chapter are as follows:

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Summary | 154 |
7.1 Understanding the Mechanisms

The empirical investigations took place according to the conceptual framework and the developed issues. Table 7-1 gives an overview of where issues 1–8 are answered within this section.

**Table 7-1: Place where issues are answered within section 7.1**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue 1) Is entrepreneurial orientation (core elements) associated with the individual performance of organizational units; and if so, how?</td>
<td>7.1.1</td>
</tr>
<tr>
<td>Issue 2) Is entrepreneurial orientation (core elements) associated with the effectiveness of integration among organizational units; and if so, how?</td>
<td>7.1.2</td>
</tr>
<tr>
<td>Issue 3) Is autonomy associated with the entrepreneurial orientation of organizational units; and if so, how?</td>
<td>7.1.1</td>
</tr>
<tr>
<td>Issue 5) Is the intensity of competition among organizational subunits associated with the level of entrepreneurial orientation; and if so, how?</td>
<td>7.1.3</td>
</tr>
<tr>
<td>Issue 7) Is the intensity of cooperation among organizational subunits associated with the level of entrepreneurial orientation; and if so, how?</td>
<td>7.1.3</td>
</tr>
<tr>
<td>Issue 4) How can organizations leverage autonomy within their organizational networks?</td>
<td>7.1.1</td>
</tr>
<tr>
<td>Issue 6) How can organizations leverage the interrelation between competition and entrepreneurial orientation?</td>
<td>7.1.1</td>
</tr>
<tr>
<td>Issue 8) How can organizations leverage the interrelation between cooperation and entrepreneurial orientation?</td>
<td>7.1.1</td>
</tr>
</tbody>
</table>

7.1.1 Entrepreneurial Processes in Organizational Networks

*An entrepreneur has to be at the same time a good leader, an able manager and a skilled communicator.* —Fahrni (1995, p. 111)

The multilevel approach of the investigation revealed that entrepreneurship in intraorganizational networks can be conceptualized along two processes: in-
traunit entrepreneurship and interunit entrepreneurship. Both entrepreneurial processes can contribute to the performance of intraorganizational networks, i.e. to individual performance at the entity level and to effective integration at the network level, respectively.

Both processes are driven along the general entrepreneurial process of opportunity exploration and opportunity exploitation. Therefore the processes can be characterized in the core by the EO elements innovativeness, proactiveness and risk taking; that is, EO can be used to understand entrepreneurial behaviour on the subunit level and, moreover, the entrepreneurship-performance relationships in the context of organizational networks (Figure 7-1).

Interestingly, the bigger entities were found to be more innovative than the smaller ones. This is somewhat contradictory to the assumption that if an organization is bigger, it will be more bureaucratic and less entrepreneurial. However, the enhanced innovativeness can be explained in terms of a bigger resource base in tangible, intangible and human resources. In turn, a bigger resource base implies enhanced autonomy and entrepreneurial freedom.
Additionally, the bigger entities have enhanced power within the vertical network to get additional resources and support from the headquarters. This mirrors that intraunit entrepreneurship is based on competitive rent-seeking behaviour, which might incorporate monopolistic rent-seeking behaviour (e.g. lobbying for additional resources), whereas interunit entrepreneurship is based on collaborative rent-seeking behaviour, which might incorporate competitive rent-seeking behaviour (getting the biggest share out of the project) and thus syncretic rent-seeking behaviour.

To sum up, an entrepreneurial organizational network facilitates both processes; that is, issue 1 can be answered positively in terms of intraunit entrepreneurship. The core elements of EO (operationalized as innovativeness, proactiveness and risk taking) were found to be positively associated with the performance of organizational units. Issue 2 can be answered positively as well, but in terms of interunit entrepreneurship. Interunit entrepreneurship depends in the core on the same elements of entrepreneurial orientation as intraunit entrepreneurship; it differs in the location of the opportunity.

7.1.2 Underlying Mechanisms and Rent-Seeking Behaviour

*The entrepreneur is nothing if not an opportunist.*

—Ricketts (2003, p. 199)

It was found that the two further, relational dimensions of EO, autonomy and competitive aggressiveness, are also important to understand entrepreneurship. Though autonomy is central to entrepreneurship in general, competitive aggressiveness is a feature of intraunit entrepreneurship in particular, and interunit entrepreneurship is fundamentally based on cooperation.

Aiming at the implementation of entrepreneurial behaviour, the investigated companies emphasized entrepreneurial drive on the subunit level, primarily by ‘bringing the market inside’ the firm and developing the intraorganizational networks, rather than competitive systems. This helped in developing internal entrepreneurial units that drive the intraunit entrepreneurial process.

The required resources for this process stem predominantly from the top, and power and system position play a predominant role in these systems. This
nurtures (competitive) rent-seeking behaviours in that the horizontal networks develop into a rather competitively oriented system. Close relationships with the headquarters and ‘lobbying’ for resources from this direction are in the fore, which points toward monopolistic rent-seeking behaviour.

The development of collaborative relationships among the lateral direction played a rather minor role because this was too costly. This reflects that this development led to a rather opportunistic attitude of the single entities. Thus ‘embedding entrepreneurial drive’ on the level of the subunits was rather counterproductive to the second objective, i.e. the integration of the entities. The findings of Ghoshal and Bartlett (1997, p. 257, italics added) support this:

> each of the frontline entrepreneurs was focused on developing his own individual business opportunity. Even where customers, markets or technologies overlapped, they had little incentive to cooperate. To remain viable, the company had to become more than a holding company for a portfolio of independent businesses, no matter how entrepreneurial they were individually.

By putting major emphasis on the development of efficient, competitively oriented internal market systems in the past, both the analysed organizations neglected the positive mechanisms of cooperation within their organizational systems. Now they are trying to facilitate and challenge lateral cooperation.

![Diagram: Intraunit versus interunit entrepreneurship](image.png)

Figure 7-2: Intraunit versus interunit entrepreneurship
To sum up, for intraunit entrepreneurship, the system has to provide autonomy and entrepreneurial freedom. Therefore issue 3 can be answered positively, thus providing an important feature of an entrepreneurial organizational network. As a further element of the concept of EO, competition is linked to entrepreneurship on the subunit level as well. Together with the core elements and autonomy, it represents the concept of EO, which can characterize intraunit entrepreneurship (answering issue 5 positively). In terms of interunit entrepreneurship, issue 7 can be answered positively. Adding cooperation to the five elements of EO represents a characterization of interunit entrepreneurship. For intraunit entrepreneurship, cooperation is not immediately relevant.

7.1.3 Organizational Development and Cross-Level Mechanisms

 Lex III. Actioni contrariam semper et aequalem esse reactionem: sive corporum duorum actiones is se mutuo semper esse aequales et in partes contrarias dirigi.  

—Newton’s III law

Organizational development was found to be a stepwise process. Both the corporate renewal model and the conceptual framework (which is based on the former) were found to be applicable (cf. section 4.1). The organizational development within the case companies follows first the dimension of individual performance and second the dimension of efficient integration. Entrepreneurial coordination aims at leveraging both the mechanisms of competition and the mechanisms of cooperation; that is, entrepreneurial coordination is really the development of a coopetitive organizational network. Figure 7-3 shows these two sets of manipulations.

The actions within the vertical network cause reactions within the horizontal network, which is outlined in the following sections. The transition from A to A* describes the effects of emphasizing individual performance, which causes enhanced competition. The transition from B to B* describes the effects of facilitating and challenging lateral cooperation, which aims at enhancing cooperation.
Emphasizing individual performance by competition

Within the profit-centre model, the entities (and especially their managers) are rewarded for their individual performance. They act as if they were independent entrepreneurs, i.e. in a rent-seeking manner. Comprehending the entities as embedded companies that strive for economic rents actually reveals their underlying objective function.

Focusing on the individual performance of the units created a rather competitive system in the past. Consequently, the units tend to exhibit an orientation toward intraunit entrepreneurship and competitive and/or monopolistic rent-seeking behaviour, which was found to be an underlying mechanism of this entrepreneurship type. Now, the organizations put major emphasis on the development of lateral cooperation within the network. This aims at developing a coopetitive organizational network which emphasises syncretic rent-seeking behaviour and supports intraunit entrepreneurship and interunit entrepreneurship simultaneously.

Creating entrepreneurial drive works by giving the entities maximum autonomy and introducing competitive market mechanisms. Putting, in this way, major emphasis on individual performance pushed the entities toward competitive and monopolistic rent-seeking behaviours. Competitive structures moti-
vate entrepreneurial drive. For interunit entrepreneurship, the system has to provide effective integration, which implies a second set of activities along the vertical network to adjust the horizontal network.

Thus issues 4 and 6 can be answered by the profit-centre system, i.e. coordinating the organizational network by decentralized decision making and self-government within profit centre structures. These market-like organizational systems function by the rules of competition, which represents the vital means to encourage entrepreneurial behaviour.

**Emphasizing efficient integration by cooperation**

Both case companies were found in the phase of having emphasized the individual performance of their component subunits in the past. Now the predominant challenge is to facilitate and challenge cooperation within the organizational networks. Getting to a higher level of integration principally could be achieved by two types of integration:

- ‘structural integration’, by hierarchical integration along the vertical network via *centralization* of resources, capabilities, control and decision making or
- ‘lateral integration’, by facilitating and emphasizing *lateral cooperation* along the horizontal network

Integrating the network structurally, by centralization or enhanced hierarchical power, would be contradictory to the idea of an entrepreneurial system. In other words, this would be contradictory to the system that was created by the companies so far, predominantly because this would take away autonomy from the subunits, which is an important element for entrepreneurial behaviour within the network.

The challenge is to reach an optimal level of integration which does not cause unneeded dependencies among the units (which might hinder them in reaching high individual performance) and at the same time features efficient collaboration. An important finding is that the subunits do not cooperate just because of the fact that they are subsumed in one company. Moreover,
cooperation has to provide real added value. In the long run, cooperation is almost always a win situation because collaborative projects increase the overall business pie of a company. The problem is that the rent-seeking behaviours of entities (i.e. their managers) do not put major emphasis on the overall business pie, but rather, on their individual wedges; that is, they will only be willing to engage in projects that engender economic rents or an added value.

Thus issue 8 can be answered by the creation of win-win situations. Organizations do this by building a basis for cooperation (in terms of infrastructure, goal alignment or building up collaborative competence) and by managing the network actively (in terms of global network management, network marketing activities or the transfer of people across units). The quantitative analysis within MuCo showed, moreover, that network knowledge, added value, the compatibility of the units’ objectives and informal relationships are important means to increase cooperation.

**Importance of personal social networks**

*We may live in the 21st century with all the modern communication techniques, but personal contacts cannot be substituted by this – personal sympathy matters a lot.*

—informant μ0.4

Interestingly, all the initiatives that aim at fostering cooperation include – directly or indirectly – the development of personal social networks. Although personal networks cannot be created from the outside, they represent the basis for all the other mechanisms. This reflects the central understanding of an organization as consisting of individuals who are embedded in a multilevel nesting arrangement.

The rent-seeking behaviours of the internal entities depends, in a large part, on their perception of the network. Some of the entities perceive the network as an internal market – these entities tend to behave in a competitive rent-seeking manner. Those entities that perceive the organization as a hierarchy tend to behave in a monopolistic rent-seeking manner, and those who perceive the network as an internal network tend to behave in a collaborative rent-
seeking manner – thus the entities that perceive the organization as a mix of network and market are likely to behave in a syncretic rent-seeking manner:

This process of organizational change takes very long, especially because of the personal component. (informant $\mu_{0,3}$)

7.2 Leveraging the Mechanisms

Strategy is the means, i.e. plans, policies and principles, that are used to guide and coordinate the specific ongoing actions within or of an organization, by which individuals or organizations achieve their objectives (Grant 2008, p. 17). Coopetition is such a means and therefore has an important role as a business strategy (Borders et al. 2001).

Numerous examples show how business organizations and even competitors cooperate among each other in the endeavour for competitive advantage (Pegels and Yong 1997). The findings of this research suggest that a coopetitive strategy is also applicable and, moreover, recommended for intraorganizational networks.

Moreover, the regression analysis showed that competition and cooperation have, under certain conditions, a positive relationship. Therefore issue 9 can be answered positively. Complementary to the answer to issue 9, the analysis showed that the extent of network knowledge, the extent of added value and the extent of goal compatibility are mediators within the positive competition-cooperation association within $MuCo$, suggesting that these are the mechanisms by which organizations may be able to utilize the syncretism between competition and cooperation.

7.2.1 Strategic Approach to Coopetition

This section aims at providing an outline of how to implement coopetition using a combination of the findings from the previous chapter and the fundamental constructs of Brandenburger and Nalebuff’s coopetition strategy and applying it to the internal context. However, the concrete implementation and operationalization of the strategy falls out of the scope of this thesis. Thus it remains a recommendation. Though Brandenburger and Nalebuff did not limit
their scope to an interorganizational context, the concept refers predominantly to the *interorganizational* context.

To seize the game of business via coopetition, i.e. developing a coopetition strategy, Brandenburger and Nalebuff (1996) put forward a PARTS approach; that is, understanding the game of business through

- *Players*,
- *Added values*,
- *Rules*,
- *Tactics*,
- within a specific *Scope*

**Players**
The approach aims at exploiting the game of business from the viewpoint of one subjected *company*, which belongs to a value net of business players (Figure 7-4).

![Figure 7-4: Value net of coopetition](source: Brandenburger and Nalebuff (1996, p. 16))

The value net represents all the *players* in the game of business and the relationships among them. From the perspective of one subjected company, this can be its customers, its suppliers and its competitors, plus providers of complementary products and services, the so-called complementors. None of
these roles are fixed. A player can occupy more than one role simultaneously. In addition, the roles may vary dynamically.

The authors put forward a concept to seize opportunities for creating and capturing value by cooperation and competition among all the players within the network. Within the value net, interactions take place with customers and suppliers with whom the company directly transacts, and with competitors and complementors, i.e., with the players with whom the company does not transact directly, but who influence the company’s strategy as well.

One has to attend to the needs of customers as well as suppliers. Instead of focusing only on the traditional players like competitors and customers, the concept therefore claims that companies really should consider opportunities for cooperation and competition with all the other players within their game of business when developing a company’s strategy.

**Added value**

The second determinant of the coopetition strategy is *added value*. Added values are what a player brings into a game. The individual added values of all the players in a game in sum result in an entire business pie; therefore individual added values can be defined as follows (Brandenburger and Nalebuff 1996, p. 45):

\[
\text{the size of the pie when you are in the game, minus the size of the pie when you are out of the game.}
\]

In this way, coopetition means cooperation to increase the size of an existing pie, while competing to increase the individual share (symbolized as a wedge) of the pie. The crucial statements are about the extent of competition and cooperation; that is, one should compete without killing the opposition, meaning that fighting to the death will destroy the pie, which symbolizes a lose-lose situation. Cooperation means to cooperate without ignoring one’s own self-interest; otherwise, the situation could turn into a lose-win one. The best strategy for a subjected player is always his optimum in a specific scope – sometimes this will be at the expense of others (*win-lose*), sometimes not (*win-win*).
Rules
Each game comprises distinctive rules. Rules are the key to manipulating relationships within the game and/or the entire game. Rules can be changed by every player. In fact, every player changes the rules simply by joining the game – comparably to the Heisenberg principle in physics that no one is able to interact with a system without changing it (Brandenburger and Nalebuff 1996). In business, many rules are given by laws and regulations. Normally, these rules cannot be changed by the players, but there are rules in the game that can be changed, e.g. contracts or contractual relationships to other players.

Tactics
The business environment is determined by uncertainty to a large degree. Players herein use tactics to influence others players’ perceptions about reality. Therefore tactics are based on the perceptions players have of the game and about other players’ tactics (Brandenburger and Nalebuff 1996). It does not matter if the perceptions are correct; rather, they influence the behaviour of the players. In this connection, tactics are a particular means used to manipulate other players’ perceptions.

Scope
Games are principally not static; rather, they are dynamically evolving over time. The scope represents the boundaries of the game. Additionally, the scope stands for the fact that games can change completely in different situations or through changes of the players, the added values, the rules and/or the tactics.

7.2.2 Concept of Entrepreneurial Coordination

The following concept of entrepreneurial coordination describes an organizational configuration that allows seizing the mechanisms of cooptetition within an intraorganizational context. More precisely, it describes how to leverage the syncretism of competitive and cooperative rent-seeking behaviours of an organization’s network entities by the development of a coopetitive organizational
network; that is, the following coopetition strategy is about designing or manipulating the ‘internal game of business’ in a way to achieve competition and cooperation simultaneously. The designer in this puzzle is a company’s organizational development. The strategy is, according to coopetition, organized in a PARTS approach.

**Players: Managing the multidimensionality of the network**

Within the intraorganizational context, organizational entities embody the **players**, which span an intraorganizational value net (cf. section 1.2). These ‘ego-centric’ value nets result in the entire social structure of the organization. On the basis of Brandenburger and Nalebuff’s value net, this research proposes the following value net for intraorganizational coopetition (Figure 7-5).

![Figure 7-5: Value net of intraorganizational coopetition](image)

Both investigated networks of companies *RhoCo* and *MuCo* have entities that represent suppliers, customers, complementors or competitors to each other. However, these organizational networks have an additional player: the **headquarters unit**. In terms of designing, manipulating and actively coordinating the internal network, the corporate centre is the designer of the game. It may coordinate the network entrepreneurially by manipulating the added values and the rules of the game.
Added value: Marketing the network advantage by win-win

The added value reflects the principal task of coordinating the network toward an organizational-level common goal. Whereby entrepreneurial subunits are predominantly interested in their individual-level added value, it is quite obvious that the organizational-level added value is the sum of the individual added values, and in turn, increasing the organizational added values will lead to higher individual added values.

In terms of the business pie, increasing an organization’s business pie means increasing the overall revenues of the company; increasing the individual wedges means increasing the revenues of a single entity. Increasing the size of the overall pie implies bigger individual wedges, and *vice versa*.

Maximizing the individual wedge is the objective function of the entities, while maximizing the pie is the objective function of the overall corporation (cf. the concept of micromotives and macrobehaviour of Schelling 2006). This represents a ubiquitous goal conflict, which demands orchestration of the individual added values in a way that maximizes the overall added value.

A long-term solution to this dilemma may lie in emphasizing increasing the overall pie; this means that the organization has to make sure that the individual strategies support the organizational strategy. Organizations may achieve this using such tools like the balanced scorecard or network marketing activities which create network knowledge.

Rules: Building an infrastructure for coopetition

In corporate coopetition, the rules might be represented by formal (e.g. corporate strategy) and informal (e.g. corporate culture) rules within specific organizations. From the viewpoint of organizations as internal market systems, e.g. to coordinate internal services or to efficiently coordinate resources, the central activity along the vertical network would be to regulate the internal market. According to Völker and Kasper (2004), management therefore is able to *renounce competition* (hierarchical instructions about cross-functional exchange relations), *allow perfect competition* (free choice of the transaction partner) or *restrict competition* (permission to conduct transactions with external economic entities).
However, more important is the development of standardized infrastructures such as the development of common operational and organizational processes.

**Tactics: Realizing and leveraging strategic rent-seeking behaviour**
Every player considers changing the game to gain added value. Moreover, every player has the power to change the entire game. One of the foremost challenges in this connection is how to motivate an organization’s participants in decentralized organizational arrangements to work toward a common goal.

Firms that realize that organizational units act in a rent-seeking manner may leverage this economic behaviour toward achieving a syncretism between competitive and cooperative rent-seeking behaviours.

**Scope: Realizing the NPD as a knowledge-intensive setting**
The scope of coopetition between entities within the same organization is manifested in the content (e.g. the resource) for which they compete or cooperate and the situation (e.g. project phase) in which the interaction takes place.

The empirical findings show that actually, all the contents of coopetition are present, and both cooperation and competition represent important mechanisms for the enhancement of entrepreneurship and the performance of the organizational network.

Technological innovation predominantly takes place in NPD. In such a knowledge-intensive setting, organizations need to establish mutual interaction to accomplish complex objectives, especially in decentralized and therefore diversified organizations (Antoncic 2006, Hill et al. 1992, Kogut and Zander 2003, Zannetos 1965).
Summary

The findings of this research suggest that organizations that exhibit coopetitive organizational networks may achieve superior performance because coopetition is the underlying mechanism of entrepreneurship, whereas entrepreneurship is able to enhance performance of organizational networks.

This insight, i.e. recommendation for organizational development, can be aligned in the following engagement model (Figure 7-6).

![Figure 7-6: Performance, entrepreneurship and coopetition](image)

The model shows that organizations may achieve both high individual performance of their component subunits and effective lateral integration, and thus superior organizational performance, by fostering entrepreneurship within their organizational networks. Entrepreneurship is a function of entrepreneurial coordination, which might be achieved by leveraging the mechanisms of competition and cooperation within the organizational network. Thus organizations that are able to leverage the mechanisms of coopetition within their organizational networks have the capability to gain competitive advantage. To engage in coopetition, one informant put it this way:

We need to shift the organizational government from profit-centre management to network management. (informant τ₁)
Notes

1Originally from Isaac Newton, 1726, *Philosophiae naturalis principia mathematica*, London, p. 14; found in Teodorescu (2007, p. 45), with the translation: ‘The reaction is always opposite and equal to the action or the reciprocal actions of two bodies are always equal and directed in contrary directions’.

2Manipulating or designing a game is also called *mechanisms design* (Hurwicz and Reiter 2006). Mechanism design targets designing the rules of a game in a specific way to achieve a specific outcome. This is done by setting up the structure of the game in a way that every player has an incentive to behave as the designer intends him to. In 2007, the Nobel Prize was awarded to Leonid Hurwicz, Eric Maskin and Roger Myerson for providing the foundations of mechanism design theory.

***
Chapter 8

Conclusion

It’s like putting a bunch of cats into a room and trying to make them walk into the same direction. All in all, I think, general managers and cats are not very different. —informant μ_{2,7}

The management of intraorganizational networks is a difficult management task; consequently, it represents organizational capabilities that are hard to imitate. The results of this research suggest that entrepreneurial coordination in terms of intraorganizational co-opetition provides the potential for leveraging these capabilities.

Several conclusions can be drawn, not only for the research community, but also for practice. Furthermore, the research has several limitations, i.e. interesting topics that could not be addressed properly, whether this was because they fell out of the frame of reference of the research or because I was out of time. These lead to several suggestions for further research on entrepreneurship in intraorganizational networks. The contents of this chapter are as follows:

Overview Chapter 8

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<th>Section</th>
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</tbody>
</table>
8.1 Implications for Practice

It was one of the central objectives of this study to provide applicable recommendations for management practice. The concept of *entrepreneurial coordination* in section 7.2 describes a generic strategy which might be used to develop an entrepreneurial organizational system by leveraging intraorganizational coopetition.

Fostering entrepreneurship within the organizational network can enhance the individual performance of an organization’s subunits. This involves the development of autonomous organizational systems that can be characterized by decentralized decision making. Within this step of organizational development, organizations can leverage *competition* within the horizontal network to encourage entrepreneurship on the level of their component subunits. Predominantly, this involves introducing market elements in the form of profit centres, spin-offs and holdings (cf. Osterloh and Frey 2000).

The more challenging step, however, is to develop the effectiveness of integration within this system. An important finding is that integration along the vertical network is counterproductive to the preceding development of a decentralized system. Therefore organizations should emphasize integration along the horizontal network, i.e. cooperation and collaboration along the lateral relationships of the decentralized units.

Firms that have the capability to engineer such a coopetitive network can achieve superior organizational performance. Thus multiunit firms that engage in *entrepreneurial coordination* can achieve competitive advantage.

Organizational architects should therefore construct the infrastructure in terms of a common process base and the alignment of individual subunit objectives. Moreover, they may manage the network actively toward cooperation by such means as global network management and social instruments like the transfer of people, global face-to-face meetings or the targeted allocation of key people to key locations within the organizational network.
8.2 Contributions to Theory

Arguing that organizational systems can be conceptualized as multilevel networks of self-contained entrepreneurial entities, this study applied various inter-organizational theories to the intra-organizational context. Conceptualizing and empirically testing these considerations, the study complements and extends the existing body of research in the following ways:

- understanding of organizational networks
- concept of corporate entrepreneurship
- concept of syncretic rent-seeking behaviour
- concept of organizational development

Understanding of organizational networks

This research set out to conceptually interpret the organization as a network to capture the impact of the social structure of organizational systems. According to the idea of a multilevel nesting arrangement of social behaviour (see section 1.3.1), managing a network of multiunit organizations is managing a network of entities, which, in turn, is managing a network of groups of people.

The multilevel approach to the organizational network implied two distinct but interrelated organizational networks (directions of relationships), a vertical and a horizontal network. The vertical network describes the headquarters–subunit relationships, and the horizontal network describes the lateral relationships among the subunits.

Following from that, the empirical investigation differentiated between two perspectives of the network. This approach was found to provide a better understanding than just looking at ‘the network’ or ‘the organization’ in a traditional way (e.g. from the structural point of view).

It was found that the development of an entrepreneurial (and thus superior performing) organizational network includes mechanisms along the vertical network, i.e. how the headquarters coordinates the network along the vertical relations, and thus leverages competition and cooperation in the relational behaviour of the subunits, i.e. the mechanisms along the horizontal network.
The conceptual framework that was developed in chapter 4 was founded on this idea and was proofed validly.

**Concept of corporate entrepreneurship**

Putting forward entrepreneurship is certainly not a new idea in management literature. The first theory of entrepreneurship stems from Richard Cantillon. He introduced the role of the entrepreneur into economic analysis in 1730 (see Murphy 1986). The term entrepreneurship is based on the French verb entreprendre, meaning ‘to undertake something’ – therefore it is not necessarily limited to the founding of new ventures. The very first ‘entrepreneurs’ were supervisors and aligners of research and military expeditions in the 16th century (Ellis 1975).

This research has two contributions for corporate entrepreneurship research. *First*, entrepreneurship within intraorganizational networks actually takes place along two entrepreneurial processes: *intraunit entrepreneurship* and *interunit entrepreneurship*.

*Second*, entrepreneurship can be characterized by the concept of EO (autonomy, innovativeness, proactiveness, risk taking and competitive aggressiveness). Applying the concept of EO made it possible to reveal that both processes are important for the performance of multiunit organizations in terms of individual performance and effective integration, respectively; that is, entrepreneurship is an important means to achieve greater organizational performance. Intraunit entrepreneurship is vital to the individual performance of each of the component units. It is predominantly a function of decentralization, autonomy and competition, which are accompanied by a disaggregation of the organizational system. However, organizations have to be careful not to distend this disintegration; moreover, the challenge is to integrate the systems toward a common added value.

The entrepreneurs in this research are an organization’s subunits. The concept of EO was able to characterize the behaviour of these embedded entrepreneurs. The concept could be completely (including all of the five elements) transferred to the intraorganizational context. However, in contrast to the interorganizational context, entrepreneurship has to respect cooperation
as a sixth element. Cooperation is proposed as a very important additional element for identifying the possibilities for leveraging entrepreneurship within organizations.

**Internal rent-seeking behaviours**

Although resource-based theories, game theory and socioeconomics have been applied to the problem of organizations, this study is the first to apply the eclectic theory of syncretic rent-seeking behaviour to the intraorganizational domain. This represents a first attempt to provide a systematic view of coopetition within organizations and to explore the role of coopetitive behaviour in the context of multiunit organizations.

The underlying mechanisms of the entrepreneurial behaviour could be explained by the concept of strategic rent-seeking behaviour. Competition and cooperation were found to be important elements. Hence leveraging syncretic rent-seeking behaviour, i.e. high intensities in both competition and cooperation, reveals the real competitive advantage for intraorganizational networks.

The qualitative data suggested that the development of an entrepreneurial network can be achieved by the creation of a coopetitive intraorganizational network. Data from the social network analysis revealed that competition can even enhance cooperation. Developing and maintaining such a relationship between competition and cooperation requires coordination; that is, the intraorganizational game of coopetition is more than just competitive and cooperative behaviour of economic actors, but also requires certain efforts in coordination.

**Concept of organizational development**

According to the idea of a transnational organization and the corporate renewal model of Bartlett and Ghoshal (1998), Ghoshal and Bartlett (1997), it was found that the two investigated companies first developed individually high-performing units and then subsequently developed effective integration along these units. The empirical investigation could approve this phased sequence of organizational development.
As a contribution to this transformational theory, it was found that the underlying mechanisms for this development are competition and cooperation. Whereas competition accounts for the development of intrainit entrepreneurship and thus individual performance of the subunits, lateral cooperation embodies the integration of the system along the horizontal network.

Hence the capability of leveraging competition and cooperation is the underlying mechanism used to achieve superior organizational performance. Logically, it makes sense that competition is the first step and cooperation is the second step. An illustrative example would be the 2009 U.S. presidential election. Whereas Hillary Clinton and Barack Obama first competed internally, they later cooperated to win the election against the opposing party. After Obama became president of the United States, Clinton became his secretary of state.

Consistent with the assumption of rent-seeking behaviours, the real challenge within organizational development is to increase the intensity of lateral cooperation. Subunits do not cooperate just because of the fact that they are subsumed in one company. Subunits have to perceive an added value to be motivated for cooperation.

8.3 Limitations of the Research

Some limitations of the research stem from the general weaknesses of the research design, i.e. from the case study research. Though this methodology features a greater potential for understanding and greater exploratory depth, the methodology has its weaknesses compared to the precision, reliability and testability of statistical modelling or quantitative survey research.

In addition to applying tactics generally advised for quality enhancement in qualitative research (see section 5.3), I attempted to counter this weakness by explicitly investigating some of the most relevant constructs by a SNA. However, this ‘single’-organization study is far too small to derive universally valid recommendations.

Throughout the whole study, competition was measured on a linear scale. However, it was mentioned that the effects of intraorganizational competition
can be understood as an inverse U-shape (Birkinshaw and Lingblad 2005). In both investigated companies, competition was found to be on a medium, ‘healthy’ level. Therefore this was possible. However, investigating competition should be done with care; without an upfront assessment, it should not be investigated quantitatively.

Unfortunately, neither company opted to reveal its real name. This might show how sensitive they are about their internal organizational networks. This makes it hard to find organizations that will permit a researcher to look into their internal organizations and uncover potential weaknesses.

Additional limitations stem from the frame of reference, i.e. the limitation to a geographical focus, the specific industry sector, the time focus and the chosen unit of analysis.

Geographical focus: The investigation took place in two ‘European’ firms (cf. 1.2.2), which is an important limitation for generalizing the research. The organizational development processes within other archetypes of organizations (i.e. ‘Japanese’ or ‘American’ multinational firms) might result in different results and findings.

Time focus: It was found that the development process can be described as a dynamic process. Although the contemporary case study revealed this finding, it was not possible to capture the changing nature of the networks and how they develop and change dynamically.

Unit of analysis: The limitation to internal networks is probably the largest constraint of the study. The initial understanding that organizations are open social systems suggests that networks tend to be boundaryless forms of organization. Particularly within the context of innovation, external networks play a major role (cf. the discussion of open vs closed innovation).

Finally, a further important limitation of this research is the sample size and the focus of the ‘quantitative’ analysis, which was carried out in a single organization only. However, given the exploratory character of the research problem and objectives, the interplay of qualitative and quantitative data seemed to be meaningful.
8.4 Directions for Further Research

As a result of the findings and the previously mentioned limitations, corporate entrepreneurship in intraorganizational networks represents an area for interesting further research.

The explorative character of this research aimed at the development of new understandings and explanations, rather than at the validation of extant theory. From the issues, together with the resulting answers, one could easily develop propositions and hypotheses for further quantitative analysis. In this way, future contributions of greater external validity could be made by stepping out of this constraining scope of the research.

However, one challenge that was encountered during this research was a shortage in the availability of quantitative organizational network data. On one hand, it is difficult to find appropriate organizational networks; on the other hand, the internal organization network is a sensitive and confidential asset of organizations. Hence the following three approaches seem to be valuable approaches for gathering further insight regarding corporate entrepreneurship in intraorganizational networks.

First, a comparison among several firms might challenge the empirical findings. The survey tool that was developed to investigate the networks and the social network analysis approach could be easily adapted to investigate several networks and to compare the findings among them in a rather theory-testing approach. Ideally, this could incorporate a comparison between firms from different cultural backgrounds and organizational heritages (multinational, global and international organizations; cf. section 1.2).

Second, to capture the dynamic nature of organizational development, a longitudinal analysis might help to bypass the weaknesses of a contemporary approach.

Third, the research highlighted several means of how to leverage the identified mechanisms in practice. However, further tools might be useful to improve organizational networks that are not utilized within the studied organizations. For instance, the recent development of the Internet (termed Web 2.0 by O’Reilly) and related collaboration tools (e.g. IBM Lotus Quickr or
Microsoft Office Sharepoint Server) may enable online collaboration and cooperation. Although neither of the investigated companies uses such techniques, I am convinced that these techniques will provide tools to improve intraorganizational networks and, maybe more important, the underlying personal networks. Research in this direction sounds very promising to me.

*Fourth*, many organizations are trying to find sources of innovation and novel ideas outside the boundaries of the firm (cf. von Hippel 1988). The inception of the information age has made interactions even among widely dispersed parties possible in real time. It might be valuable to integrate the concepts of this research and concepts like ‘open innovation’.

*Fifth*, although the variable ‘informal relations’ did not reveal a major impact on cooperation within the network in the QAP regression analysis, the qualitative findings suggest that this is an important underlying mechanism – after all, organizations will always be social systems. This might be a further, from my point of view, very promising starting point for further research on entrepreneurship in intraorganizational networks.

* * *
Appendix A

Empirical Data

This appendix contains information about the empirical data that were collected for this research. It gives an overview of the interviews for qualitative data collection and presents the interviewing guidelines, an extract of the social network survey and the variables and measures used herein.

A.1 Data Sources

Besides 12 interviews for the development of the initial mini-cases and approximately 30 expert interviews with practitioners (from Austria, Switzerland, Germany and the United Kingdom) and scholars (from the United States, the United Kingdom, Denmark, Italy, France, Switzerland and Germany), the research is based on 19 interviews within MuCo and 16 interviews within RhoCo. Additionally, workshops were held, in which 15 and 26 people from RhoCo and MuCo attended, respectively. At the workshops, several short, unstructured interviews were conducted.

Interviewees

The following list contains the single informants; the identifiers for the informants are organized in the following way: [company][entity],[informant].
### Table A-1: List of conducted interviews: RhoCo ($\rho_i$), MuCo ($\mu_i$) and others (without SNA survey)

<table>
<thead>
<tr>
<th>Informant</th>
<th>Organizational level</th>
<th>Position level</th>
<th>Date of interview*</th>
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<td>Head of Technology Strategy</td>
<td>10/05/2007</td>
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<td>$\varrho_{0,1}$</td>
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<td>Head of Technology Strategy</td>
<td>16/11/2007</td>
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<td>03/01/2008</td>
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<td>$\varrho_{0,2}$</td>
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<td>18/01/2008</td>
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<tr>
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<td>11/03/2008</td>
</tr>
<tr>
<td>$\varrho_{1,4}$</td>
<td>entity</td>
<td>Head of Department</td>
<td>12/03/2008</td>
</tr>
<tr>
<td>$\varrho_{2,5}$</td>
<td>entity</td>
<td>Project Manager</td>
<td>19/03/2008</td>
</tr>
<tr>
<td>$\varrho_{4,6}$</td>
<td>entity</td>
<td>Head of Technology Strategy</td>
<td>20/03/2008</td>
</tr>
<tr>
<td>$\varrho_{1,7}$</td>
<td>entity</td>
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<td>27/03/2008</td>
</tr>
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<td>Head of Technology Strategy</td>
<td>04/06/2008</td>
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<td>Head of Technology Management</td>
<td>04/06/2008</td>
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<td>$\varrho_{0,9}$</td>
<td>external</td>
<td>Consultant</td>
<td>02/07/2008</td>
</tr>
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<td>$\varrho_{0,10}$</td>
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<td>02/07/2008</td>
</tr>
<tr>
<td>$\varrho_{0,11}$</td>
<td>corporate</td>
<td>Technology Strategy</td>
<td>02/07/2008</td>
</tr>
<tr>
<td>$\varrho_{0,12}$</td>
<td>corporate</td>
<td>Technology Strategy</td>
<td>02/07/2008</td>
</tr>
<tr>
<td>$\varrho_{0,8}$</td>
<td>corporate</td>
<td>Chief Executive Officer (CEO)</td>
<td>03/07/2008</td>
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<tr>
<td>$\mu_{1,1}$</td>
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<td>$\mu_{1,2}$</td>
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<td>19/10/2007</td>
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cont.
Table A-1: (continued)

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<td>$\nu_{1}$</td>
<td>corporate</td>
<td>Vice President Innovation Management</td>
</tr>
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<td>$\sigma_{1}$</td>
<td>corporate</td>
<td>Head of Innovation Management</td>
</tr>
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<td>$\epsilon_{1}$</td>
<td>corporate</td>
<td>Executive Project Manager</td>
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<tr>
<td>$\upsilon_{1}$</td>
<td>corporate</td>
<td>Head of Quality Global</td>
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cont.
Table A-1: (continued)

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<th>Position level</th>
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<tr>
<td>ι₁</td>
<td>corporate</td>
<td>Program Manager</td>
<td>19/09/2006</td>
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<tr>
<td>θ₁</td>
<td>corporate</td>
<td>Head of Department</td>
<td>30/09/2006</td>
</tr>
<tr>
<td>π₁</td>
<td>corporate</td>
<td>European Quality Manager</td>
<td>30/11/2006</td>
</tr>
<tr>
<td>η₁</td>
<td>corporate</td>
<td>Project Manager</td>
<td>22/03/2007</td>
</tr>
<tr>
<td>β₁</td>
<td>corporate</td>
<td>Managing Director</td>
<td>13/07/2007</td>
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<td>τ₁</td>
<td>corporate</td>
<td>Chief Operating Officer</td>
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</tr>
<tr>
<td>τ₂</td>
<td>corporate</td>
<td>Director Processes, Systems and Project Management</td>
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<tr>
<td>φ₁</td>
<td>corporate</td>
<td>Manager Quality and Environment Management</td>
<td>28/02/2008</td>
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</table>

*Sorted by company, then by date of interview
Interviewing Guidelines

INTERVIEW GUIDELINE REGARDING THE PROJECT:

ENTREPRENEURSHIP IN ESTABLISHED
MULTIUNIT ORGANIZATIONS

Thomas Mehr
Research Associate
University of St. Gallen / ETH Zürich, Technology Management and Entrepreneurship
& Visiting PhD Student at the University of Cambridge, UK

Monday, 16 February 2009
Important information / confidentiality statement

Aims of this interview, proceeding, confidentiality

- Many thanks for the time you are offering us with this interview!
- The following questions serve as a guideline for our interview. Please state questions about confusions anytime during the interview.
- The objectives of this research project of the University of St. Gallen / the Swiss Federal Institute of Technology is to uncover methods, systems, and processes to foster entrepreneurship within established companies.
- Subsequent to this interview, we will provide you a detailed transcript.

Any information from this interview will be double-checked with you before being published. I also hereby certify that none of the information you give me won’t be provided to third parties without your consent.

Many thanks for your kind support!

[Signature]
1 Your organization as a network

Characteristics of the organizational network

For answering the following questions, please take the perspective of the organization as a network. Individual engineering centres represent the network entities, which are connected among each other by certain relationships (the edges of the network).

(NW1) From your point of view – what are the key challenges in the management of this network?

(NW2) Which of the relationships provide the greatest opportunities for innovation?

(NW3) Does your Engineering centre play a special role in this network (e.g. Centre of Competence)? What kind of role is it?
2 Coordination

Organizational coordination of the network

We distinguish between the following forms of organizational coordination:
- hierarchy (top-down command-and-control)
- bureaucracy (many administrative rules and bureaucratic constraints)
- networked community (collaboration and cooperation) and
- internal market (competition and individual achievement)

(NW3) Which type of organizational coordination do you perceive?
  - regarding the overall network
  - within your entity

(NW4) Would you perceive the single entities as “individual companies”?

(NW5) Who makes the decisions within this network?
  - strategic decisions
  - operational decisions

(NW2) Which of the following capabilities emphasizes the organization network at most (please rate from 1=“least important” to 5=“most important”)?
  - Building strong local presence through sensitivity and responsiveness to national differences
  - Building cost advantages through centralized global-scale operations
  - Exploiting parent company knowledge and capabilities through worldwide diffusion and adaptation
3 Internal cooperation

Characteristics and intensity of cooperation

Internal cooperation can be classified by:

- **Technological cooperation** (e.g., combining capabilities for product/process innovation)
- **Operational cooperation** (e.g., combining oper. resources/common distribution channels)
- **Organizational cooperation** (e.g., utilization of succ. practices/transfer of competencies)

(CO1) In which of the abovementioned areas could you **benefit from other entities** (from which entity)? Do you get the support in this area?

(CO2) In which areas could you **support other entities**? Do you support them?

(CO3) How is the **intensity of cooperation** within the network *please rate from 1="least" to 5="highest")?*
- among the entities overall
- among your entity and other entities

(CO4) How is the **quality of cooperation** within the network *please rate from 1="worst" to 5="best")?*
- among the entities overall
- among your entity and other entities

(CO5) Has this situation been always the same? Can you recognize a **trend or tendency** toward or away from cooperation?

(CO6) **Who triggers** collaborative projects that are across two or more entities?

(CO7) Which entities have the most intensive/best **cooperative relationship**? Why?

(CO8) Which aspects **support cooperation**/collaboration among the entities?

(CO9) Which aspects **hinder cooperation** or make it difficult to cooperate?

(CO10) In general, what are the **pros and cons** of across entity cooperation within the network?
4 Internal competition

*Characteristics and intensity of competition*

Internal competition can be classified by:

- **Competition about (parent) resources and support** (human or financial resources)
- **Competition about the network position** (strategic influence / power in the network)
- **Market competition** (same customers / market overlap)

(CP1) In which areas do you compete with other entities (to which entities)?

(CP2) What is the reason for this competition (different types)?

(CP3) How is the intensity of competition within the network (please rate from 1="least" to 5="highest")?
- among the entities overall
- between your entity and other entities

(CP4) Has this competition been always the same? Can you recognize a trend or tendency toward or away from competition?

(CP5) Who is your strongest competitor (internal / external)?

(CP6) What other entities are in a strong competition to each other?

(CP7) In general, what are the pros and cons of competition within the network?
5 Corporate renewal

Renewal stage of the network

Goshal/Bartlett developed a „Corporate Renewal Model“, where they state that the overall performance of multinational organizations is dependent from the

1. performance of each of the component subunits (horizontal axe)
2. quality of their integration to reach common goals (vertical axe)

(GB1) Where is the network of Engineering Centres situated in this graph?

(GB2) Is trying to develop to a higher level? In which phase (rationalization, revitalization, regeneration) of the renewal process is the organization network?

(GB3) How are these processes (rationalization, revitalization, regeneration) influenced?

- by the internal cooperation
- by the internal competition
6 Orientation of Engineering Center(s)

Organizations can be characterized by the following items:

- **autonomy** (Independent action by an individual or team aimed at bringing forth a business concept or vision and carrying it through to completion)
- **innovativeness** (A willingness to introduce novelty through experimentation and creative processes aimed at developing new products and services as well as new processes.)
- **proactiveness** (A forward-looking perspective characteristic of a marketplace leader that has the foresight to seize opportunities in anticipation of future demand.)
- **risk taking** (Making decisions and taking action without certain knowledge of probable outcomes – propensity to risky projects that provide big opportunities though)
- **(project) performance** (in terms of quality, cost, delivery)

(EO1) How do you rate your entity regarding the abovementioned characteristics (please rate from 1="far below average" to 5="far above average")?

(EO2) Which of the entities has the **highest rates** regarding these particular characteristics?

(EO3) Which is the **most important** of the abovementioned factors for your Engineering Centre? Why?
7 Entrepreneurial behaviour at [Magna Steyr]

(EB1) By which kind of behaviour do you describe a **firm-level entrepreneur**?

(EB2) Do you use the term **“entrepreneurial responsibility”** at [Magna Steyr]? Who has entrepreneurial responsibility?

(EB3) Do you use the term **“entrepreneurial freedom”** at [Magna Steyr]? Is it always easy to behave entrepreneurially at [Magna Steyr]?

(EB4) Does [Magna Steyr] actively emphasize entrepreneurial behaviour of its employees?

(EB5) Is [Magna Steyr]’s **corporate culture** entrepreneurial?
   - Which indicators build the base for your opinion?
   - Is the culture within your entity different? If so, how?

(EB6) What are the **pros and cons** of entrepreneurial behaviour?
   - From the internal entrepreneur’s point of view
   - From Magna Steyr’s point of view?
7 Antecedents for entrepreneurial behaviour

Entrepreneurial competences and motivation of individuals

Important antecedents of (entrepreneurial) behaviour on an individual level is entrepreneurial competency (to be able) and entrepreneurial motivation (to want). We characterize entrepreneurial competences by

- the competence for ideas / invention / opportunity recognition
- the competence for idea implementation / opportunity exploitation
- social competence (e.g. ability to take responsibility, ability to collaborate)

Additionally, we characterize (entrepreneurial) motivation by the motivation to continuously exercise the abovementioned competencies.

(C1) How do you rate the competences of the people in your entity (please rate from 1=“far below average” to 5=“far above average”)?

(C2) Do you have human resources development programs, which target on these competencies? Where do they take place (central / decentralized)?

(C3) What is the effect of the network relationships (cooperation / competition to the other units) on these competencies of your staff?

(M1) Why should employees behave entrepreneurially? In which cases better not?

(M2) Is entrepreneurial behaviour explicitly rewarded (monetary / non-monetary)?
- within your entity
- within the overall corporation

© 16.02.09, University of St. Gallen / ETH Zürich, Thomas Mohr
Thank you…

…for your support! The next step comprises of transcribing this interview. Then, we will provide to you the transcript for a double check.

Please don’t hesitate to contact Thomas Mohr in case of any questions.

Contact details

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ETH Swiss Federal Institute of Technology Zurich
Chair of Technology and Innovation Management (TIM)
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"Corporate Entrepreneurship in intra-organizational Networks"

The objective of the study is to ascertain how firms shape organizational networks with regard to entrepreneurial behavior of their employees.

Your Invitation:
Several pilot tests have been made and indicated a completion time of about 15 minutes. The percentage of your completion is indicated at the upper right of this page.

Important Information:
Later in this questionnaire, we will refer to the term "innovation". We ask you to interpret this term in a more general way. Therefore, innovation might stand for:
- innovative products or services
- process improvements / optimization
- new operational technologies or processes
- new ideas regarding work processes
- etc.

Confidentiality:
All information will be treated as strictly confidential, you do not have to indicate your name in this questionnaire. Additionally, findings will only be published in an aggregate form that guarantees the anonymity of all participants.

Many thanks for supporting this study!

Please do not hesitate to contact Thomas Mohr in case of questions:
Thomas.Mohr@unisg.ch, Tel.: +41 (61) 984 2104
Compared to the other engineering centers, Engineering Center Italy...

<table>
<thead>
<tr>
<th></th>
<th>Your Engineering Center</th>
<th>Engineering Center Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed very few &quot;Innovations&quot; so far.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed &quot;Innovations&quot; that have induced changes of a minor nature.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed very many &quot;Innovations&quot; so far.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed &quot;Innovations&quot; that have induced changes that have been unusual and quite dramatic.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compared to the other engineering centers, Engineering Center Italy...

<table>
<thead>
<tr>
<th></th>
<th>Your Engineering Center</th>
<th>Engineering Center Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is very seldom the first to introduce &quot;Innovations&quot;.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typically adopts &quot;Innovations&quot; which others initiate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has a strong tendency to &quot;follow the leader&quot; in introducing novel ideas or processes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is very often the first to introduce &quot;Innovations&quot;.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typically imitates &quot;Innovations&quot;, which the others then adopt.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has a strong tendency to be ahead of other Engineering Centers in introducing novel ideas or processes.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please do not hesitate to contact Thomas Mohr in case of questions.

thomas.mohr@unisg.ch, Tel.: +44 (0)79 42642104
Please indicate the following achievements for three recently completed engineering projects of Engineering Center Italy:

<table>
<thead>
<tr>
<th>strongly disagree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The product met the requirements completely, in terms of...</strong></td>
<td></td>
</tr>
<tr>
<td>functionality:</td>
<td></td>
</tr>
<tr>
<td>reliability:</td>
<td></td>
</tr>
<tr>
<td>durability:</td>
<td></td>
</tr>
<tr>
<td><strong>At completion of the project, we completely reached the goals, regarding...</strong></td>
<td></td>
</tr>
<tr>
<td>quality:</td>
<td></td>
</tr>
<tr>
<td>costs (budget):</td>
<td></td>
</tr>
<tr>
<td>tima:</td>
<td></td>
</tr>
<tr>
<td><strong>All in all, we were fully satisfied with the performance of...</strong></td>
<td></td>
</tr>
<tr>
<td>the product:</td>
<td></td>
</tr>
<tr>
<td>the project:</td>
<td></td>
</tr>
</tbody>
</table>

Please do not hesitate to contact Thomas Mohr in case of questions: thomas.mohr@unisg.ch, Tel.: +44 (0)79 42642104
### A.1. DATA SOURCES

**ETH**

**Institute of Technology Management**

**University of St. Gallen**

---

**How do you feel about the relationship between Engineering Center Italy and the Engineering Center?**

Please indicate to which extent you agree to the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The relationship between Engineering Center Italy and this unit is...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>characterized by a lot of two-way communication.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>mutually satisfying and highly cohesive.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>People of Engineering Center Italy and this unit generally...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have only little informal interaction.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>dislike interacting, because they are trying to protect their knowledge from each other.</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>feel comfortable contacting each other when the need arises.</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>help each other with work-related problems.</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>are willing to share their knowledge within this relationship.</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>Engineering Center Italy and this unit regularly compete for...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the same resources (operational resources, human resources, knowledge, etc.).</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>more strategic importance and power within Magine Steyr.</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>market share (i.e., customer projects).</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>Overall, I think...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the time and effort spent developing and maintaining the relationship is worthwhile.</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>the objectives of the two units are in harmony.</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
</tbody>
</table>
Please answer the following questions with regard to three recently completed engineering projects at Engineering Center Italy.  

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>When product-related decisions had to be made</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>for which no rules or procedures existed, we had</td>
<td>○</td>
<td></td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>authority to make the decision.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>When a product-related problem arises, we had</td>
<td>○</td>
<td></td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>to refer the problem to someone higher up in the organization for the</td>
<td>○</td>
<td>○</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>answer.</td>
<td>○</td>
<td></td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>When an unusual project situation was</td>
<td>○</td>
<td>○</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>encountered, we generally went ahead without</td>
<td>○</td>
<td>○</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>consulting with the headquarters.</td>
<td>○</td>
<td>○</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>Even small matters had to be referred to someone higher up for a final</td>
<td>○</td>
<td>○</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>answer</td>
<td>○</td>
<td>○</td>
<td></td>
<td>○</td>
</tr>
</tbody>
</table>

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A.2 Variables and Measures

Two principal types of data were gathered by the survey study which was conducted in MuCo, that is

- nonrelational (nodal) data
- relational data

Further nodal-specific data were measured but were not utilized for analysis; these data include, amongst others, self-renewal, intrinsic motivation, extrinsic motivation (Oliver and Anderson 1994), product innovation and entrepreneurial climate/culture.

Measures

The items for measuring entrepreneurial orientation draw on Covin and Slevin (1989), who adapted Miller and Friesen’s (1978) scale, which has been adopted in several extant studies (see e.g. Covin and Slevin 1986, Frishammar and Hörte 2007, Knight 1997). Several other scales exist for the measurement of internal entrepreneurship. For instance, Miller and Friesen (1982) developed a seven-item, seven-point scale, which is well established and has been used by several other scholars (e.g. Jennings and Lumpkin 1989, Zahra 1991, Zahra and Covin 1995) and has proven to be valid and reliable. Zahra (1991) developed the Corporate Entrepreneurship Scale and refined it (Zahra 1993b). Kuratko et al. (1990) developed a Corporate Entrepreneurship Assessment Instrument, which evaluates the key factors of an entrepreneurial climate within the organization. Hornsby et al. (2002) used a similar investigation to measure organizational factors that influence the decision of middle-level managers to behave entrepreneurially.

Performance was cross-validated by measuring satisfaction with the performance of the product and satisfaction with the performance of the project.

All items within the measurement constructs were measured on a five-point Likert-type scale. I operationalized the investigated constructs as given in Table A-2.
### Table A-2: Constructs, definitions, sources, scale items and levels of analysis of nodal and relational variables

<table>
<thead>
<tr>
<th>Construct</th>
<th>Construct definition and sources</th>
<th>Scale items*</th>
<th>Level of analysis</th>
</tr>
</thead>
</table>
| **Innovativeness** | The extent of innovativeness of a unit (cf. Covin and Slevin 1989, Lumpkin and Dess 2001, Miller and Friesen 1982, see section 3.2.2) | Compared to the other MuCo engineering centres, $\mu_j \ldots$  
... has developed very few ‘innovations’ so far. – has developed very many ‘innovations’ so far.  
... has developed ‘innovations’ that have induced changes of a minor nature. – has developed ‘innovations’ that have induced changes that have been unusual and quite dramatic. | subunit           |

*cont.*
Table A-2: (continued)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Construct definition and sources</th>
<th>Scale items*</th>
<th>Level of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proactive-ness</td>
<td>The extent of proactiveness of a unit (cf. Covin and Slevin 1989, Lumpkin and Dess 2001, Miller and Friesen 1982, see section 3.2.2)</td>
<td>Compared to the other MuCo engineering centres, ( \mu_j ) … ( \ldots ) is very seldom the first to introduce ‘innovations’. – is very often the first to introduce ‘innovations’. ( \ldots ) typically adopts ‘innovations’ which others initiate. – typically initiates ‘innovations’. which the others then adopt. ( \ldots ) has a strong tendency to ‘follow the leader’ in introducing novel ideas or processes. – has a strong tendency to be ahead of other MuCo engineering centres in introducing novel ideas or processes.</td>
<td>subunit</td>
</tr>
</tbody>
</table>

cont.
<table>
<thead>
<tr>
<th>Construct</th>
<th>Construct definition and sources</th>
<th>Scale items*</th>
<th>Level of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk taking</strong></td>
<td>The extent of risk taking of a unit (cf. Covin and Slevin 1989, Lumpkin and Dess 2001, Miller and Friesen 1982, see section 3.2.2)</td>
<td>The leaders of $\mu_j$ tend to prefer...</td>
<td>subunit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>... low-risk projects (with normal and certain rates of return). – high-risk projects (with chances of very high returns).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>... adopt a cautious ‘wait-and-see’ posture to minimize the probability of making costly decisions under uncertainty. – adopt a bold, aggressive posture to maximize the probability of exploiting potential opportunities under uncertainty.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>... believe that owing to the nature of the environment, it is best to explore it gradually via conservative, incremental behaviour. – believe that owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm’s objectives.</td>
<td></td>
</tr>
</tbody>
</table>

* cont.
Table A-2: (continued)

<table>
<thead>
<tr>
<th>Construct definition and sources</th>
<th>Scale items*</th>
<th>Level of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance</strong></td>
<td>Please indicate the following achievements for three recently completed engineering projects of ( \mu_j ).</td>
<td>subunit</td>
</tr>
<tr>
<td></td>
<td>The product met the requirements completely, in terms of...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... functionality.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... reliability.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... durability.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>At completion of the project, we completely reached the stated goals regarding...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... quality.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... costs (budget).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... time.</td>
<td></td>
</tr>
</tbody>
</table>

cont.
Table A-2: (continued)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Construct definition and sources</th>
<th>Scale items*</th>
<th>Level of analysis</th>
</tr>
</thead>
</table>
| **Autonomy** | The extent to which decision making related to the new product development process is concentrated within the entity or on a central level (cf. Ayers et al. 1997). | Please answer the following questions with regard to three recently completed engineering projects at \( \mu_j \).  

... When product-related decisions had to be made for which no rules or procedures existed, we had authority to make the decision.  

... When a product-related problem arose, we had to refer the problem to someone higher up in the organization for the answer. (Reverse coding)  

... When an unusual project situation was encountered, we generally went ahead without checking with the headquarters.  

... Even small matters had to be referred to someone higher up for a final answer. (Reverse coding) | sub-unit/vertical relationship |

cont.
<table>
<thead>
<tr>
<th>Construct</th>
<th>Construct definition and sources</th>
<th>Scale items*</th>
<th>Level of analysis</th>
</tr>
</thead>
</table>
| Identification | The extent to which an entity’s employees feel a sense of connection with their entity compared with their feelings toward the company as a whole (cf. Fisher and Maltz 1997). | Please answer the following questions regarding your personal feelings (scale from 1 = $\mu_j$ to 5 = MuCo)  
... First and foremost, I think of myself as a person of __.  
... If I had to make a choice between doing what was best for $\mu_j$ or MuCo, I would do what was best for __.  
... It is 'part of who I am', being a person of __.  
... It is important to me that I am part of __. | subunit/vertical relationship |

How do you feel about the relationship between $\mu_j$ and this unit?  
Please indicate to what extent you agree with the following statements.
<table>
<thead>
<tr>
<th>Construct</th>
<th>Construct definition and sources</th>
<th>Scale items*</th>
<th>Level of analysis</th>
</tr>
</thead>
</table>
| **Added value** | The extent to which a unit values the relationship to another unit (cf. Borgatti and Cross 2003, Fisher and Maltz 1997). | Overall, I think...  
... the time and effort spent developing and maintaining the relationship is worthwhile. | sub-unit/horizontal relationship |
| **Compatibility** | The extent to which a unit’s goals and objectives are compatible to another unit (cf. Luo et al. 2006, Maltz and Kohli 1996, Ruekert and Walker Jr 1987). | Overall, I think...  
... the objectives of the two units are in harmony (completely compatible) with each other. | sub-unit/horizontal relationship |

* cont.
<table>
<thead>
<tr>
<th>Construct</th>
<th>Construct definition and sources</th>
<th>Scale items*</th>
<th>Level of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Competition</strong></td>
<td>The extent to which a unit competes with another unit for the same resources, on the external market and/or for the system position (cf. Luo et al. 2006, Luo 2005, Maltz and Kohli 1996, Ruekert and Walker Jr 1987, Tsai 2002).</td>
<td>$\mu_j$ and this unit regularly competes for...</td>
<td>sub-unit/horizontal relationship</td>
</tr>
<tr>
<td></td>
<td></td>
<td>... the same resources (operational resources, human resources, knowledge, etc.).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>... market share (i.e. customer projects).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>... more strategic importance and power within MuCo.</td>
<td></td>
</tr>
<tr>
<td>Construct</td>
<td>Construct definition and sources</td>
<td>Scale items*</td>
<td>Level of analysis</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------</td>
<td>--------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Cooperation</td>
<td>The extent to which a unit competes with another unit for the system position (cf. Luo et al. 2006, Luo 2005, Maltz and Kohli 1996, Tsai 2002).</td>
<td>The relationship between $\mu_j$ and this unit is...</td>
<td>sub-unit/horizontal relationship</td>
</tr>
<tr>
<td></td>
<td></td>
<td>... characterized by a lot of two-way communication.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>... mutually satisfying and highly cohesive.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>People of $\mu_j$ and this unit generally...</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>... dislike interacting because they are trying to protect their knowledge from each other. (Item dropped to enhance scale validity)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>... feel comfortable contacting each other when the need arises.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>... help each other with work-related problems.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>... are willing to share their knowledge within this relationship.</td>
<td></td>
</tr>
<tr>
<td>Construct</td>
<td>Construct definition and sources</td>
<td>Scale items*</td>
<td>Level of analysis</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Informal relations</td>
<td>The extent to which people of an entity maintain informal relationships to another unit (cf. Luo et al. 2006, Narver and Slater 1990).</td>
<td>People of $\mu_j$ and this unit generally...</td>
<td>sub-unit/horizontal relationship</td>
</tr>
<tr>
<td></td>
<td></td>
<td>... have only little informal interaction. (Reverse coding)</td>
<td></td>
</tr>
<tr>
<td>Knowing</td>
<td>The extent to which the competences of another unit are known within a unit (cf. Borgatti and Cross 2003, Cross and Parker 2004).</td>
<td>I understand this unit’s competences. This does not necessarily mean that $\mu_j$ has these competences, or that I am knowledgeable in these domains, but we understand what competences this unit has and what domains they are knowledgeable in.</td>
<td>sub-unit/horizontal relationship</td>
</tr>
</tbody>
</table>

* $\mu_j$ refers to the respondent’s own subunit
Scale Quality

The scales were tested for reliability by Cronbach’s coefficient alpha. Cronbach’s coefficient alpha was calculated over all informants, and thus this is concerned solely with the quality of the scale and not with single entities.

Because the data collection involved multiple respondents for each of the eight investigated units, I calculated interrater agreement to test for scale quality. The measures in categorical form allowed the application of the interrater measurements of James et al. (1984, 1993) for both nonrelational and relational data.

Interrater reliability is used here to refer to the degree to which judges are interchangeable, in terms of the extent to which judges agree on a set of judgements (James et al. 1984, cited Shrout & Fleiss, 1979). Mathematically, interrater reliability is in this case the proportion of systematic variance in a set of judgements in relation to the total variance in the judgements (James et al. 1984). It was calculated by the formula shown in Equation (A.2.1):

\[
r_{WG(J)} = \frac{J[1 - (s_{xj}^2/\sigma_{EU}^2)]}{J[1 - (s_{xj}^2/\sigma_{EU}^2)] + (s_{xj}^2/\sigma_{EU}^2)},
\]

where \(J\) is the number of items, \(K\) is the number of judges, \(s_{xj}^2\) is the mean of observed variances on the \(J\) items, and \(\sigma_{EU}^2\) is the variance that would be expected if all judgements were due exclusively to random measurement errors (James et al. 1984).

Cronbach’s coefficient alphas (\(\alpha\)) and interrater reliabilities (\(r_{WG(J)}\)) are reported in Table A-3.

\[\text{Equation (A.2.1)}\]
Table A-3: Reliability of nonrelational measures

<table>
<thead>
<tr>
<th>Construct</th>
<th>Reliability*</th>
<th>Interrater reliabilities ( (r_{WG(J)}) )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \mu_1 )</td>
<td>( \mu_2 )</td>
<td>( \mu_3 )</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>0.835</td>
<td>0.791</td>
<td>0.737</td>
</tr>
<tr>
<td>Proactiveness</td>
<td>0.853</td>
<td>0.756</td>
<td>0.808</td>
</tr>
<tr>
<td>Risk taking</td>
<td>0.832</td>
<td>0.825</td>
<td>0.871</td>
</tr>
<tr>
<td>Performance</td>
<td>0.853</td>
<td>0.615</td>
<td>0.816</td>
</tr>
<tr>
<td>Autonomy</td>
<td>0.577</td>
<td>0.741</td>
<td>0.571</td>
</tr>
<tr>
<td>Identification</td>
<td>0.724</td>
<td>0.747</td>
<td>0.656</td>
</tr>
</tbody>
</table>

\[ N/J \]

*Cronbach’s coefficient \( \alpha \)
### Table A-4: Interrater reliabilities for relational measures

<table>
<thead>
<tr>
<th></th>
<th>( \mu_1 )</th>
<th>( \mu_2 )</th>
<th>( \mu_3 )</th>
<th>( \mu_4 )</th>
<th>( \mu_5 )</th>
<th>( \mu_6 )</th>
<th>( \mu_7 )</th>
<th>( \mu_8 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \mu_1 ) to</td>
<td>–</td>
<td>0.593</td>
<td>0.765</td>
<td>0.795</td>
<td>0.686</td>
<td>0.593</td>
<td>0.844</td>
<td>0.746</td>
</tr>
<tr>
<td>( \mu_2 ) to</td>
<td>0.411</td>
<td>–</td>
<td>0.528</td>
<td>0.629</td>
<td>0.333</td>
<td>0.528</td>
<td>0.333</td>
<td>0.273</td>
</tr>
<tr>
<td>( \mu_3 ) to</td>
<td>0.444</td>
<td>0.519</td>
<td>–</td>
<td>0.195</td>
<td>0.596</td>
<td>0.644</td>
<td>0.605</td>
<td>0.500</td>
</tr>
<tr>
<td>( \mu_4 ) to</td>
<td>0.857</td>
<td>0.857</td>
<td>0.857</td>
<td>–</td>
<td>0.857</td>
<td>0.857</td>
<td>0.857</td>
<td>0.545</td>
</tr>
<tr>
<td>( \mu_5 ) to</td>
<td>0.857</td>
<td>1.000</td>
<td>0.857</td>
<td>1.000</td>
<td>–</td>
<td>1.000</td>
<td>0.545</td>
<td>0.545</td>
</tr>
<tr>
<td>( \mu_6 ) to</td>
<td>0.545</td>
<td>0.857</td>
<td>0.933</td>
<td>0.933</td>
<td>0.857</td>
<td>–</td>
<td>0.545</td>
<td>0.545</td>
</tr>
<tr>
<td>( \mu_7 ) to</td>
<td>0.515</td>
<td>0.780</td>
<td>0.486</td>
<td>0.705</td>
<td>0.701</td>
<td>0.698</td>
<td>–</td>
<td>0.872</td>
</tr>
<tr>
<td>( \mu_8 ) to</td>
<td>0.909</td>
<td>0.957</td>
<td>0.500</td>
<td>1.000</td>
<td>0.909</td>
<td>1.000</td>
<td>1.000</td>
<td>–</td>
</tr>
</tbody>
</table>

### Added value

<table>
<thead>
<tr>
<th></th>
<th>( \mu_1 )</th>
<th>( \mu_2 )</th>
<th>( \mu_3 )</th>
<th>( \mu_4 )</th>
<th>( \mu_5 )</th>
<th>( \mu_6 )</th>
<th>( \mu_7 )</th>
<th>( \mu_8 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \mu_1 ) to</td>
<td>–</td>
<td>0.571</td>
<td>0.893</td>
<td>0.893</td>
<td>1.000</td>
<td>0.509</td>
<td>0.723</td>
<td>0.438</td>
</tr>
<tr>
<td>( \mu_2 ) to</td>
<td>0.250</td>
<td>–</td>
<td>0.650</td>
<td>0.850</td>
<td>0.450</td>
<td>0.467</td>
<td>0.467</td>
<td>0.667</td>
</tr>
<tr>
<td>( \mu_3 ) to</td>
<td>0.867</td>
<td>0.267</td>
<td>–</td>
<td>0.650</td>
<td>0.095</td>
<td>0.100</td>
<td>0.833</td>
<td>0.517</td>
</tr>
<tr>
<td>( \mu_4 ) to</td>
<td>1.000</td>
<td>0.750</td>
<td>0.750</td>
<td>–</td>
<td>0.750</td>
<td>0.750</td>
<td>0.750</td>
<td>1.000</td>
</tr>
<tr>
<td>( \mu_5 ) to</td>
<td>0.750</td>
<td>1.000</td>
<td>0.750</td>
<td>1.000</td>
<td>–</td>
<td>1.000</td>
<td>0.750</td>
<td>0.750</td>
</tr>
<tr>
<td>( \mu_6 ) to</td>
<td>0.750</td>
<td>0.750</td>
<td>1.000</td>
<td>0.750</td>
<td>0.750</td>
<td>–</td>
<td>1.000</td>
<td>0.750</td>
</tr>
<tr>
<td>( \mu_7 ) to</td>
<td>0.625</td>
<td>0.625</td>
<td>0.607</td>
<td>0.580</td>
<td>0.652</td>
<td>0.723</td>
<td>–</td>
<td>0.607</td>
</tr>
<tr>
<td>( \mu_8 ) to</td>
<td>0.833</td>
<td>0.833</td>
<td>0.333</td>
<td>1.000</td>
<td>0.833</td>
<td>1.000</td>
<td>1.000</td>
<td>–</td>
</tr>
</tbody>
</table>

### Compatibility

<table>
<thead>
<tr>
<th></th>
<th>( \mu_1 )</th>
<th>( \mu_2 )</th>
<th>( \mu_3 )</th>
<th>( \mu_4 )</th>
<th>( \mu_5 )</th>
<th>( \mu_6 )</th>
<th>( \mu_7 )</th>
<th>( \mu_8 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \mu_1 ) to</td>
<td>–</td>
<td>0.671</td>
<td>0.706</td>
<td>0.898</td>
<td>0.788</td>
<td>0.844</td>
<td>0.890</td>
<td>0.890</td>
</tr>
<tr>
<td>( \mu_2 ) to</td>
<td>0.750</td>
<td>–</td>
<td>0.724</td>
<td>0.921</td>
<td>0.507</td>
<td>0.724</td>
<td>0.724</td>
<td>0.724</td>
</tr>
<tr>
<td>( \mu_3 ) to</td>
<td>0.784</td>
<td>0.815</td>
<td>–</td>
<td>0.273</td>
<td>0.773</td>
<td>0.696</td>
<td>0.782</td>
<td>0.696</td>
</tr>
<tr>
<td>( \mu_4 ) to</td>
<td>0.500</td>
<td>1.000</td>
<td>1.000</td>
<td>–</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*cont.*
Table A-4: (continued)

<table>
<thead>
<tr>
<th></th>
<th>$\mu_1$</th>
<th>$\mu_2$</th>
<th>$\mu_3$</th>
<th>$\mu_4$</th>
<th>$\mu_5$</th>
<th>$\mu_6$</th>
<th>$\mu_7$</th>
<th>$\mu_8$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mu_5$ to</td>
<td>0.900</td>
<td>1.000</td>
<td>0.808</td>
<td>1.000</td>
<td>–</td>
<td>1.000</td>
<td>0.971</td>
<td>0.971</td>
</tr>
<tr>
<td>$\mu_6$ to</td>
<td>0.938</td>
<td>0.900</td>
<td>0.971</td>
<td>0.808</td>
<td>0.971</td>
<td>–</td>
<td>0.900</td>
<td>0.857</td>
</tr>
<tr>
<td>$\mu_7$ to</td>
<td>0.783</td>
<td>0.725</td>
<td>0.705</td>
<td>0.713</td>
<td>0.418</td>
<td>0.790</td>
<td>–</td>
<td>0.736</td>
</tr>
<tr>
<td>$\mu_8$ to</td>
<td>0.750</td>
<td>0.600</td>
<td>0.600</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>–</td>
</tr>
</tbody>
</table>

**Cooperation**

<table>
<thead>
<tr>
<th></th>
<th>$\mu_1$</th>
<th>$\mu_2$</th>
<th>$\mu_3$</th>
<th>$\mu_4$</th>
<th>$\mu_5$</th>
<th>$\mu_6$</th>
<th>$\mu_7$</th>
<th>$\mu_8$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mu_1$ to</td>
<td>–</td>
<td>0.740</td>
<td>0.810</td>
<td>0.947</td>
<td>0.832</td>
<td>0.685</td>
<td>0.957</td>
<td>0.789</td>
</tr>
<tr>
<td>$\mu_2$ to</td>
<td>0.708</td>
<td>–</td>
<td>0.878</td>
<td>0.789</td>
<td>0.515</td>
<td>0.729</td>
<td>0.549</td>
<td>0.549</td>
</tr>
<tr>
<td>$\mu_3$ to</td>
<td>0.913</td>
<td>0.701</td>
<td>–</td>
<td>0.305</td>
<td>0.589</td>
<td>0.729</td>
<td>0.737</td>
<td>0.773</td>
</tr>
<tr>
<td>$\mu_4$ to</td>
<td>0.966</td>
<td>0.900</td>
<td>0.900</td>
<td>–</td>
<td>0.900</td>
<td>0.900</td>
<td>0.900</td>
<td>0.808</td>
</tr>
<tr>
<td>$\mu_5$ to</td>
<td>0.729</td>
<td>1.000</td>
<td>0.900</td>
<td>0.971</td>
<td>–</td>
<td>0.971</td>
<td>0.750</td>
<td>0.938</td>
</tr>
<tr>
<td>$\mu_6$ to</td>
<td>0.903</td>
<td>0.900</td>
<td>0.500</td>
<td>0.500</td>
<td>0.500</td>
<td>–</td>
<td>0.900</td>
<td>0.900</td>
</tr>
<tr>
<td>$\mu_7$ to</td>
<td>0.896</td>
<td>0.805</td>
<td>0.739</td>
<td>0.773</td>
<td>0.716</td>
<td>0.745</td>
<td>–</td>
<td>0.786</td>
</tr>
<tr>
<td>$\mu_8$ to</td>
<td>0.952</td>
<td>1.000</td>
<td>0.600</td>
<td>1.000</td>
<td>0.938</td>
<td>1.000</td>
<td>1.000</td>
<td>–</td>
</tr>
</tbody>
</table>

**Informal relation**

<table>
<thead>
<tr>
<th></th>
<th>$\mu_1$</th>
<th>$\mu_2$</th>
<th>$\mu_3$</th>
<th>$\mu_4$</th>
<th>$\mu_5$</th>
<th>$\mu_6$</th>
<th>$\mu_7$</th>
<th>$\mu_8$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mu_1$ to</td>
<td>–</td>
<td>0.774</td>
<td>0.698</td>
<td>0.833</td>
<td>0.617</td>
<td>0.459</td>
<td>0.727</td>
<td>0.645</td>
</tr>
<tr>
<td>$\mu_2$ to</td>
<td>0.629</td>
<td>–</td>
<td>0.528</td>
<td>0.884</td>
<td>0.400</td>
<td>0.452</td>
<td>0.500</td>
<td>0.462</td>
</tr>
<tr>
<td>$\mu_3$ to</td>
<td>0.400</td>
<td>0.182</td>
<td>–</td>
<td>0.049</td>
<td>0.367</td>
<td>0.829</td>
<td>0.367</td>
<td>0.400</td>
</tr>
<tr>
<td>$\mu_4$ to</td>
<td>0.545</td>
<td>0.933</td>
<td>0.933</td>
<td>–</td>
<td>0.933</td>
<td>0.667</td>
<td>0.933</td>
<td>1.000</td>
</tr>
<tr>
<td>$\mu_5$ to</td>
<td>0.545</td>
<td>1.000</td>
<td>0.857</td>
<td>0.667</td>
<td>–</td>
<td>0.667</td>
<td>0.857</td>
<td>0.545</td>
</tr>
<tr>
<td>$\mu_6$ to</td>
<td>0.933</td>
<td>0.857</td>
<td>0.857</td>
<td>0.933</td>
<td>0.857</td>
<td>–</td>
<td>0.857</td>
<td>0.667</td>
</tr>
<tr>
<td>$\mu_7$ to</td>
<td>0.326</td>
<td>0.714</td>
<td>0.484</td>
<td>0.622</td>
<td>0.264</td>
<td>0.756</td>
<td>–</td>
<td>0.897</td>
</tr>
<tr>
<td>$\mu_8$ to</td>
<td>0.857</td>
<td>0.957</td>
<td>0.500</td>
<td>1.000</td>
<td>0.909</td>
<td>1.000</td>
<td>1.000</td>
<td>–</td>
</tr>
</tbody>
</table>
Appendix B

In-Depth Case: RhoCo

*The worldwide benchmark... both specialized and integrated*

...we are where our customers are.

—from RhoCo’s mission statement

This appendix presents descriptions of the intraorganizational network of RhoCo. More precisely, it presents the overall case and three ‘within-case cases’ of RhoCo representative organizational entities; that is, the observations reflect the organization from *four* perspectives – the headquarters and the three entities.

The structure of this case study is identical to the structure of the case study in appendix C. Both cases serve as the foundation for the development of a cross-case analysis (section 6) and the development of a concept for entrepreneurship in intraorganizational networks.

Overview Appendix B

<table>
<thead>
<tr>
<th>B.1 Background</th>
<th>204</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.2 Entrepreneurship in RhoCo’s Network</td>
<td>207</td>
</tr>
<tr>
<td>B.3 RhoCo’s Organizational Development</td>
<td>214</td>
</tr>
</tbody>
</table>
B.1 Background

\textit{RhoCo} is an international company which operates in more than 80 countries worldwide, with manufacturing plants, sales offices and service offices. \textit{RhoCo} has a sales volume of 5.4 Bn Euro. R&D efforts are 250 Mio Euro, which is approximately 5\% of sales. The company has 33,000 employees (as of 2007). It has a company history of more than 200 years.

The legally independent public company is itself a wholly owned subsidiary of one of the biggest globally operating technology companies. The headquarters are in Germany, which at the same time constitutes the biggest market for this company (approximately 30\% of sales and 50\% of employees). The other European countries follow and represent the biggest cumulative market (approximately 40\% of sales and 25\% of employees), followed by the markets ‘Americas’ (14\% of sales and 12\% of employees) and ‘Asia and Rest of World’ (16\% of sales and 13\% of employees).

Due to the international network, the company is able to achieve proximity to customers and specialization in specific technologies at the same time. The global network combines local content with global quality and global reliability.

Network Structure of \textit{RhoCo}

The company has four specific core technologies: technology $h$, technology $p$, technology $e$ and technology $l$. These technologies cover everything for drive, control and motion solutions in more than 40 business sectors and hundreds of application areas.

\textit{RhoCo}’s hierarchical organizational structure is subdivided into business units, product areas and product segments. The business units constitute the network entities in this investigation. This level diversifies along the different technologies. The management of the specific business units is physically located at the particular lead factory (the factory for new product launches). $\varrho_0$ is the corporate headquarters unit of \textit{RhoCo} and has direct relations with all the other entities. Figure B-1 illustrates this network structure.
As outlined in section 1.2.2 and section 1.3.1, the network perspective respects units that are relevant within the system, regardless of organizational structure. The investigation of the network respects the corporate headquarters $\varrho_0$, the six business units $\varrho_i$ ($i = 4 \ldots 9$) and the three units $\varrho_j$ ($j = 1 \ldots 3$), which actually constitute the business unit $\varrho_x$.

Although the entities $\varrho_1$, $\varrho_2$ and $\varrho_3$ are not on the same formal hierarchical level as the other entities, they represent distinguished network entities because of their size, role and power position within the organization. These three entities are actually the biggest entities within the network (by profit). The units are combined into a business unit because of their technological relatedness, which also comprises a merged sales and marketing unit.

**Entrepreneurship at RhoCo**

**Understanding of entrepreneurship** At RhoCo, everyone is considered to have entrepreneurial responsibility. In addition, entrepreneurial freedom is seen as an important factor for the implementation of entrepreneurship. An entrepreneur has to take decisions and therefore needs enough freedom to take them:

Ideas evolve exclusively by autonomy and entrepreneurial freedom; on the level of individuals this includes giving them the time to explore these new ideas and prospective opportunities, but because of the high operational workload of the employees, this is not given in a sufficient way. (informant $\varrho_{1,4}$)
That is, giving people entrepreneurial responsibility is vital to encourage entrepreneurial behaviour. Entrepreneurial behaviour is seen as very important for the sustainable competitive advantage of RhoCo.

**Entrepreneurial processes within RhoCo**  
RhoCo aims at giving the sub-units maximum autonomy and entrepreneurial responsibility. The entities are seen as autonomous entrepreneurial business organizations that span the organizational network of RhoCo.

Approaching the organization with a multilevel understanding, i.e. distinguishing between the subunit and network levels, revealed two distinct entrepreneurial processes within RhoCo: one entrepreneurial process which takes place on the subunit level and one entrepreneurial process which takes place on the network level.

*Entrepreneurship on the subunit level* is driven by the entities autonomously. The entrepreneurial process underlying this type of entrepreneurship can be driven by the entities independently. The process takes place *within one entity*. Innovations cover the particular technology of the entity, which reflects RhoCo’s network system as a network of single entrepreneurial units. In the following, this process is called *intraunit entrepreneurship*.

*Entrepreneurship on the network level* involves at least two organizational entities. Here business opportunities stem from the technological overlap between the units’ technologies. Such opportunities often require an application of two or more complementary technologies or the specific competences of the involved units. In the following, this process is called *interunit entrepreneurship*.

**Performance through entrepreneurship** Both processes, autonomous and interunit entrepreneurship, are important for achieving sustainable competitive advantage. Intraunit entrepreneurship drives the individual performance of the entities. Interunit entrepreneurship addresses long-term growth objectives in terms of seizing important new business opportunities across entities.
Underlying mechanisms of entrepreneurship  
Intraunit entrepreneurship is driven by competition within the system. This reinforces the idea of competitive aggressiveness as an important element of EO. Integration does not matter directly here. However, it may help in the meaning of the development of organizational capabilities by mutual learning and knowledge sharing within the organizational network. This type of entrepreneurial process is more about incremental innovations. It respects just the dedicated technology of the specific entity.

The collaborative process aims at exploring and exploiting opportunities that are located between the entities or within the relations of two or more entities. This type of entrepreneurship aims at ‘radical innovation’ on the edge of two technologies or simply by pooling resources and capabilities across the units.

The competitive advantage stems from leveraging the social capital of the network. Access to the internal network of related technologies provides a possibility for competitive advantages for the entities in comparison to the external market. For instance, for technology $p$, the market leader (another company) does not have the possibility to access such an internal network of complementary solutions provided by the technologies $h$ and $e$. Moreover, integration enhances the generation of individual competences, which allow seizing business opportunities single entities cannot reach on their own.

Interunit entrepreneurship is literally dependent on the efficiency of cooperation within the network.

B.2 Entrepreneurship in RhoCo’s Network

Subunit Perspective

By definition (Definition 1), a network consists of a clearly defined finite number of entities and their social interactions. To describe and understand the dynamics within RhoCo’s organizational network, this section outlines the cases of three of RhoCo’s organizational entities in detail.
The subcases were chosen together with the initial contact persons of MuCo with the aim of constructing a representative sample of entities, in terms of size, network position, considerations about theoretical sampling (predicted dissimilarity and variety of findings) and other criteria. According to the conceptual model, the investigation respects the constructs ‘entrepreneurship, coordination, competition and cooperation’. Consequently, the subcases have the following structure:

- network perception (lateral/vertical network)
- network position (lateral network)
- entrepreneurial behaviour (process and EO)

**Within-case case of ϱ₁**  ϱ₁’s core competence is in technology \( h \). The entity is located in Germany and is one of the biggest entities within the network. The company is part of \( ϱ_x \), like \( ϱ₂ \).

*Network perception*  From the viewpoint of \( ϱ₁ \), the organization is a mix of network and bureaucracy. Subunits are individual companies. Strategic decisions are made autonomously on a decentralized level. Depending on the size of the specific projects, the decisions sometimes have to be double-checked with the corporate headquarters, but it is not required to harmonize objectives with the other entities – the businesses are too diverse to leverage synergies (informant \( ϱ_{1,4} \)).

*Network position*  If it comes to financial resources and support from the headquarters, \( ϱ₁ \) competes with the other entities. Additionally, it would be possible to have competition on a technological level (e.g. with \( ϱ₅ \) vs \( ϱ₄ \)); however, this competition would be like Goliath against David and therefore not recognizable. That is, competition on the market does not play a major role within the network. Competition over network position is on a moderate level among the entities.

Enhanced cooperation would allow the exploitation of additional business opportunities; however, these are limited and depend to a large degree on the desired application. Especially in the area of technology \( h \), connections to (external) partners are much more important than connections to internal entities (informant \( ϱ_{1,4} \)).
In particular, technological cooperation is seized within the collaborative projects within $\varrho_x$, e.g. together with $\varrho_2$. This relationship did not exist a few years ago. However, the efforts that are spent on cooperation are limited to these collaborative projects. Here the efficiency of cooperation was improved in the past and is in an ongoing improvement process.

Almost no relationship exists with the other entities because the combination of $\varrho_1$’s technology with their technology does not represent any conceivable application – ‘cooperation is not meaningful at all here’ (informant $\varrho_{1,4}$). Operational cooperation, in terms of mutual learning and transfer of successful practices (and technological knowledge), is always reasonable and provides much potential that has not yet been seized within RhoCo.

Entrepreneurial behaviour $\varrho_1$ has a high entrepreneurial orientation. The entity can be characterized by a high level of innovativeness. Two very innovative projects are currently driven by the subunit. Proactivity is on a high level, whereas risk taking is on an average level within this entity. In sum, the entrepreneurial orientation of this entity is relatively high compared to its organizational counterparts.

The entrepreneurial orientation of the unit stems from the high external competition with external competitors. However, daily business and high workload hinder the entity from tapping the full innovation potential. Therefore the motivation to conduct entrepreneurial ventures could be on a higher level without the great pressure of daily business.

**Within-case case of $\varrho_2$** $\varrho_2$’s core competence is in technology $h$. The entity is located in Germany and is one of the biggest entities within the network. The company is part of $\varrho_x$, like $\varrho_1$.

**Network perception** From the viewpoint of $\varrho_2$, the network is based on a hybrid system in between hierarchy and collaborative network. Strategic decisions are actually made in a top-down manner. However, by proposing the portfolio of alternatives, the entities are able to influence the decision process.
Decisions regarding business strategy are made within \( \varrho_x \); here sales is located as well. Operational decisions are predominantly made autonomously within the projects that run in \( \varrho_2 \). However, this depends on the level on which the steering committee of the project is located (see the following discussion).

**Network position** In some applications, one technology is better; in others, the other technology is better. Here the boundaries are often blurred between the technologies. Therefore potential competitors on the external market are, for example, \( \varrho_1 \) and \( \varrho_4 \). Competition for resources and competition for system position is normal, considering that every entity is trying to reach a leading position within the network.

In sum, the competition is healthy and positive for the network in terms of overall efficiency. The competition encourages the development of individual capabilities and therefore enhances the individual performance of the units. It drives product innovation and product and process improvement. However the competition toward external competitors is the predominant driver for entrepreneurship and individual performance of the entities (informant \( \varrho_{2,5} \)).

Cooperative relationships exist generally with all the other entities. In particular, strategic cooperation takes place with \( \varrho_1 \) and \( \varrho_3 \). Their very intense and highly qualitative cooperative relationship stems from their common history. Technological cooperation takes place whenever this is demanded from a customer (market pull). Operational cooperation is then accompanied by technological cooperation, e.g. in terms of using the same manufacturing sites. Organizational cooperation has great potential and should be driven at the interface between \( \varrho_0 \) and the entities. However, also, ‘spontaneous’ lateral cooperation between the entities via direct connections among them harbours great potential for the future (e.g. to \( \varrho_8 \)).

**Entrepreneurial behaviour** \( \varrho_2 \) can be characterized by a relatively high level of innovativeness. Proactiveness is on an average level compared to the other entities. Market opportunities are actively explored and seized quite fast; however, compared to small and independent firms, this works rather slowly because the entity has to respect the necessary bureaucracy that exists within the corporate context (informant \( \varrho_{2,5} \)). The positive side of this coin is the fact that if decisions are made, then the ventures are pursued in a much
more professional way than would be possible in an independent small firm. The risk-taking propensity is relatively high in this entity.

Entrepreneurial orientation and motivation to pursue entrepreneurial initiatives are high within \( \varrho_2 \). This can be explained to a large extent by the intrinsic motivation of the people within \( \varrho_2 \) because entrepreneurial behaviour is not rewarded explicitly.

**Within-case case of \( \varrho_4 \)** \( \varrho_2 \)'s core competence is in technology \( e \). The entity is located in Germany and is one of the fastest growing entities within the network (trend toward technology \( e \)).

**Network perception** From the viewpoint of \( \varrho_4 \), the network is based on an internal market system. Competition and individual performance are the predominant measures for governing the network. Entities are considered as individual companies within this system.

However, the individual companies have to take the burden not to be independent because on their own, they would not be competitive on the external market anymore. This is grounded in their too small a resource base.

**Network position** \( \varrho_4 \) competes for the same resources and support from headquarters. External market competition is not perceivable for this unit. However, between the technologies of \( \varrho_4 \) and the others, boundaries are sometimes not clear:

The customer wants to have one solution from one supplier. In the areas where we don’t have clear distinctions among the technologies – for instance between \( \varrho_1 \) and \( \varrho_4 \) – there is a potential for competition. Interestingly, \( \varrho_1 \) is the current market leader here, but the trend is toward our technology \( e \). (informant \( \varrho_{4,6} \))

Cooperation depends predominantly on the willingness to approach each other and the openness about each other’s objectives. Cooperation is getting better and better.

Organizational cooperation takes place in terms of using sales on a common basis. Because of the various technologies, the subunits can engage in innovative projects that cannot be offered by external competitors. This might be the central competitive advantage of RhoCo. However, the extent of integra-
tion has to be treated with care – the strategic goal is to reach high individual performance on a moderate level of integration (informant \( \varrho_{4,6} \)).

*Entrepreneurial behaviour*  \( \varrho_4 \) has a very high level of EO. The entity has the highest innovativeness within RhoCo. Proactivity is on a high level and risk taking takes place on an average level within this unit. Risk taking would not be possible to a higher extent because of the reason that all new projects have to be proved as profitable before execution, and the general posture is to avoid too risky projects. Before the legal integration into RhoCo, the smaller companies had taken far more risk. This could be attributed to the bureaucratic influence the company has on \( \varrho_4 \).

Competition is seen as healthy, especially in terms of driving the unit’s innovativeness and proactiveness. It is firmly anchored that entrepreneurially skilled people should be taken seriously and should be involved in decision making to motivate them intrinsically (informant \( \varrho_{4,6} \)). On the leadership level, entrepreneurial competences are obligatory. Thus entrepreneurial behaviour is highly emphasized in \( \varrho_4 \), and the individual target commitments of employees often include entrepreneurial elements.

**Corporate Perspective**

The three subcases showed that RhoCo’s internal environment can be characterized as a coopetitive system. The entities within this internal market can be understood as embedded small companies within the organization network. All the entities are profit centres and therefore responsible for their own economical success.

The entities can be seen as rather independent companies that act autonomously within their specific technological fields. Coupled with a high entrepreneurial responsibility for the units’ managers, this is meant to drive entrepreneurial behaviour within RhoCo.

The applications for the different technologies of the network generally have an overlap. Specifically, in some cases, technology \( h, p \) and \( e \) can be used for an identical technical problem or a specific application. Therefore *market competition* exists latently between the entities. Specifically, the entities \( \varrho_1 \)
and \( \varrho_2 \) have potential competition with \( \varrho_4 \) stemming from technologies \( h \) and \( e \), which might be used for the same applications. The overlap between the technologies of \( \varrho_x \) (\( h \)) and \( \varrho_5 \) (\( p \)) is so low that the only possibility is that these technologies complement, rather than substitute, each other. \( \varrho_6 \) is exclusively a complementor in this network for the special applications within application areas of \( \varrho_4 \) and \( \varrho_5 \) in ‘industrial manufacturing’.

At the current level, competition can be seen as a driver for individual performance in terms of its motivational role. This internal competition is considered to be ‘healthy’ in terms of an enhancement of the efficiency of the network. However, RhoCo is aware of the threat that this could become ‘destructive competition’, especially if the influence of certain technologies would gain importance in the future. Then, competition might have a rather negative impact on integration, i.e. on the cooperation and collaboration within the network.

Overall, the market competition is quite low because the single technologies are operating in completely different applications and markets. Therefore external competition (competition with external companies) plays a major role for the entities.

Competition over network position takes place in terms of benchmarking which entity is the most efficient or the most profitable. Some of the units have been evaluated in terms of their innovation output, but no benchmarking or comparison between the units has taken place so far. In other words, the internal system is not driven by direct competition, and competition is not emphasized on a high level.

Two specific subnets of cooperative relations can be identified within RhoCo—one consisting of the \( \varrho_x \) units, which can be explained historically and structurally. The cooperation between \( \varrho_1 \), \( \varrho_2 \) and \( \varrho_3 \) is driven by the customer of specific applications in ‘mobile movement’. The second subnet is manifested in the relations between \( \varrho_4 \), \( \varrho_5 \) and \( \varrho_6 \) because of customer demand within the application of ‘industrial manufacturing’.

The most intensive collaborative connections currently exist between the entities where the market demands the combination of the technologies. This means that whether two entities are integrated very well stems from the con-
crete demand of a customer and is not of a proactive nature. Integration takes place whenever there is demand to integrate different technologies into one application system.

**B.3 RhoCo’s Organizational Development**

**RhoCo’s Strategic Direction**

RhoCo’s strategic direction points toward the development of a transnational organization, i.e. an integrated network of individually high-performing organizational entities. After establishing a rather competitive organizational network (characterized by a profit centre organization), the present direction puts a lot of weight on the development of an integrated system. Top-level management in $\varrho_x$ puts increasing emphasis on integrating the network.

**RhoCo’s Objectives**

**Serving the changed market demand**  RhoCo subsumes all the major technologies for the applications needed in its market within one organizational network. Following this strategic positioning, RhoCo is able to offer an objective added value for its customers:

Customers more and more demand systems rather than individual modules. One of the central strategic directives is becoming a systems and solutions provider. (informant $\varrho_{0,1}$)

In other words, the unit provides products which include all the relevant technologies, takes over the overall project responsibility (including risks, supplier coordination, etc.), and so on. Because RhoCo is the only company in the industry which is able to combine these technologies internally, this represents the possibility for *sustained competitive advantage*; that is, the network can actually provide these systems in terms of across-entity projects.

Incorporating the different technologies in a value-adding manner for the customer demands *efficient integration*. Being a systems provider with ‘one face to the customer’ makes collaboration among the entities absolutely necessary. The customer is not interested in tensions within the network. Customer
B.3. RHOCO’S ORGANIZATIONAL DEVELOPMENT

orientation implies that the entities have to be capable of combining their re-
sources (their technologies) effectively to fulfil the requirements of a demanded
customer system in every situation (informants $\varrho_{0,1}$, $\varrho_{2,5}$, $\varrho_{0,2}$).

First and foremost, this demands the efficient integration of different tech-
nologies across units. Therefore one of the central objectives is the establish-
ment of an efficient integration, in terms of interfaces and connections among
the entities.

Engaging in cross-unit innovation More and more connections and rela-
tions are recognized and developed within collaborative across-entity projects.
Predominantly, this is driven by market demand. Generally, all the network

ties among the entities exist, though in different intensities:

The greatest potential for innovation lies actually in the relations to the units
we do not have a strong connection to yet. Here, one may see no connection
regarding the [highly] different technologies; however, it is this difference [of the
particular technologies] that may provide future market opportunities and real
competitive advantages. (informant $\varrho_{2,5}$)

Relationships among the entities, in terms of the combination of the different

technologies, have very important potential to seize new market opportunities.
Cooperating across the entities reveals the big innovation potential within
organizational networks. There exist some conceivable applications that might
consist of almost all the technologies of RhoCo’s entities.

Leveraging collaborative synergy Leveraging the social capital of the
network in terms of synergistic benefits addresses transferring know-how among
the entities. This can be knowledge about technologies or applications. From
an organizational learning viewpoint, the transfer of best practices provides
social capital in that not everything has to be invented by every entity from
scratch:

In the long run, the collaborative synergy will create supplementary capacity.
Therefore the entities should [be supported to] build up additional capabilities
and capacities for across-entity solutions. Fortunately, this is done right now.
(informant $\varrho_{2,5}$).
This is exactly what entrepreneurial behaviour means. Strategic entrepreneurial behaviour additionally means the support of the superordinated corporate goals. This demands a strategic view of the employees. Entrepreneurial behaviour also comprises a strategic viewpoint of the future challenges and goals of the company. Therefore some of the entrepreneurial initiatives might make no sense today, but they are important if one looks into the future. Because of the profit centre orientation of the entities, it is hard to motivate them toward such a perspective.

That is, the integration targets the utilization of the network advantage the embedded organizations have compared to individually operating companies. Therefore the superordinated corporate strategy points clearly toward the utilization of the network in terms of synergies and the exploitation of entrepreneurial opportunities across the units.

The development of new capabilities takes place almost exclusively within the entities and stays decentralized. RhoCo can actually be characterized as a multinational organization. In particular, the entities that have complex technologies have developed strong organizational capabilities. This is justified in the fact that the management of projects concerning difficult product development demands an efficient processual structure. Consequently, the entities which work on big projects have developed strong capabilities regarding project management (informant $\varrho_{0,2}$ referring to $\varrho_3$):

If an entity has a high-level capability, it is because of opportunistic reasons. Capabilities are developed within the entities for specific applications and reasons; it is not advisable trying to impose these capabilities upon the other entities. Such an approach of developing common capabilities constitutes a ‘tankship mentality’; however, we prefer a ‘speedboat mentality’ at RhoCo, i.e. many fast and flexible speedboats are better than one big cruiser overall. (informant $\varrho_{1,4}$)

**RhoCo’s Challenges**

The direction toward a common goal has actually not yet steeped in every part of the organization and therefore a great potential within the network remains unused (informant $\varrho_{2,5}$):
On our Web site, this challenge [enhancing the integration] is already solved; however, in reality, it looks rather different. (informant ϱ₀₂).

The cooperation intensity and quality has great potential – this has been recognized throughout the company, and collaborative projects among the entities are a start toward the development of a highly integrated network.

Because the collaborative type of entrepreneurship is more directed toward future businesses and the development and recognition of new business opportunities that do not exist presently, the entities put no major emphasis on this process.

Because this accounts for most of the collaborative projects, the entities themselves are not actively driving interunit entrepreneurship or integration, respectively:

Without headquarters initiatives toward an improvement of integration, nothing would really change. (informant ϱ₁₇)

**Rent-seeking behaviours** The profit centre and market governance favour the individual performance ‘on the cost of the cooperative projects’. In across-entity projects, the efforts of each of the involved parties are generally allocated via internal transfer prices. This represents a problem: whilst every entity is interested in its own profit, this practice leads to multiple additional charges. Cumulatively, this may lead (and led, in several cases) to uncompetitive overall product prices:

If every entity does its standard surcharges, the final product will not be competitive anymore. (informant ϱ₁₇)

This nurtures the ‘competitive rent-seeking behaviour’ of the units. Additionally, most of the products in very early development stages do not have an immediate outcome in terms of profit. Moreover, entrepreneurial projects are, almost in every case, combined with risks. The units’ managers are not directly rewarded for these risks. This means that the present system does not provide an incentive for the managers to collaborate with another entity and try something new.
Short-term rewards In the current stage, collaborative projects are often at the cost of the individual performance of the entities, i.e. contradictory to what the entities’ managers are measured by.

This indicates a rather short-term view of the single entities, where across-entity projects are seen as negative because they (presently) require the input of additional organizational resources (informant ϱ₀₁). Consequently, the limited capacity (in terms of tangible operational resources) can be seen as a barrier to focusing on additional topics (i.e. social resources), which, paradoxically, represent a source of additional tangible resources.

(Perceived) added value If collaborative projects do not have a short-term payoff, they are not attractive for the entities. The dilemma here is that from a subunit perspective, individual performance has the highest priority; from the corporate perspective, integration has the highest priority.

These days, solely market demand triggers the cooperation. Furthermore, without recognizing an added value from cooperation, the entities cannot be motivated to engage in collaborative projects.

Operational pressure The daily business and high operational pressure can be seen as an additional hindrance for cooperation and thus for entrepreneurship on the network level. Collaboration is often seen as an additional burden. The external customers from this viewpoint are much more important than the internal ones (on this depends the entities’ profit and therefore the reward for the entities’ management). Generally, cooperation is not a problem of technological feasibility, but is rather a managerial or financial issue.

Interpersonal social networks The communication within this system is on a fairly low level. This means that there is little information exchange across the units:

For instance three to four years ago, we needed a specific sensor. Later, it turned out that such a type of sensor was needed in several areas of the organization. Because we didn’t talk to each other, four parallel new product development projects started. At the end four sensors came to market, and even at this point, the units didn’t know of each other’s products. (informant ϱ₀₂)
Above all, the cooperation is very much dependent on personal informal relationships. The underlying personal contacts in a relationship between two subunits represent the principal success factor of the emerging network organization:

Personal contacts contribute 80% of the success of the cooperation. A cooperative relationship does not have to work, just because the cooperation makes sense and because it is ordered by the headquarters – without the social network behind the scenes it won’t work. (informant $\varphi_1$)

**Heterogeneous environment**  
*RhoCo’s* network can be characterized as very heterogeneous. The entities are very diverse in terms of technologies, processes, resources, capabilities and routines. On first glance, no one would actually recognize commonalities among the single entities.

**Different (cultural) backgrounds**  
Potential conflict on the external market between the entities stems from the ‘heritage’ of the different embedded companies. Some of the entities operated and competed in the same market segment. Indeed, before the company was organized as it is now, some entities were competitors on the external market. this competition was eliminated officially when the entities were united to *RhoCo* but still exists in some areas latently.

An additional challenge is that the identification with such a big company is very hard. Identification with smaller entities is much easier for people in general. Therefore the motivation and identification of employees tends to be directed toward the particular entities. This can also be explained by the previously mentioned background of the entities as independent companies.

Stemming from this *individual posture*, the motivation for cooperation is not very intense. This is mostly because of different corporate languages and cultures and a lack of transparency which stems from the postmerger situation. This postmerger situation also implies a *strong identification within the entities*, which is by far stronger than the identification with the *entire company*. Some of the units still perceive themselves as the former company; in the worst case, this leads to a strong opportunistic posture. This is found in a culture which is resistant to change.
Some of the entities were competitors before they were merged together to form this company. These were integrated into the new overall company by M&A activities in the past. Of course, there are many postmerger challenges to master; however, one of these might be ‘the old barriers’ and the posture of ‘we and they’, which still persists to a certain degree:

The employees still identify themselves with the former organization names. Even 20 years after one of the mergers, people from the former two companies sat separated in the meeting rooms. (informant ϑ_{0,2})

Under certain conditions, it would even be possible to reorganize the individual units into independent companies. The services which they are commonly using currently would be outsourced in this model. The history of each of the entities predominantly stems from independent companies.

**Complexity and heterogeneity** While the organization grows, the entire network of RhoCo becomes more and more complex. It is a central challenge to master this complexity, especially in exploiting synergies among the units. Thus a central challenge in the management of RhoCo’s network is to handle the complexity of all the relations between the individual entities.

This challenge can be comprehended in terms of establishing, maintaining and coordinating the relations and interfaces. Because of the different technologies in which every unit is specialized, it is also difficult to handle the complex products from the viewpoint of product management on a network level.

**Strategic Initiatives**

Entrepreneurial coordination was defined as an internal strategy which allows seizure of the mechanisms of internal competition and internal cooperation in terms of corporate performance through entrepreneurship.

Achieving the strategic objectives demands autonomous and collaborative entrepreneurial behaviour at the same time. Whereas intraunit entrepreneurship, i.e. the entrepreneurial orientation of the individual units, is on a relatively high level, interunit entrepreneurship has to be actively fostered; that
is, due to a more (competitive) rent-seeking posture of the units, it will not be able to intensify cooperation in the present situation.

The integration targets on the utilization of the network advantage the embedded organizations have compared to individually operating companies. Therefore the superordinated corporate strategy points clearly toward the utilization of the network in terms of synergies and the exploitation of entrepreneurial opportunities across the units:

We are on the right way toward an efficiently integrated network organization; however we still have a long way to go – half of the way is still in front of us. (informant ϱ₄,₃)

Strategic decisions that are made within RhoCo stem from the overall corporate strategy and therefore the strategic decisions are made within ϱ₀. The entities intervene in this strategy-making process by proposing the initial alternatives. In this way, the entities have the possibility to direct the strategies in certain ways; that is, the strategies are actually developed within the entities, and the decision about which strategy to follow is made on the corporate level.

ϱ₀ tries to give the entities maximum autonomy in deciding how to achieve their strategic objectives in particular. Within ϱₓ, the business strategy (decisions toward the market) is made not by the entities, but by the management in ϱₓ. However, operational decisions are made autonomously within the entities, i.e. within the ongoing projects.

For example, project escalation procedures depend on the level of the steering committee of a particular project. The steering committees are built for each project on the next higher level; that is, if, for instance, ϱ₁ and ϱ₃ conduct a joint project, the steering committee would be on the ϱₓ level. In the case of ϱ₄ and ϱ₈, the steering committee would be on the ϱ₀ level.

Developing common NPD processes The organization has recognized that all the NPD processes that have been implemented in the decentralized units are very similar (although there are big differences among the technologies, targeted applications and products). Interestingly, 85% to 90% of the
processes have been identical among the entities but were denominated differently.

Before this corporate initiative, 25 different NPD processes existed in the various NPD departments within the entities.¹

**Building the infrastructure for collaboration** The establishment of a common NPD process provides the infrastructure that, in general, allows cooperation among entities. As a common communication basis, it is essential for collaboration across entity projects. Harmonizing the processes within the individual entities is seen as a crucial foundation for a high quality of cooperation within Rhoco. The implementation of a new common NPD process therefore built an essential step in the advancement of lateral integration:

This project helps that everyone in the new product development in Rhoco speaks the same ‘language’. Now, the colleague from $\varrho_4$ knows what I mean when I say ‘I will have QB1 soon’ and therefore knows in which process phase I am, and what kind of inputs I need from him. By the implementation of the new process, we created the foundation for collaboration. It is a tool that provides the possibility of defined communication. The parties involved in a common project now can concentrate on the project content – the product development – and do not have to figure out how to work together first, as it was before. (informant $\varrho_{0,1}$).

The new process aims at granting maximum autonomy and entrepreneurial freedom to the project organizations (i.e. the project managers). On one hand, the process has to be followed accurately to meet the stipulated milestones. In between the milestones, project managers are urged to behave in an entrepreneurial way (‘the project is their individual venture’). In this meaning, the operational and procedural goals have taken a backseat in favour of a higher goal orientation. This mirrors the trade-off between the necessary bureaucracy (in terms of commandments for living together) and entrepreneurial freedom (in terms of goal orientation):

The new NPD process represents a motorway with stipulated exits [the milestones]; the project manager has the responsibility to drive on his own. Because

¹There are many other processes in which harmonization would be very important. Some initiatives aim, for instance, at developing a common innovation.
every driver is meant to drive on the same motorway, this represents a common worldview, which grants high adaptability and compatibility. (informant \( \varrho_{0.1} \))

The process represents a possibility to coordinate along the vertical network, without constraining the entrepreneurs, because the process is designed in an abstract manner.

It is independent from the organizational levels of the project. This means that the process can be adapted on business unit, product area and product segment levels. Depending on the scope of the regarding project, the project organization is built one level above the participating entities.

Although the common process builds the foundation for collaboration, the process of collaboration itself is not triggered by the existence of the common process definition.

**Developing network knowledge** Moreover, an important antecedent for cooperation is that the entities in the first place know about each other, i.e. know which of the entities have technological or processual expertise, and in which particular areas. Additionally, it has to be clear that the organization actually has one common goal, and not several

A general distinction is made between product and process innovation within the new process definition. A third dimension would be organizational innovation. This methodology allows deciding, before starting the project, how big the efforts of a planned project will be and on which organizational level it should be anchored.

**Creating win-win situations** The challenge for RhoCo lies in the development of a system for *efficient cooperation* among the entities. Harmonizing the processes provides the foundation for collaboration and cooperation among the entities and the development of a common understanding; that is, the single entities have to speak a common (processual) language, and the processes and routines within the single entities have to be transparent.

The specific handicap for the collaboration projects is the fact that the new NPD practices and processes are actually not deployed completely throughout the whole organization. In particular, this project brought up a lot of transparency about the particular requirements of all the entities.
Establishing interunit personal networks  The organizational development projects described in this appendix helped in establishing personal contacts among people of the particular entities. Therefore this project combined process improvement with another crucial fact: that personal contacts have been improved. However, there is not a large impact on the organization because the participants were too few.

Implementing PMI  Among the corporate initiatives is the project ‘professionalization of project management’. This aims at developing capable people in the project management environment. The program is adapted from PMI\(^2\). Here project managers are trained to understand the entirety of project management and its principal standards and policies.

Approved project management professionals have to be familiar with the project environment and must have skills and knowledge about management in general. Among the concrete competences is the development of high interpersonal skills (i.e. social competence):

A particularly important factor or competence of entrepreneurial behaviour is intercultural competence, as part of social competence, i.e. the capability for collaboration with people from other cultures. (informant \(\varphi_2,5\))

Developing collaborative competence  Within the entities, this comprises the challenge of reaching high individual standards (performance and process standards) to provide a base for working together with the other entities effectively. Therefore tools that enhance performance also enhance the capacity for cooperation and therefore (second order) the entrepreneurial capabilities of the units.

Balanced scorecard  To overcome the internal barriers, RhoCo tries to harmonize the individual objectives, i.e. to distribute them evenly, fairly and transparently among the entities.

As a concrete practice, RhoCo currently introduces the ‘balanced scorecard’ (BSC). The BSC provides a tool for harmonizing the goals of the different

\(^2\)Information can be found at http://www.pmi.org.
business units and bringing them into connection with the overall business strategy.

In RhoCo, the BSC was introduced one year ago. The allocation of the goals is made in a meeting, where corporate leaders and leaders from the business units come together and elaborate the particular objectives.

Alignment of interunit objectives Although the distribution of subunit-specific objectives might take away some of the entrepreneurial freedom, the harmonized goals have a positive influence on cooperation.

Transparency in the objectives of the others and, in particular, the insight that the objectives stem from one overall objective, helps to create insight and network orientation.

Initiating collaboration top down The more the units are engaged in collaborative projects, the better the quality of cooperation. In particular, if the collaborative across-entity projects are of good quality, this is also good for the development of the social capital of the participants in terms of learning from each other. Therefore the intensity also has a positive influence on the quality of cooperation.

Strategic (entrepreneurial) decisions force the entities to break out of daily business and create new combinations (in terms of the combination of technologies, i.e. strategic assets or resources – this is an entrepreneurial process):

Sometimes, someone else has to make the right decisions. Without being pushed in some cases and maybe forced to work on certain topics, these would be done later, whereas the market opportunity exists now. (informant ϱ4,6)

The design of the objectives of the responsible people in the entities is crucial here; the operational goals are fixed (they have to be reached, and they are focused because they are bound to the monetary target commitments of the entity managers), and these have a negative impact on the motivation to act strategically.

Installing entrepreneurial product management Another top-down initiative is the development of entrepreneurial product management. This third major corporate initiative is about the ‘development of business excellence’; it
aims at creating the strategic posture of a special pool of process specialists and moderators. These people can be seen as promoters of entrepreneurship within the organizational network.

Due to better market knowledge (insights from the other entities that might operate in a different market), cooperation can enhance the proactivity of the entities. The utilization of the network provides, in this sense, a ‘cheap’ possibility to access additional resources and capabilities. Collaborative across-entity projects require and nurture the development of individual competences within the entities. In particular, social and collaborative competences are important here.

**Uncoupling power** Such people are ideally not bound to a specific entity and have a general overview of opportunities – especially across units.
Appendix C

In-Depth Case: MuCo

Modular and flexible system[s]... can be customized and used globally
... there, where the customer needs us.

—from MuCo’s mission statement

This chapter presents descriptions of the intraorganizational network of company MuCo. To account for the multilevel understanding of the research, data were collected from the headquarters as well as from the subunits. Three subunits of the organization have been investigated and build three descriptive ‘subcases’.

The structure of this case study is identical with the case study in appendix B. Both cases serve as the foundation for the development of a cross-case analysis (6) and the development of a concept for entrepreneurship in intraorganizational networks.

Overview Appendix C

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C.1 Background

MuCo is part of a major international automotive company. It is an automotive supplier which exclusively develops and manufactures cars for the biggest OEMs worldwide. MuCo has distinctive technological capabilities, which is the reason why OEMs hand over complete development projects to MuCo. MuCo denominates itself as a 0.5 tier supplier in that it does more than just supply – it develops vehicles for OEMs from scratch.

MuCo covers every stage in automotive business, from the design to the development and assembly of complete cars. MuCo employs about 12,000 people in 17 locations throughout the world.

This investigation targets the engineering network of MuCo, which is characterized by nine entities that are dispersed globally. The specific decentralized structure of the company evolved predominantly because the customers wanted MuCo to be present on-site at their manufacturing plants.

Network Structure of MuCo

The pillars of MuCo’s engineering network are the nine worldwide-dispersed entities. The network consists of \( \mu_1 \), which constitutes the ‘mother’ entity and is located at the headquarters site in Austria; \( \mu_2 \), which has two locations in North America (subsidiary headquarters) and Central America; \( \mu_4 \), which has four locations in Germany; \( \mu_3 \), which has three locations in France; and the entities \( \mu_6 \) in Hungary, \( \mu_5 \) in Italy, \( \mu_7 \) in India, \( \mu_8 \) in China (here two further offices are located – one is coordinated by \( \mu_3 \), and one is coordinated by \( \mu_8 \)), and \( \mu_9 \) in Austria. Figure C-1 illustrates this network.

The entities build up a very heterogeneous network. Whereas, for instance, \( \mu_1 \) is relatively big (1,500 employees) and rather bureaucratic, the network can vary, with very entrepreneurial entities that have about 40 employees in total. Some of the small entities depend on \( \mu_0 \) in terms of resources and support, which they get along the vertical network. Additionally, the smaller entities are dependent on the bigger ones (i.e. the network) in terms of technological
C.1. BACKGROUND

Figure C-1: Structure of company MuCo
(the thicker lines represent the relevant ‘vertical network’; the shading indicates the relevant entities)

Entrepreneurship at RhoCo

Understanding of entrepreneurship The fundamental idea of the profit centre organization is that at the top of each profit centre is an entrepreneur, who is responsible for the centre’s business success. These people have to be entrepreneurial; otherwise, the centre will not be successful.

Each entity is headed by a general manager. The general managers have full entrepreneurial responsibility for their entities’ business. General managers are in this sense internal entrepreneurs. The corporate culture emphasizes entrepreneurial behaviour. However, entrepreneurial behaviour is not rewarded explicitly because it should take place, because the entrepreneur is convinced that his idea is good and not because he may be rewarded for it. General managers behave entrepreneurially because it is part of their organizational role (informant $\mu_{1,1}$).

All in all, the organizational culture can be considered very entrepreneurial. Many people identify themselves with the products that are developed by MuCo, even if these products do not have the label of MuCo; that is, the identification with MuCo is at a high level.

Entrepreneurial processes within MuCo Entrepreneurial orientations differ very much from entity to entity within MuCo. Whereas entities that
are in the start-up phase, i.e. the early growth phase, tend to be very entrepreneurially oriented, the bigger entities are pretty much established in their markets and with their technologies. The young entities feel high pressure to grow and become more effective.

Generally, MuCo emphasizes entrepreneurial behaviour in every part of the organization. Approaching the organization with a multilevel understanding, i.e. distinguishing between subunit and network levels, revealed two distinct entrepreneurial processes within MuCo: one entrepreneurial process which takes place on the subunit level, and one entrepreneurial process which takes place on the network level.

**Entrepreneurship on the subunit level** On the level of the single entities, individual projects are carried out, for the most part, by the entities on their own. One of the core competences of the entities is to execute these projects autonomously. Apart from this autonomous project execution, innovations are predominantly driven by the bigger entities. For instance, $\mu_3$ is very innovative, which stems from the high pressure of the customers in its market.

Because of the high operational pressure, the smaller entities have a higher operational workload. This hinders them in being innovative because they lack important resources (like time) to engage in innovative entrepreneurial processes; that is, new business opportunities are predominantly seized by the big entities, which take the role of innovators within the network.

**Entrepreneurship on the network level** Understanding entrepreneurship as behaviour, which supports the overall strategy, involves an entity also being oriented toward supporting its sister entities to enhance the success of the entire network. This is actually founded in a posture toward understanding the other entities and cultures, i.e. their problems and specific competences.

With this, entrepreneurial behaviour also involves cooperating laterally to seize important opportunities that evolve by combining, for instance, the technological competences of two or more entities in one project.
Performance through Entrepreneurship

Both the entrepreneurial processes aim at enhancing the performance of MuCo. Individualized entrepreneurship on the level of the subunits aims at increasing the individual performance of the entities. Within the network, this is based on the internal market, which is driven by competition.

Entrepreneurship on the network level aims at seizing important across-entity business opportunities and fostering integration among the units. This type of entrepreneurship depends on the efficiency of the cooperation between the involved entities.

C.2 Entrepreneurship in MuCo’s Network

Subunit Perspective

Following definition (Definition 1), a network consists of a clearly defined finite number of entities and their social interactions. To describe and understand the dynamics within MuCo’s organizational network, this section outlines the cases of three of MuCo’s organizational entities in detail.

The subcases were chosen together with the initial contact persons of MuCo with the aim of constructing a representative sample of entities in terms of size, network position, considerations about theoretical sampling (predicted dissimilarity and variety of findings) and other criteria. According to the conceptual model, the investigation respects the constructs ‘entrepreneurship, coordination, competition and cooperation’. Consequently, the subcases have the following structure:

- network perception (lateral/vertical network)
- network position (lateral network)
- entrepreneurial behaviour (process and EO)
Within-case case of $\mu_5$  

$\mu_5$ has approximately 120 employees and is located in Italy. The specific technological and processual core competences of $\mu_5$ are in the ‘body in white’ stage in automotive design,\(^1\) interior and styling/concepts.

Network perception  
From the viewpoint of $\mu_5$, the network can be described as a hybrid in between internal market and internal network organizations. The internal market is built from the entities, and because they are profit centres, they must be able to ‘exist on their own’.

The development of business strategies takes place within the entities; that is, the basic strategic direction is set by the headquarters, and the individual strategies (following from that) are elaborated along the vertical network relations between headquarters and subunits. Hierarchical control does play a minor role for $\mu_5$. The headquarters sets more common strategic directions than it actually commands.

Strategies can be communicated along the horizontal network (e.g. within global lead management conferences; see the following discussion); the entities know the strategies and objectives of the other entities.

Network position  
$\mu_5$ has a superior position within the network (informant $\mu_{1,6}$). Though some of the entities want to take special roles (justified by past achievements), the network positions are much more determined by competences:

> It is very important that nowadays the importance of the single entities is not dependent on their size, but network position depends on competences and organizational capabilities. It is very important to live this network and think about the added value one [an entity] can contribute and likewise get from the network. (informant $\mu_{1,6}$)

Relative to the other entities, $\mu_5$ has a much more intensive relationship with its peers. The intensity of the relationships varies from entity to entity. With the entities $\mu_8$, $\mu_7$, $\mu_3$ and $\mu_1$, collaboration is on a high level, whereas the relationships to $\mu_4$, $\mu_6$ and $\mu_2$ are less intensive.

Relations toward $\mu_1$ are determined by internal competition. However, not all the relationships have the same importance. Presently, the entity con-

\(^1\)New product development phase in which the car body sheet metal is already designed but components like chassis, motors or trim have not yet been added to the system.
ducts three projects together with internal peer units (the entity conducts six projects in total). In one of the projects, $\mu_5$ acts as an internal supplier to $\mu_3$ and $\mu_7$. In another project, $\mu_8$ and $\mu_7$ are suppliers for $\mu_5$:

$\mu_5$ always strives to leverage the surrounding intraorganizational network. Traditionally, it is the entity that maintains the most contacts. However, we concentrate on maintaining and developing only the essential relationships to avoid creating unnecessary constraints. (informant $\mu_{1,6}$)

Because the entity has specific core competences, the others immediately perceive an added value in collaborating with $\mu_5$. $\mu_5$ can be seen as a service provider for this specific competence.

$\mu_5$ competes with the other entities about resources. Generally, the entities compete on the external market as well. However, the external competition can be seen as on a healthy level:

Negative about the competition is the fact that it is not only the external competitors and customer one has to respect, but additionally an internal competitor. Sometimes this implies some additional effort. However, if you lose a customer than it is better to lose him to an internal competitor; otherwise you will never find out what mistakes you made. (informant $\mu_{1,6}$)

Due to MuCo’s culture, it is common that if two entities compete over the same customer, entities communicate how they won the customer. This would not be possible in external competition.

The strong network position of $\mu_5$ is grounded in the fact that the general manager of $\mu_5$ has been with MuCo for 12 years now; that is, he has a very strong personal network. Because he started in headquarters, he knows all the entities, their objectives and their competences. However, successful cooperation stems from transparency and trust between the partners:

If you committed yourself to something, you have to do it. One can create transparency only by communication, communication and communication. (informant $\mu_{1,6}$)

*Entrepreneurial behaviour* Because of its relatively small size, the entity is very efficient and flexible. $\mu_5$ is a very proactive entity, which tends to engage in risky but promising new projects. Innovativeness is on a fairly low level.
The entity was founded two years ago and has already established a team of 120 people. After building up the entity, it is now a central objective to consolidate the business and become more visible on the external market.

After this, the entity plans to emphasize innovation. Therefore it will be necessary to get more resources along the vertical network to engage in advanced development. Presently, advanced development is exclusively done centrally or within $\mu_1$:

The advanced development is localized centrally. Therefore innovations are bound to a relatively big and bureaucratic central organization. Involving the entities would put some fresh brain into the development of new businesses. Additionally, in big organizations you typically find a lot of people that tell you ‘why something won’t work’ and they usually lack the orientation to something new. That is, the existing organizational rules and processes hinder unconstrained thinking about alternate solutions. (informant $\mu_{1,6}$)

**Within-case case of $\mu_7$** $\mu_7$ has approximately 125 employees and is located in India. The specific technological and processual core competences of this entity are in the design of chassis and drivetrain components, simulation of structural durability, engineering software development, engine development and testing and vehicle homologation.

The EC is not that mature that it could take technical leadership in one of the product areas. However, it is potentially one of the lowest cost suppliers today. Therefore the entity can offer very low-priced engineering labour.

**Network perception** After being extremely centralized in the past, the MuCo organization is becoming more of an open network now. This is a direct result of a management change. At the end of the day, all the entities within the network are partners (mentors or supporters) of each other, potential suppliers of each other, potential customers of each other and potential competitors:

It is very difficult to perceive one and the same entity in their different roles at the same time. For instance a supplier and a customer at the same time. So as $\mu_1$, it is a supplier for us, at the same time a customer of us, and a mentor to us. (informant $\mu_{1,7}$)

That is, the network should be drawn for several different types of relationships: a customer’s network, a supplier’s network, a competitor’s network,
and so on. The network is multidimensional. There are procedures, plans and strategies that are handed down from the head office. Therefore there is some direction from the top, such as targets and objectives that are given. However, the concrete business strategies are developed on a decentralized basis.

Network position The size of the single entities does not necessarily mean that they have a privileged place:

Historically and from its size [it has three times more employees than the second largest entity], it would be accurate to give $\mu_1$ an exposed position within the network, but things have changed. The ironic thing about the network is maybe that our entity is one of the youngest, but we are likely to be as big as $\mu_3$ or $\mu_2$ within another year. (informant $\mu_{1,7}$)

This entity is getting increasingly important within the network because it is growing much more rapidly than the others.

Competition over network position and strategic influence is actually not perceived at all – running the operational business is by far more important. Competition over market share (on the external market) is potentially an issue. All in all, competition is more directed toward the external environment than the internal environment. Internally, it is healthy competition in that this centre is trying to become the preferred supplier for the other internal entities. However, if it comes to project finances, all of the good cooperation suddenly becomes competition:

Even if you are both trying to win the same project from the same external customer, you are cooperating to win the contract and at the same time you are trying to get most of the shareholder’s pie. (informant $\mu_{1,7}$)

The general managers want to maximize their bonuses by meeting their market needs. Competition over resources and support from the headquarters is not very intense because resources and support from the headquarters is not really a scarce resource. This does not mean that financial resources are not limited, but the interview partner does not perceive any competition over money:

(Internal) cooperation is always based on personal relationships. One way to enhance internal cooperation works by giving the key people more face-to-face time. E-mails are a good way to communicate when you are on the same path,
but when you are in a conflict situation, e-mails are often just used to get people back up. But it would be, of course, better to call the others to solve a problem. (informant $\mu_{1,7}$)

The older EC send people, working as mentors and coaches, into the new entities; this is also the case within this $\mu_7$; that is, they are not working on joint projects, but transfer the practices and routines (implicit knowledge) to the new organizational entities. This aims at training up staff in $\mu_7$ to replace the trainers later on.

$\mu_7$’s window of opportunity is that it can do low-cost work for the others today. As a pay-off, the engineering centre is able to train its staff. Therefore the expertise comes from the parent company by exploiting the cost advantage this entity has. This works in the following way: the parent company sends an engineer to do a project; he carries out this project with the low-cost labour engineers, and they get trained by doing this project with the experienced engineer. To sum up, this provides a cost advantage for the customer entity and a learning advantage for this entity.

Actually, $\mu_7$ tries to benefit from all the cooperation forms: technological (learning from other entities; engineers from other entities help to build the capabilities of this EC), operational (information technology) and organizational (human resources, strategy development). Mainly this is passed back by the already mentioned low-cost work.

*Entrepreneurial behaviour* The autonomy of this entity is on a very high level:

On a scale from one to five at a level of five or even six or seven, if possible. Give us the money, give us the support, give us the name, give us all the big benefits of a big company, and leave us alone – we will do better! (informant $\mu_{1,7}$)

Innovativeness is not an issue in terms of product innovation today because the entity has to ensure its own growth and consolidation presently. Process innovation takes place, but the entity is as innovative as it needs to be to make the business work. Innovation is not done for its own sake; there is not the luxury and the time to do it yet.

Proactivity is on a very high level; by founding this entity in India, the parent company has given the management team an opportunity, and the
management team does its very best to bring this opportunity into the future. Risk taking is very difficult to decide; deciding whether something is risky depends on the perspective and the environment.

**Within-case case of** $\mu_1$ $\mu_7$ has approximately 1,400 employees and is located in Austria. The specific technological and processual core competences of $\mu_1$ are in project management, advanced development, styling, vehicle concepts and innovation, complete vehicle, body and trim, chassis, power train and all-wheel drive systems, electrics and electronics, prototyping and low-volume production, information management, commercial vehicles, engineering services consulting, homologation and space technology.

This list expressly underlines that this entity has most of the expertise, especially in terms of the complete product. Therefore most of the other entities depend on $\mu_1$’s competences, whereas they are oftentimes solely responsible on the module level.

**Network perception** From the viewpoint of $\mu_1$, MuCo’s organization is a mix of network and bureaucracy. Strategic decisions are made autonomously on a decentralized level. The individual entities are independent companies within MuCo’s organization.

In general, cooperation takes place among all the entities. One aim is to globally ensure the imperative that ‘everything that has the label MuCo, contains MuCo indeed’ (informant $\mu_{1,2}$); that is, the competences of the indigenous entity $\mu_1$ have to be transferred and brought to all the other entities. Every customer expects project performance and quality, which made the company successful in the past, at every location worldwide.

**Network position** From $\mu_1$’s perspective, the internal network is rather competitive, although one can recognize a trend toward decreasing competition within the intraorganizational system. The competition between the entities was more intensive in the past than it is today.

The other entities compete, especially with $\mu_1$, over position within the network. In terms of ‘competition over network position’, the other entities try to gain more importance and power, at the cost of $\mu_1$, because this entity still
has the best position within the network (with regard to resources, knowledge and closeness to the headquarters):

The relationship of the other entities to $\mu_1$ can be interpreted as a type of love-hate relationship. The other entities are reliant on this entity, because of its organizational resources and capabilities, and at the same time they want to boost their importance and power within the network. (informant $\mu_{1,2}$)

In particular, $\mu_2$ and $\mu_3$ can be seen as serious competitors in the external market; the other entities are too small to represent a threat for $\mu_1$'s business.

From the viewpoint of $\mu_1$, competition takes place more in the exploitation phase than in the exploration phase. For the generation of innovation, there is no true competitor for $\mu_1$ within the network. Additionally, $\mu_1$ is the biggest entity and therefore has all of the resources (tangible and intangible), i.e. the capacity required for the effective introduction and exploitation of innovation:

Most of the specific technological and processual expertise and capabilities are pooled within $\mu_1$. Therefore $\mu_1$ can be considered as the MuCo’s knowledge centre. Therefore the most cooperation relations take place around $\mu_1$. Here, predominantly $\mu_2$, $\mu_3$ cooperate with $\mu_1$. (informant $\mu_{1,2}$)

The other engineering centres are more competent on the module level. In contrast, $\mu_1$ has the expertise in the whole system. In addition, at $\mu_1$, all the methods, tools and equipment and resources are available for the development of the overall system.

$\mu_1$ also has many advantages from collaborating with the other entities. Apart from the fact that collaboration helps to overcome current barriers and ‘thinking in silos’, benefits for $\mu_1$ comprise, for instance, access to cheap labour costs, which the entities in emerging countries can offer:

Disadvantages of cooperation stem from the situations when single individuals are not capable of cooperating with others, which leads to inefficient collaboration. Sometimes this leads to conflicts, which can’t be explained rationally. (informant $\mu_{1,2}$)

That is, cooperation often becomes negative, when it is not efficient.
Entrepreneurial behaviour  \( \mu_1 \) is the most innovative entity. Research and advanced development are done within \( \mu_1 \) exclusively. Most of the major innovations (e.g. the virtual new product development practices) stem from \( \mu_1 \), and more precisely, from the advanced development within \( \mu_1 \).

Most of the product-specific knowledge on a systems level is located within \( \mu_1 \). Additionally, \( \mu_1 \) has all the tangible resources (sites and financial resources) to drive the entrepreneurial process concerning new innovative ideas and opportunities. Additionally, \( \mu_1 \) has the most capabilities in terms of technological expertise; that is, the entity represents the competence centre on a systems level. The competences have been built up for over 100 years – \( \mu_1 \) is the oldest entity within the network.

One of the strategic assignments of this entity is to actively help the other entities in their development, i.e. bringing forth the entire network. As payback, \( \mu_1 \) gets cheap labour from the other entities.

\( \mu_1 \) in itself can be considered a well-performing network, which is based on a hierarchical organizational structure with the necessary bureaucracy. Without the bureaucracy, the network, which comprises 1,300 people, would not be efficient.

Corporate Perspective

The three subcases showed that MuCo's internal environment can be characterized as an internal market system. The entities within this internal market can be understood as embedded small companies within the organization network. All the entities are profit centres and therefore responsible for their economical success.

Competition within this network predominantly takes place over the system position within the network. Oftentimes, this competition is induced by the general managers because they want more power and prestige within the network. This type of competition is nurtured by the underlying competition over resources, especially human resources; that is, a better network position means superior resource access. This competition is less about financial capital, and predominantly about human capital in the form of qualified people,
i.e. their tacit knowledge, because the competences each entity has are bound to the knowledge of its people.

None of the interview partners could tell whether the competition is actually appreciated or not. However, it is more an outcome of autonomy and decentralized decision making, i.e. that each entity is responsible for its own profit and the management of the entities is rewarded according to the entity’s profit achievement (informants \( \mu_{1,2}, \mu_{0,4}, \mu_{0,3} \)). Therefore every entity is concerned about how to improve its own profit, which actually constitutes a competitive rent-seeking posture:

In general, competition always leads to better and more effective solutions. In this meaning, competition nurtures continuous improvement and the achievement motivation. If one is in competition, this means that one always tries to adapt oneself to changing circumstances to stay successful. (informant \( \mu_{0,3} \))

As long as the competition is on a certain level (‘healthy competition’) and not too high and about destructing the other parties, it supports the development of the overall network. Moreover, as long as the competition is open and relationships are founded on trust among the entities, it is not a problem, and is even highly positive:

The advantage of the internal competition is that due to the market mechanism, the offers from the entities get very competitive. Therefore the internal competition might be negative for a particular entity, but it enhances the efficiency of the entire organizational system. (informant \( \mu_{0,4} \))

The dark side of competition is the competition which becomes visible in front of the customer:

We had several cases where entities made offers to one and the same customer independently, without knowing from each other. (informant \( \mu_{0,5} \))

When one entity gets resources from another (e.g. human capital in the form of expatriates), this is charged via internal transfer prices. In the case of win-win situations (e.g. training costs for employees), the parties split the efforts. However, there are some exceptions for the smaller entities that are currently in the start-up phase. Here additional resources are considered as single-directed investment in the development of the network.
The most intensive collaborative connections currently exist between the entities where customers demand the combination of specific technological competences. This means that whether two entities are integrated very well stems from the concrete demand of the market and is not of a proactive nature.

C.3 MuCo’s Organizational Development

MuCo’s Strategic Direction

MuCo is trying to exploit the parent company’s knowledge to build a strong local presence, and at the same time, it is trying to use the cost advantages that exist today to facilitate that.

In the past, each of the entities acted rather autonomously; now collaboration among the entities is the central objective. The mindset and organization of the entities is anchored in a competitive intraorganizational tradition. This competition should be consistently present in the future; it explains a major part of the entities’ efficiency. This means that the organization actually aims at an increase of cooperation, while they want to keep the competition at the present (‘healthy’) level.

Generally, the internal strategy did not emphasize integration in the past. The internal and external competition pushes the development toward individual performance. However, it additionally necessitates the development toward integration. Entrepreneurship on the network level is a means to achieve this objective.

Taking the perspective of the whole organization is absolutely demanded here to be competitive in the future.

MuCo’s Objectives

The overall objective for MuCo is to create an organizational system that combines efficient integration among the subunits and autonomy for the subunits at the same time. This aims at using the social capital within the network, in terms of cooperation. Among the reasons for enhancing the integration of the network are
• leveraging collaborative synergy

• serving changed market demand

• engaging in cross-unit innovation

**Leveraging collaborative synergy**  *Organizational capabilities* are developed within the decentralized entities. However, the entities do not possess these capabilities exclusively; they belong to the entire organization. It is a central aim that customers around the world get the same level of expertise, no matter which entity is his supplier.

However, the postures change toward a common perspective in that the network has to be strengthened toward the external market. From this perspective, all parties can have benefits from cooperation. An added value for the more established entities can lie in learning a specific expertise in a particular technology or learning new approaches for problem solving.

Within the last years, the ‘embedded companies’ began to collaborate on different projects and, in this way, began using the *synergistic potential* of the network.

Whether the entities cooperate technologically, operationally or organizationally depends on the specific requirements of the project and the competences of the involved partners. Whereas, for instance, $\mu_1$ is often a partner if a project demands technological competence, $\mu_7$ or $\mu_8$ are often operational cooperation partners (low-cost labour). Organizational cooperation oftentimes hinders the efficiency within the project (informant $\mu_{1,6}$).

**Serving the changed market demand**  The external market competition makes an efficiently integrated network absolutely necessary. However, enhanced cooperation constitutes a great potential for both the entities and the entire network. Today, the organization uses about half of the overall potential (informant $\mu_{0,4}$):

It appears to me that most of the entities actually don’t like to cooperate at all – they would favour to work independently. However, in some projects, they have to. (informant $\mu_{0,5}$)
In the past, the criterion ‘market knowledge’ was much more important for the single entities. Those which were close to the particular customer had a competitive advantage. What counts today is product- and process-specific capabilities (technological and organizational resources). In this connection, additional resources are partnerships and alliances, i.e. the network position.

For instance, $\mu_2$ is such a case. In the past, this entity focused exclusively on projects with its customers in North America. However, now it also coordinates projects in Japan or with Italian customers (although there is an Italian entity, $\mu_5$).

**Engaging in cross-unit innovation**  
Cross-border innovation or inter-entity (product) innovation is not possible without close personal relationships. Innovation workshops (already done), in which people from different entities come together for a few days to discuss innovation and possible opportunities for invention, provide a powerful tool for multidivisional innovation.

$\mu_8$, $\mu_6$, $\mu_4$, $\mu_7$ and $\mu_5$ are currently in a start-up phase; that is, they do not have the resources for additional innovation. The big three ($\mu_1$, $\mu_3$ and $\mu_2$) have the required resources to engage in innovative new products.

Engaging in innovative projects is, for the small entities, therefore always bound to the support of the bigger ones.

The bigger entities are absolutely bureaucratic. They tend to be very self-absorbed:

They would probably recognize that a customer is gone two years after it happened. (informant $\mu_{0,5}$)

**MuCo’s Challenges**

**Rent-seeking behaviours**  
The entities are profit centres; this explains the orientation of entities’ managers in maximizing the profit of their entities:

Information only flows, if somebody requires something from one other. It is very hard to get information from the others – even up to complete information interlocks. One only gives, when one wants to get something in return. (informant $\mu_{0,5}$)
This might explain why the smaller entities cooperate much more intensively than the big ones. The small entities perceive cooperation as an important source of additional resources, especially knowledge and technological expertise:

If you end up in a situation where what is good for an individual engineering centre is not necessarily good for the whole group or for other engineering centres, you will end up in a conflict situation. Without being able to manipulate the general managers effectively, there is no way to resolve that. This manipulation has to be made by the head office – if they are not able to manipulate it in a way that the individual entities are doing what is best for the whole company (long-term orientation), the whole won’t be successful. On the other hand, if for instance three EC would be involved in an across-entity project, there should be mechanisms that everything a single EC decides has to be agreed by the partners (essential for such collaborations). I could consider a business structure, where divisions A, B and C would have to work together, to do a project X, then they actually have to form a new company. Each division becomes a shareholder of a new company then. That company is the owner of the project rather than one of the divisions. The customer gives the order to that company. And that company is then a legal entity – a multinational legal entity that will then manage the project. However there are some other issues then, e.g. international taxation issues, currency issues and many others. Here, a certain degree of communality could be established that cannot be easily manipulated by single GMs within across-entity projects. In this way, the project manager then would become a general manager of the project. (informant \( \mu_{1,7} \))

The establishment of such a project-based company would actually uncouple project responsibility and organizational power.\(^2\)

\textit{Power and influence} As a general manager, one likes to be the head of one’s own autonomous entity; they like the challenge, sometimes with more and sometimes with less support. The entrepreneurs do not want to be part of a bureaucratic conglomerate with several levels of management.

Additionally, the small entities are on the same level amongst each other; they have the same issues:

Splitting the big entities into smaller ones that are responsible on a module basis would lead us to a more efficient network. (informant \( \mu_{0,5} \))

\(^2\)Such a business model is very successfully practiced by company \( \iota_1 \).
However, there is a lot of potential for developing this perspective and the motivation for cooperation:

The bigger and established entities are often not completely convinced of adopting new and often unconventional approaches of the younger entities. This is a sort of arrogance regarding new ideas and approaches. Others would call this robustness to change. (informant $\mu_{0.5}$)

The bigger entities often perceive the cooperation as single directed.

(Perceived) added value That is, they support the others, but they do not experience benefits from the cooperation by themselves. Additionally, they fear that by helping the emerging entities to build up their capabilities, they might represent additional competition in the future. This might be one reason why the bigger/established entities are more competition oriented – because they see the emerging entities as potential threats to their business. They are seen as threats, especially if they are able to combine the learned capabilities with their low labour costs:

Why would I want to develop toward higher integration? I don’t care! What I want to do is to have higher performance. If integration improves my performance, then I want to do it, if it doesn’t I am not interested. . . . I do not agree at all that increasing integration might necessarily make things better. I don’t say that it necessarily makes things worse either. I think it might simply be irrelevant. (informant $\mu_{1.7}$)

The smaller and younger entities are aware of the added value they get from the network. A lot of the knowledge and technological capabilities they need stem from the other entities. Therefore they are more interested in cooperation than the other entities.

The smaller and younger entities are, the easier they can be convinced that cooperating with others constitutes a win-win situation. For smaller and younger entities, cooperation oftentimes is a big win in terms of access to technical and organizational know-how and experience. For the bigger entities, it is often not so easy to recognize an immediate added value from intraorganizational collaboration because they are able to operate relatively autonomously, because they have a larger resource base.
Functional divisions within the entities oftentimes can cooperate much easier because there is not that much politics and bureaucracy in the game – it is much more about the actual content of the cooperation. These functional departments have a more obvious added value out of the cooperative situation (they all have pretty much the same problems). Functional entities cooperate more often in an informal manner, in the meaning of ‘I am gonna call this guy, to . .’. (μ₀,3):

If the cooperation does not provide benefits for an entity, why should they cooperate? Here the economic principle is persistent. Therefore one can recognize a strong tendency toward cooperation of the small and young entities because they have a big added value in terms of learning from the bigger entities. On the other hand it is very difficult to convince, for instance, μ₁, about cooperation, because they often say, ‘All the time we are supplying the others with our expertise, but never receive any’ – sadly, that’s their perception. (informant μ₀,3)

*Short-term rewards*  Cooperation mostly has advantages for the entities, especially in the long term. The problem is that some of the entities do not recognize this. In the short term, cooperation often makes processes more complex than they would be in an autonomous situation. However, if cooperation would be more efficient, this would not represent a problem:

There are a couple of reasons why an internal partner should pay a bit more for the services from their internal partners. First, because the company strategy comprises a building up of this EC (and for what reason should they put money into the external companies’ shareholder’s pocket?). Secondly, we want to build competence in India, so why should the internal partner help another company to build up competence in India? Thirdly, most of the time, the work which is done by this EC is of a higher quality than from the competitors (claim for premium); there is more value added if we keep the business in-house. It does not matter which is cheaper at the moment; at the end of the day, it is important what is best for the company as a whole. (informant μ₁,7)

This means that part of the cooperation problem comprises the question of how to motivate the entities (i.e. general mangers) to do what is best for the whole company in the long term, when their bonuses are paid on what is best for them in the short term (informant μ₁,7).
Interpersonal social networks  Establishing the network in large parts depends on the personal networks of the individuals behind the processes. The more often these people meet, i.e. the better they can establish personal contacts across the entities, the better the network gets. The key persons within the network are of essential importance – their personal networks designate the quality of the organizational network. Key persons are predominantly the general managers of the entities (heads of the profit centres):

Each entity has further key persons, so-called eminences grises, who actually run the operational business within the units. Our experience shows that the network can only exist if the personal networks of these people work well. (informant $\mu_{0,3}$)

The quality and intensity of cooperation are very much dependent on individual key players and whether the involved entities were already engaged in collaborative projects (‘they know each other’); that is, the best cooperative relations take place between entities that already did projects with each other. When two entities are working together, then it is generally triggered by the project:

Without a concrete project, the single engineering centres would not work with each other. That is, without the concrete demand from a customer, no across-entity project would be initiated. (informant $\mu_{0,5}$)

That is, collaborative projects are triggered by the concrete demand of customers. For instance, if an entity gets a project and the customer demands something, and the entity is not capable or simply does not have the capacity for it, this will trigger the entity (or the general manager) to consult the others for support. This again indicates that the personal networks are vitally important. Whom to contact depends on considerations of with whom one can work well (informant $\mu_{1,7}$).

Heterogeneous globalized environment  The small entities are much easier to coordinate internally, which enhances their flexibility. This is also an indicator of the heterogeneity of the network – it comprises entities that have 100 employees to entities that have 1,400 employees.
Commonly known difficulties  Time zones, distance and inexperience are factors that hinder cooperation or make it more difficult to cooperate. It is important to recognize that nobody has to collaborate with others, if collaboration does not make sense. Moreover, it is important to recognize that collaboration and cooperation are generally possible and easy for everyone within the network. In particular, it should be easier to cooperate with an entity within the organization than to go outside and cooperate with external partners (strengthening the competitors) – the value added is always greater if the cooperation takes place within the organization.

Different (cultural) backgrounds  Because of the multinational scope, the organizational cultures and cultural backgrounds of people are very different in the individual locations, which also accounts for the understanding of what entrepreneurial behaviour actually is:

In the European entities, entrepreneurship aims at long-term sustainable financial success, whereas in North America, entrepreneurship aims at rather short-term achievements. (informant \( \mu_{0,3} \))

These different postures have an important impact on the collaboration within the network. In general, this diversity is very important and appreciated; the entities can learn a lot from the different cultural backgrounds, especially in terms of new and different approaches to problems and opportunities. On the other hand, collaboration is more difficult among the different cultural areas.

These diverse perspectives often make cooperation difficult, whereas good cooperative relationships exist between units that emerged from the same entity and are now ‘formally separated’ because these entities stem from the same cultural background.

Often the missing cooperation can be traced back to the very much differing viewpoints and approaches the different entities have. This means that the entities do not understand their organizational counterparts. They do not understand what they are doing, which competences they have and how they approach their problems.

Because of the size, heterogeneity and complexity of this network, personal contact among single ‘key players’ plays a decisive role in the establishment of an efficient network system.
Strategic Initiatives

Entrepreneurial coordination was defined as an internal strategy which allows seizure of the mechanisms of internal competition and internal cooperation in terms of corporate performance through entrepreneurship.

Generally, MuCo’s corporate management tries to transfer as much responsibility as possible to the project level, i.e. down the hierarchical ladder toward the entities. However, the strategic decisions are made within the headquarters. Operational decisions that are rather medium term and/or short term are made within the entities, i.e. on a decentralized level.

The entities should act as autonomously as possible within their areas of responsibility. If, hypothetically, they were individual companies, they would be able to exist on their own.

However, it depends on the strategic importance of the project if the headquarters are involved in the decision process. Some of the projects have such a high impact on customers or other strategic dependencies (like high risks or special warranties) that even here, short-term and middle-term decisions involve the board of executives.\(^3\) However, even if decisions are made on a central level, the entities are in charge of fulfilling the objectives in that they operate completely autonomously and independently in the market.

Currently the company puts great effort into improving the network. On one hand, the entities cooperate with the other entities; on the other hand, the entities are concerned about how to improve their own positions at the same time:

Therefore the management of the network is actually about how to achieve a balance between competition and cooperation. (informant \(\mu_{1,2}\))

The network can be understood as a market of internal SMEs (informant \(\mu_{0,3}\)).

To implement the strategy of enhancing the latter type of entrepreneurship, MuCo runs several initiatives and practices currently. The following sections outline the practices and their general effects:

- organizing around a common NPD process

\(^3\)Actually, all of the projects are categorized into project categories, which determine the particular reporting structure.
• establishing a global lead management
• transferring people across units
• aligning objectives by the balanced scorecard

**Common processes**  The common NPD process plays the central role in cooperation. Here the NPDP can be seen as a central part of all the processes which are given in all entities. It represents the common processual language of the system (informant $\mu_{1,2}$).

*Speaking the same processual language*  Utilizing common tools and speaking the same processual language is vital. However, oftentimes, the tools that are meant for the big entities are not applicable to the smaller ones. If a small entity wants to cooperate with a big entity, it has to take on this burden, however.

**Global lead management**  Started three years ago, MuCo emphasizes actively enhancing the cooperation among its network of entities. This is the principal task of $\mu_0$, the ‘global lead management team’.

$\mu_0$ reports directly to the vice president engineering and therefore is a central staff’s function. Its central aim is to leverage the synergistic potential that exists within the network of entities. $\mu_0$ coordinates, manages and optimizes MuCo’s network:

The primary function of this unit is to establish, develop and maintain the links among the autonomous operating entities. This task is very hard to accomplish, because the core of this task comprises the challenge to bring people together, who themselves perhaps would never have had the idea to talk to each other. (informant $\mu_{0,3}$)

*Generating win-win situations*  One of the central tasks is to generate win-win situations for the entities:

This only works via the creation of win-win situations for the respective entities. (informant $\mu_{0,3}$)
This works through some kind of internal ‘network marketing’ activity. A principal network marketing activity is to organize a global conference for the general managers of the network entities. This event is meant to help establish personal contacts among these people and to mutually learn what the others are doing, in which fields they have expertise, and so on (knowing the horizontal network). Additionally, the GLM presents itself, i.e. the particular central contact persons (knowing the vertical network):

We may live in the 21st century with all the modern communication techniques, but personal [face-to-face] contacts cannot be substituted by this – personal sympathy matters a lot. (informant $\mu_{0,4}$)

This conference took place recently. Here all the general managers were present. Additionally, the executive board were present (management attention).

Global meetings twice a year are very important; here they serve as teambuilding activities made for enhancing the development of personal relationships. The GLM does a particularly good job in facilitating this (informant $\mu_{1,7}$).

Creating network awareness Amongst other tasks, this also comprises marketing the globalization, i.e. to create awareness in the minds of the policy makers in the various locations of the network.

The idea is to develop the relationships among the entities to provide an added value, e.g. in terms of transferring lessons learned or successful practices (learning organization). Often the problem is not that the knowledge does not exist within the network, but rather, in finding the particular person or entity which has it:

So many people went to our sites in China in the past and I am quite sure many of them made the same mistakes over and over again. However, no one knows where and how to find information about ‘travelling to china’ or similar knowledge within the organizational network. (informant $\mu_{0,4}$)

The GLM is not just in charge of network management and maintenance, but also further development of the network. This aims at helping the small and emerging entities. Therefore it is sometimes seen as an antagonist for
the established entities – the emerging entities are seen as a risk for job loss (informant \( \mu_{0.5} \)).

**Structurally independent global responsibilities** The lead management is not just the unit at the headquarters. It also comprises globally responsible managers for certain functional domains like information technology, human resources and the technological fields within engineering. These individuals intermesh the network in terms of global go-to persons. They are not bound to a specific entity, although they are organizationally located within the entities.

If an entity has the ‘lead responsibility’ for a special core competence, the lead engineer is affiliated with this entity and has the global responsibility. These globally operating engineers are known people within the network and help to intermesh it. For instance, if one entity aims at starting a project about the chassis, the global manager ‘chassis’ is responsible for ensuring that \( \mu_7 \) gets the required capability in this area, i.e. from another entity. Therefore these people are assigned to a dual organizational role: on one hand, they are organizationally attached to a specific entity (predominantly \( \mu_1 \)); on the other hand, they are functionally assigned to the complete network.

**Initiating across-entity projects** The single entities are very autonomous and independent in their business strategies and in their decisions of which projects to follow. Whenever there is a project which requires specific competences or resources, the entities can consult the network management (\( \mu_0 \)). The \( \mu_0 \) then functions as an intermediate to bring the relevant resources together. It searches for the ideal partner within the network because it has the overview over how the competences are dispersed within the network.

In these projects, the kick-off is organized by \( \mu_0 \).\(^4\) This seems to be the most efficient way because the \( \mu_0 \) has the best overview of the network and knows

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\(^{4}\) The organization of the project kick-off (in across-entity projects) involves, for instance,
- negotiations about offers
- contact channels to the customer (who communicates what)
- who is physically positioned where
- definition of interfaces among the units
- transfer prices among the entities and allocation of budgets
- distribution of revenues from the project
the competences of the specific entities and how they might fit together. This also includes the assignment of specific roles to the single units and a definition of how communication (through which channels) should ideally take place.

**People transfer**  
*MuCo* exchanges people from entity to entity. This works very well and has several advantages, even if there is no concrete project. Here, predominantly, people from bigger entities are transferred to the smaller entities to leverage capacity and transfer tacit knowledge. In particular, the small but growing entities can benefit from the transfer of human capital.

*Creating network knowledge*  
Here, for instance, expatriates help the young entities to adapt to the standards of *MuCo* and incorporate the capabilities of the older entities like $\mu_1$, $\mu_2$ or $\mu_3$. With this, the organization transfers tacit knowledge directly from entity to entity. In building up the new entity, these people can work very autonomously and entrepreneurially and additionally have the advantage of using their network relations within the existing network. $\mu_1$ supports the other entities by sending expatriates to their sites. Often this is also a means to enhance the capacity of an entity that has an important project. In particular, this also is a means to transfer tacit knowledge from one entity to another. The transfer of people is, here, the most efficient way.

*Establishing interunit personal networks*  
The fact that people, in this way, get to know other cultures and environments often leads to new business ideas. Additionally, this enhances mutual understanding and awareness.

A very important outcome of the transfer of people is the fact that this helps to establish personal social networks and, in this way, strengthens the organizational network, in particular, if people are transferred who are positioned at the interfaces between the different entities. People who are sent from entity B to entity A can build an ‘entry point’ from B to A. They speak the language, or processual language, of B and are part of A. This helps to overcome the barrier of different languages and approaches and is a big factor in the advancement of interunit collaboration and cooperation.

**Balanced scorecard**  
*MuCo*, the balanced scorecard system (BSC) system ensures the fair distribution of objectives to the single entities. BSC level
0 is the board of directors; here the objectives are allocated to the different functions.

*Aligning objectives* The next level, BSC level 1, comprises the general managers and directors of the line functions; that is, BSC level 1 represents the objectives of the entrepreneurs, i.e. entities, within the network. The next level would be heads of departments with responsibility for about 300 to 400 employees. This level 2 is now incorporated into the BSC as well.

In an ideal way, the BSC would be detailed even for every single employee, which would make the coordination of the network toward the common strategic goals of the organization much easier. However, presently, the target commitments of employees do not comprise many of the corporate objectives.
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