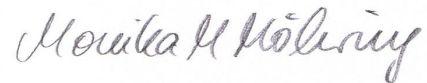


**Innovation in a high technology B2B context:  
Exploring networks, processes and management**

Submitted by  
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for the degree of PhD of the University of Strathclyde  
February 2013

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Signed:

A handwritten signature in cursive script, reading "Monika H. Hölting".

Date: 21.2.2013

## **THESIS ABSTRACT**

In the past few decades, scholars of the Industrial Marketing and Purchasing (IMP) Group have been scrutinising inter-organisational network phenomena. Acknowledging a subjectively held world view of persons, groups and organisations, particular focus has been laid on the perceived relevance and choice of relational enactment of particular ties in these networks for creating a particular value. The IMP tradition has been scrutinising such relational collaborations' pivotal constituents of actors, resources, and activities and empirically covered phenomena of space and time therein.

This thesis is about conducting further basic descriptive research (Möller and Svahn, 2003) in longitudinal case studies (Ford and Mouzas, 2010). With emphasis on R&D intensive customer-centric innovation, this project will further explore the roles of actors, their rationales for networking, and their subjectively perceived value systems (Ford, 2011).

This work draws on interpretivism and social constructionism, applying pragmatist meta-cycles of scrutiny. The research process is placed within the German R&D department of a multinational high-technology corporation's. It emphasises cross-case longitudinal observation of innovation relationships in specific B2B networks.

The aim is to exemplarily examine these networks' sense-making, networking activities and value systems by interacting with the networks' project members. The proceedings involve the translation of research constituents into mathematical formulae and instrumental scorecards. The exchange of products, services, and goodwill and further qualities of collaboration are differentiated and put forth for subsequent refinement of observation. Value-in-exchange and value-in-use are found interrelated. A particular quality of the intrinsic network value as postulated by Ford (2011) is substantiated and expressed in this dissertation's framework of formulae. Interestingly, the findings point to the need to further examine the role and gradual obsolescence of the juridical contract. Moreover, the concept of the "actor" is found to be a potentially ambiguous term to be refined in future research.

**Keywords:** Industrial networks, value, innovation, B2B, technology, processes.

## **ABSTRACT DER VORLIEGENDEN DOKTORARBEIT**

In den vergangenen Jahrzehnten haben Wissenschaftler der Industrial Marketing and Purchasing (IMP) Group Phänomene zwischen industriellen Firmen untersucht. Ausgehend von einer subjektiven Weltsicht von Personen, Gruppen und Organisationen, lag ein besonderes Augenmerk auf die wahrgenommene Relevanz dieser Verbindungen sowie die Wahl, Beziehungen zur Darstellung besonderen Mehrwertes zu nutzen. In solch kollaborativen Beziehungen untersucht die IMP Tradition die wesentlichen Bestandteile, Akteure, Ressourcen und Aktivitäten und beleuchtet empirisch die zugehörigen Phänomene über Raum und Zeit. Diese Dissertation führt weitere beschreibende Forschung (Möller and Svahn, 2003) in länger dauernden Fallstudien aus (Ford and Mouzas, 2010). Mit Betonung von F&E intensiver kundenzentrierter Innovation, erkundet dieses Projekt die Rolle der Akteure, ihre Beweggründe für die Nutzbarmachung des Netzwerkes und ihre subjektiv empfundenen Wertesysteme (Ford, 2011).

Diese Arbeit fußt auf Interpretivismus und sozialem Konstruktivismus, in der Anwendung von pragmatischen Metazyklen in der Versuchsanordnung. Der Forschungsprozess besteht in erster Linie aus fallübergreifenden Langzeitstudien sinngebender Aktivitäten. Betrachtet werden hier insbesondere Innovationen im industriellen Netzwerk der deutschen F&E eines globalen Technologiekonzerns. Das Ziel dieser Arbeit ist, die sinngebenden netzwerkenden Aktivitäten und Wertesysteme dieser stellvertretenden Netzwerke zu verstehen, um das maximale Potential für gemeinsame Innovationen ausschöpfen zu können. Zu diesem Zweck wurden die Forschungsziele in mathematische Formelwerke übersetzt und hieraus Scorecards entwickelt. Der Austausch von Produkten, Dienstleistungen und gutem Willen wurden differenziert und dieses Konzept der nachfolgenden Verfeinerung für weitere Forschung unterzogen. Eine direkte Beziehung von Tausch- und der Nutzwert wurde gefunden, ergänzt von einem intrinsischen Wert des Netzwerkes wie von Ford (2011) postuliert. Die Befunde deuten des weiteren auf eine zentrale Rolle des Vertrages hin, welche bislang wenig Eingang in die Forschung fand. Der 'Akteur' wird zudem als mehrdeutig belegter Begriff erkannt, wodurch sich die Empfehlung für weitere Forschung ableiten lässt.

**Begriffe:** Industrielle Netzwerke, Wertschöpfung, B2B, Innovation, Technologie

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## **GLOSSARY OF TERMS**

**ARA** – Actors, resources and activities

**IMP** – Industrial Marketing and Purchasing

**SNMP** – Simple network monitoring protocol

**RFID** – Radiofrequency identity tag

## **STYLESHEET EXPLANATION**

For readability reasons, some parts of the text are written in *cursive* letters.

These are in particular

direct speech,

directly quoted terms attributed to the indicated source,

metaphorical equivalents of a philosophical context

and the emphasis of the proprietary use of a particular expression.

# Chapter 1



# 1. Introduction

In this thesis, I will address the comprehensive complex of contemporary advanced industrial marketing. Drawing on the body of literature relating to products, service, innovation, and networks, I will lay forth how new high technology products and services are brought to corporate customers. The notions of value and success in extant and newly created socio-economic high-technology exchange relationships will be discussed. This thesis will evaluate the complexes of contractual commitment and continuance intentions, devising an extended theoretical research agenda and an advanced methodology for the related dynamic phenomena.

In the past two decades, business-to-business marketing, synonymously called industrial marketing, has been addressing the determinants by which profitability and sustainability of inter-organisational trade and other exchange contribute to stabilising both supplier and customer firms. Increasingly, in what is termed *industrial network*, resources are mobilised to create value in terms of products, services, and innovation, seeking to break away in industrial competition by value added such as tailored selling propositions (Henneberg et al., 2010). The strategic aim of both supplier and customer organisations therein is to draw on cross-firm synergies in order to enable a superior business performance through value by specialisation and concerted innovation (Ford, 2008:118).

Håkansson and Snehota (1995) have set out the research agenda towards relationship building in networks as the key driver for such an overall positive organisational development. The mutual embeddedness, relational commitment, and innovative attitude in these networks coined by great technological uncertainty are currently in the focus for further evaluation (Cova et al., 2008).

This chapter will be structured as follows. First, I will briefly introduce the research context, the business environment of company A, a multinational high technology corporation and its research centre in Germany.

Consequently, I will lay forth the rationale for this thesis' research project, formed in a synopsis of personal experience, problem conscience in company A, and statements in the literature.

I will set out the aim and objectives of my work and put them in context with the IMP group's network relationship concepts in particular. Visualising these concepts in a conceptual framework for scrutiny, I will verify the congruence of my intentions with relevant sources in the literature.

This chapter will also introduce six research questions which are meant to keep the scientific project manageable and the progress traceable. These questions are referred back to the conceptual framework and depicted in the graphical explanation.

My interdisciplinary communication of the research objectives with my key respondents - mostly engineers – with the translation of socio-economic givens into mathematical formulae will be illustrated. A scorecard-type managerial and scientific aid derived thereof will be presented and its use for the research progress explained.

This first chapter will conclude with an outlook on the contents of each of this thesis' consecutive chapters.

## 1.1. Background to the research

### 1.1.1. The research context

This thesis will deal with the business of *company A*, a successful industrial conglomerate of power engineering, process automation, green technologies, mechanical engineering, and plant machinery. The multinational corporation provides a comprehensive portfolio of the whole industrial engineering and electronic value chain across their relatively autonomous business units as well as non-affiliated relevant industries. Thus concentrating on business-to-business exchange, company A's customers are found among companies in all high-technological, capital intensive or complex operational sectors.

To keep a competitive edge, the company A maintains world-wide research centres researching novel technologies for subsequently developing those into improved products and services. With the help of the business and engineering field, the R&D's applied innovations aim at keeping a high level of customer satisfaction and anticipate valuable trends as well as overdue changes. As these R&D projects are highly uncertain in their outcome but nevertheless require customer engagement, these explorative activities are mainly covered by strategic funding. This shielded cost-centre-managed setting, as a *ceteris paribus* constellation, is meant to facilitate innovation by creating an atmosphere free of immediate financial pressure.

As a former key account to company A, I was offered the opportunity to observe three comparable innovation projects particularly closely. Claus, a former business-related point of contact volunteered to act as my gate-keeper, designated information provider and thematic sponsor. At that point of time and throughout this thesis' research he held the position of life cycle process team leader. Politically supported by the research centre's director, Claus' team members granted me comprehensive inside access to meetings and information over three years.

### **1.1.2. Rationale for the research**

This thesis is aiming at contributing to both scholarly and applied advances in business-to-business marketing insight. First inspired by transaction cost theory (Williamson, 2002) and the resource-based view of the firm (Wernerfelt, 1984), I adopted the relational network view of the Industrial Marketing and Purchasing (IMP) group (Håkansson and Snehota, 1995). Industrial marketing scholars in this tradition have been widely preoccupied with the arrangements, processes and aims of exchange relationships, the conflicts therein, and collaborative business innovation, pointing at the need for both operations and strategy-related further inquiry (Möller and Svahn, 2003; Ford and Mouzas, 2010).

In the years preceding my thesis related research, I had experienced the difficulties in collaborating and managing in inter-organisational industrial research and development projects. My conceptional view on these difficulties was shared by management and technological specialists in company A. Therefore, we shared the goal of finding out more about the following questions: How can a company, unit or project leader engage customer firms, units, and knowledge carriers into a joint innovation? How can the mutual situation in such an uncertain project be made more acceptable and attractive? Do we understand what is going on when we tailor a new development to the needs of a specific industry?

This rationale for this thesis' research project had been set out as highly relevant by company A's research centre. The corporation's turnover in the innovation-intensive process services and automation amounts to several hundred million Euro in the European Union alone. Hence there was a strategic interest in advancing scientific and managerial insight into innovation networks and their regularities.

## 1.2. Aim and objectives of this research

The research aim is to examine the innovation activities of an extant industrial network environment and its immediate collaboration networks. These activities I embrace with the term *rich*: economic, technological and social in nature. I want to explore the visualisation held by the actors therein, the situated collusion of activities and the longer-term adaptation of joint practices and processes. These observations are meant to reveal the main constituents of the actors' perceived value systems and induce a relationship-specific dialogue. Therefore, the aim is to further understand and instrumentalise the arrangement, constituents and dynamics of immediate industrial networks. This understanding will result in a refined and extended research agenda for industrial networks. The instrumentalisation is meant to serve for both scientific scrutiny and harmonisation of B2B networking activities so as to reap the maximum potential for joint innovativeness.

This work's first objective is to find out more about the elements of the researched networks' collaboration, namely actors, resources, and activities, becoming effective for value generation and innovation.

Secondly, the processes and long-term dynamics for know-how transfer in the immediate innovation networks under scrutiny are to be put into relationship with actors, resources, activities and the phenomena accompanied therewith.

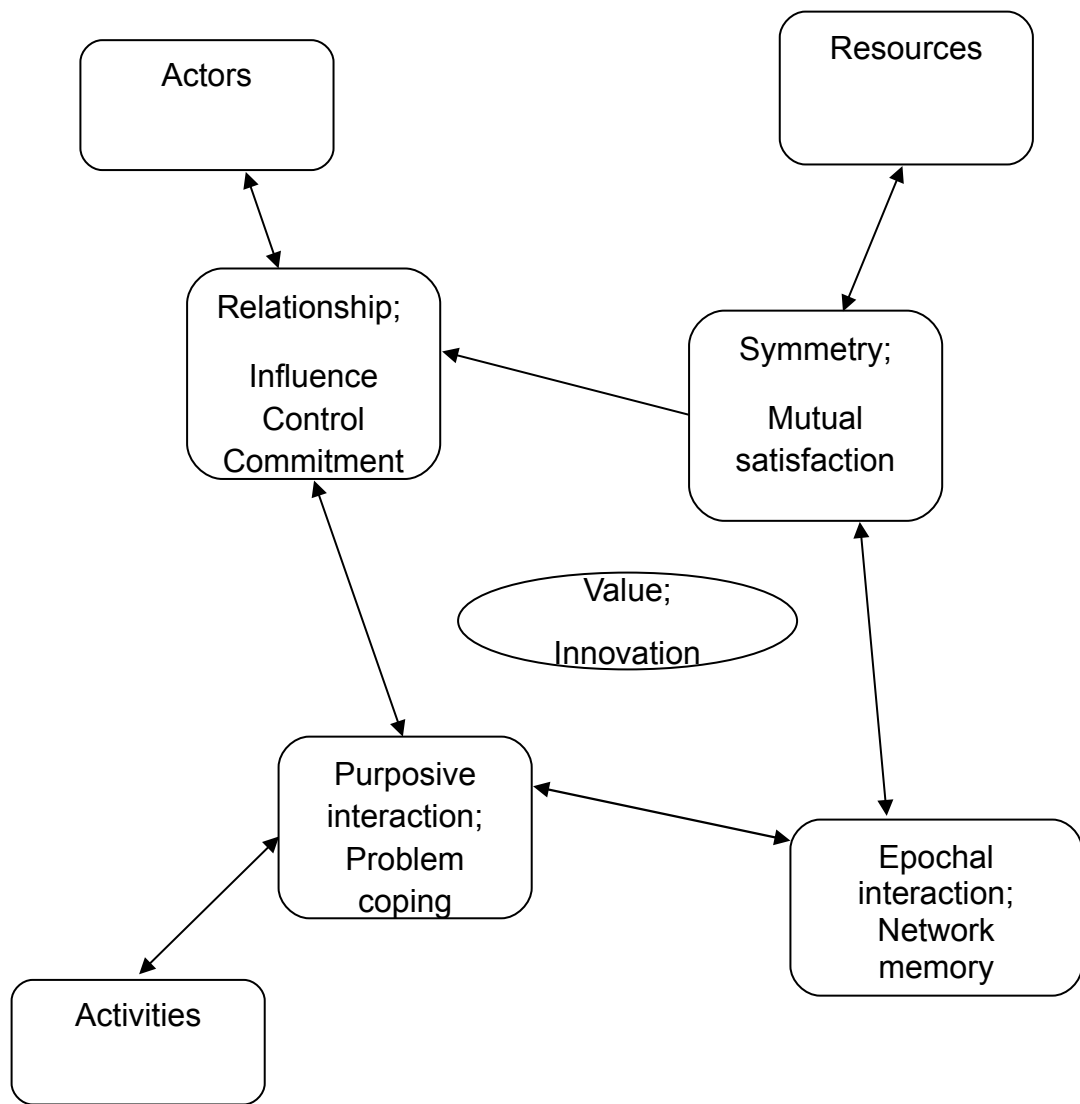
Thirdly, the insight gained during the research process is to confirm or refute extant scholarly practice to inform a holistic, potentially refined, research model for B2B network phenomena.

To illustrate the concepts and phenomena which are to be scrutinised for reaching these three objectives, I am drawing on Ford's (2008) synopsis of the IMP group's understanding of relational network interaction:

- The overarching unit of the business environment is an accumulation of *symmetric* constellations for general interaction, the *wider network*
- The immediately effective unit of the business environment is the *immediate network* within which relationship between actors is compulsory
- Such an actively seized *opportunity* (Möller and Svahn, 2003) is filled with *purposive interaction* in a realm with *artificial boundaries* (Ford, 2008)
- The network's *actors* are simultaneously organisations and the groups and individuals therein. All of these can be seen as *nodes in a network of activities and resources*
- Value and innovation are created through *relatedness* establishing *mutual satisfaction* in a *problem-coping value system* inherent in *actors, resources and activities*
- This value system develops over time by relationship-specific learning towards problem-centric *specialisation*
- The relationships draw on a self-governance by mechanisms of *influence, control and commitment*
- The immediate network commands a *network memory* of past *episodes* (Möller and Halinen, 1999) with shared or contradicting *perception* the actors retain thereof

This description on ARA illustrates that the active, voluntary, creative and subjective element in an industrial network is the *actor*. Facilitated or mediated through the temporal record of memory of relational episodes, the combination, we expect that a utilisation and modification of resources by activities will take place. Vice versa, the facilitation of activities by drawing on resources is influenced strongly by the interests and problem-centric mindsets of the actors over time. Therefore, the actors take a central position.

Thus drawing on this conceptual outline by Ford (2008; Ford and Mouzas, 2010) as well as Möller (Möller and Halinen, 1999; Möller and Svahn, 2003), I prehend this research project's framework in the following graphical representation:



**Figure 1.1: This thesis' research framework**

This graphical representation thus anticipates in a preliminary outline how the research objectives correlate:

The constituents and concepts to be scrutinised for the *first objective* are represented by the *boxes* and the central element of value and innovation.

Interconnecting *lines* symbolise the potential links of these constituents by processes, dynamics and long-term interaction and thus the *second objective*.

The conceptual representation in its entirety depicts the proposition for the development of a field-tested research agenda which forms the *third objective* of this research.

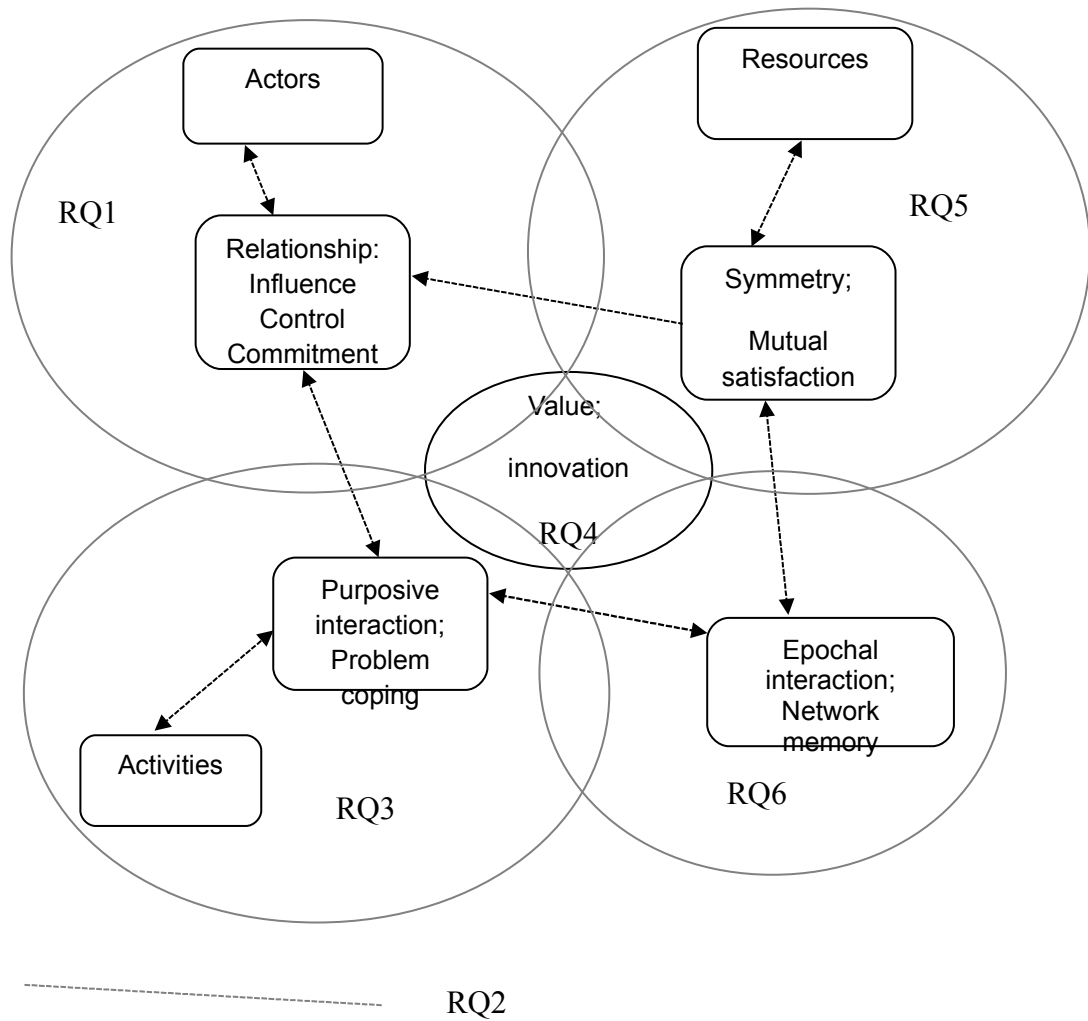
### **1.3. Framing the research domain**

The rationale for this research is to further understand business relationships in innovation networks as detailed in Section 1.1. To achieve this understanding in a scientific approach, I produced manageable entities for analysis.

I have shown above how the IMP group's conceptual statements resulted in the schematic synopsis shown in Figure 1.1. This visualisation I found helpful for not only scaffolding the research objectives but also for developing (or proposing) more detailed research questions close to operational practice.

The according outline is symbolised by the areas informing research questions (*RQ1* to *RQ6*) for this thesis as inserted into Figure 1.1 to result in Figure 1.2:





**Figure 1.2: Areas for research questions (RQ) in this thesis' framework for research** (see figure 1.1; concepts derived from Ford, 2008)

The research thematic about *rich* – economic, technological and social - exchange in industrial networks thus revolves around the following questions:

Research question 1:

**How do individuals as actors in the research setting draw on their immediate business-to-business network to achieve rich exchange and innovation?**

Research question 2:

**Which governing and control mechanisms can be observed in the research setting's rich exchanges and episodes of innovation?**

Research question 3:

**Which entities are exchanged in the research setting's immediate network by means of collaboration and by which mechanisms are they generated?**

Research question 4:

**How do different actors in this research setting value the distinct approach of developing innovation in a customer-centric manner?**

Research question 5:

**In the research setting's immediate industrial network, what are the governing principles and mechanisms for balancing customer input, supplier input, and value?**

Research question 6:

**How do immediate networks in the research setting accumulate an own *memory* of joint experience of the actors therein over time? How do actors draw on this memory to influence the performance in a particular innovation project?**

To make sure that the research questions matched the original intent of the project, I communicated them to my respondents and took into account the feedback I obtained. These discussions which recurred over the course of

the whole 3-year observational period served as a safeguarding mechanism that these questions were conceptually relevant and precise.

Moreover, I verified the research questions by comparing with the IMP group's stated research agenda. The concepts addressed by Ford (2008) and implemented into the *boxes* of Figure 1.1 point to these areas for further scrutiny. Ford and Mouzas (2010) emphasised the need for ongoing research, devising an agenda as follows:

**Table 1.1: Recommended fields of research and suggestions for proceedings**

<b>Research topic</b>	<b>Ford and Mouzas (2010:960)</b>
Innovation-centric projects in B2B networks (RQ 1,3,5)	1. <i>Analyse coping under uncertainty in networking activities</i> (Ford and Mouzas, 2010:960)
Network relationships over time (RQ 6)	2. Study the <i>structure of network interaction</i> as to actors, resources, and activities a) over time, within one relationship b) comparing relationships
Sense-making in networks (RQ 2,4)	3. <i>Two conceptual areas appear to need further development [...] The issue of the business actor and the issue of value</i> (Ford, 2008:110)
Suggestions for research proceedings	Use of <i>case study methodology</i> to achieve the <i>scale and detail required in structural analysis</i> , given the <i>uniqueness of each business relationship</i> (Ford and Mouzas, 2010:960)

The topics emerging in the research community, as outlined in Table 1.1, are thus congruent with this project's research questions as detailed above. They also point to the completeness of RQ1 to RQ6 as to the current state of insight. This internal validation (within the concepts of the IMP group) together with the operational validation in company A and my own work experience thus ensured a highly relevant and comprehensive set of research questions.

This thesis' research proceedings follow the authors' (Ford and Mouzas, 2010) outline in Table 1.1. The authors' proposition is in accordance with the

practical concepts of managerial methodologist Van de Ven (2007). I will expound my operationalisation thereof in the following section.

#### **1.4. Research design**

My rationale for the research was to contribute to scholarly insight predominantly of the IMP tradition. The current business-to-business marketing research relating to capabilities, dynamic alignment, innovation, and value-adding activities still requires a considerably strengthened empirical foundation (Weerawandera and Mavondo; 2011). To achieve this, Van de Ven (2007) emphasises the necessity of highly interactive organisational and process-related studies.

Moreover, I wanted to address a personally experienced gap in knowledge and meet company A's requirements for improvement.

This thesis' empirical research examined three projects of the multinational company A's corporate research centre in Southwest Germany. My sample consisted of this R&D centre's activities for A's global full service division; three cases taking place at the same period of time under the same management, with comparable financial conditions and technological complexity.

The three innovation projects I was to examine in my thesis were revolving around the advanced technological integration of complex capital intensive operations maintenance and logistics. Two of them involved mainly vertical integration of resources, the third one drew on a horizontal consortium of technology leaders additionally.

The cases were each meant for implementing advanced technologies such as artificial intelligence for applied industrial use. Each of the three projects, if successful, would differentiate company A from its competitors. Not least by the fact that Claus was their respective project leaders' superior, I was introduced to the respective scenarios and permitted to observe them in parallel over a period of almost three years.

The research project's immersion in its field setting was characterised by rich interactions and collaboration with my industrial research counterparts. This involved my negotiation of access and joint aims, explanation of concepts and the desired phenomena to be examined. The framework outlined above as Figure 1.1, and to be developed for application and critical analysis was no natural given, but a synopsis of the extant IMP stance (together with other recent contributions in the field of industrial marketing), the presumed recipients' understanding and my own observations. By aid of the mathematical formulae and the scorecard I accelerated the processes of mutual understanding.

I was able to draw on my prior familiarity with the projects to immerse into the scenarios very quickly. This engagement started with meetings with Claus' team and exploratory interviews of key respondents therein. My initial concepts and working propositions were refined to inform my observational focus for the frequent participant observation and in-depth interviews which I conducted over the course of three years. By my professional record with the company and the thematic sponsorship of the team leader, Claus, my presence in meetings and frequent requests for feedback were well supported.

Where available, I included materials like requirements documents, status reports, meeting protocols and presentations into the empirical fundus. These findings altogether – several hundred pages in total – I coded into a meaningful matrix system for an appropriate and structured analysis.

To ensure collaboration, I further refined the scorecard for industrial use; it was to become an innovation management tool in company A, as sanctioned by their research centre's director.

This thesis' research design will be expounded in Chapter 7 more comprehensively.

## 1.5. Interdisciplinary research communication

### 1.5.1 Mathematical formulae

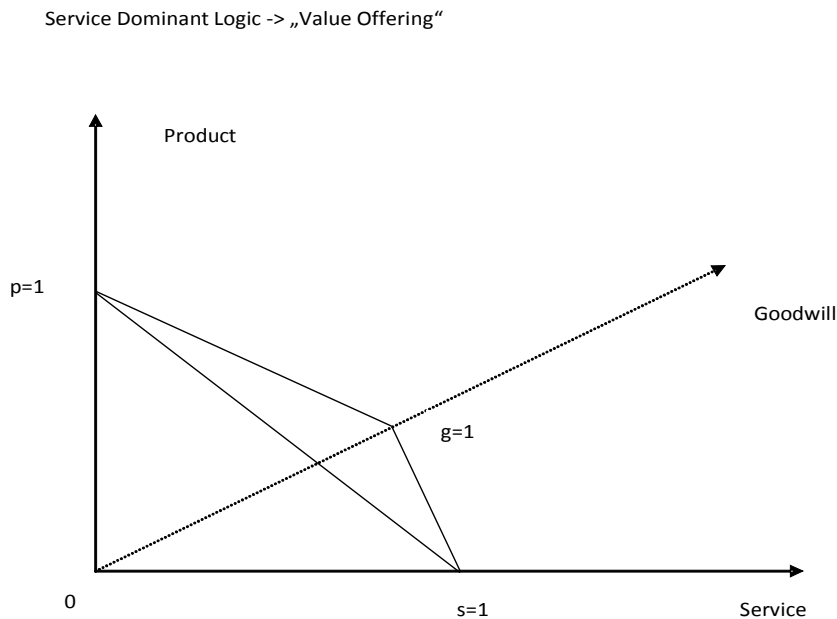
The research centre's staff who would be the key informants and respondents to my research had no particular knowledge of the innovation phenomena and IMP concepts in networks. Moreover, my research was to be the first non-technical scientific thesis project in the department.

By quite overt discussions I soon learned that this thesis' socio-economic research concepts and objectives were deemed – upon initial encounters - inferior by the team. Therefore, I sought a way to both convince them of the relevance and stringency of the endeavour and translate the concept of a relational exchange in B2B networks into mathematical formulae. This way I achieved that the ambiguous nature of technology-centred but socially embedded innovation collaboration was fully understood. The complex of formulae derived thereof bore the additional benefit to encourage ample feedback on my proceedings and the intermediate findings of my research.

I logically ordered instances of industrial exchange into a series of subsequent epochs. In each of these phases, a proportion of *product*, *service*, and *goodwill* are exchanged to result in the whole *offering* (Ford, 2008). The first two elements, namely product and service, were in accordance with company A's distinction policy, mainly based on warranty regulation and different taxation of the two in Germany. The latter element I introduced to reflect the interpersonal relationship and commitment set out as inherent in any deliberate network exchange by the IMP tradition (Ford, 2008).

Every business-to-business transaction could be composed differently as to the individual contribution of the three elements. As a means for visualisation and systematisation in the specific research setting, I introduced product,

service, and goodwill as vectors in a three-dimensional model. As can be seen in Figure 1.3, these vectors point to a triangle where any possible composition of the three are located:



**Figure 1.3: Product, service and goodwill composition triangle**

Products, services, and goodwill are not provided by the supplier on a purely altruistic basis. The main objectives are to make business and sustain a competitive position in the market. Therefore, an adequate selling price has to be commonly paid in return for the effort incurred by the seller. Under innovation uncertainty, the customer is however typically not prepared to pay for a vague promise of improvement or operational gain.

In such a collaborative venture, the actual *selling price* is predominantly non-monetary and paid in the form of attention, information, and knowledge. This compensation fulfils the second business need of the supplier, the need for gaining and sustaining a competitive position in the market. The intellectual revenue would be the increased insight into the industrial domain.

In the IMP thought, the exchange in a network consists of symmetric *self-serving of both sides but with mutual satisfaction* (Ford, 2008: 118). The recipient of an offering, the customer, reaps value from joint problem solving (Ford and Mouzas, 2010:959). Both parties strive for a *balanced position between knowledge exploration and exploitation* (March, 1991; Möller and Svahn, 2003: 214). The *usefulness* (Ford and Mouzas, 2010:959) is materialised in economies, increased business, and a subjectively experienced quality of *value* (V), consisting of a *tangible* (T) and an *intangible* (I) component.

An exchange thus compounded by product, service, and goodwill will therefore seek an overall equilibrium of the tangible and intangible components on both sides of the exchange. This balance I consider to be composed by a situated ratio of product P, service S, and goodwill G as set forth in the following formulae:

$$pP + sS + gG = V$$

where  $p + s + g = 1$   
 and  $V = T + I$   
 with  $V = M + N$

P= Product, S=Service, G=Goodwill, V=Value

T=tangible component of value, I=intangible component of value

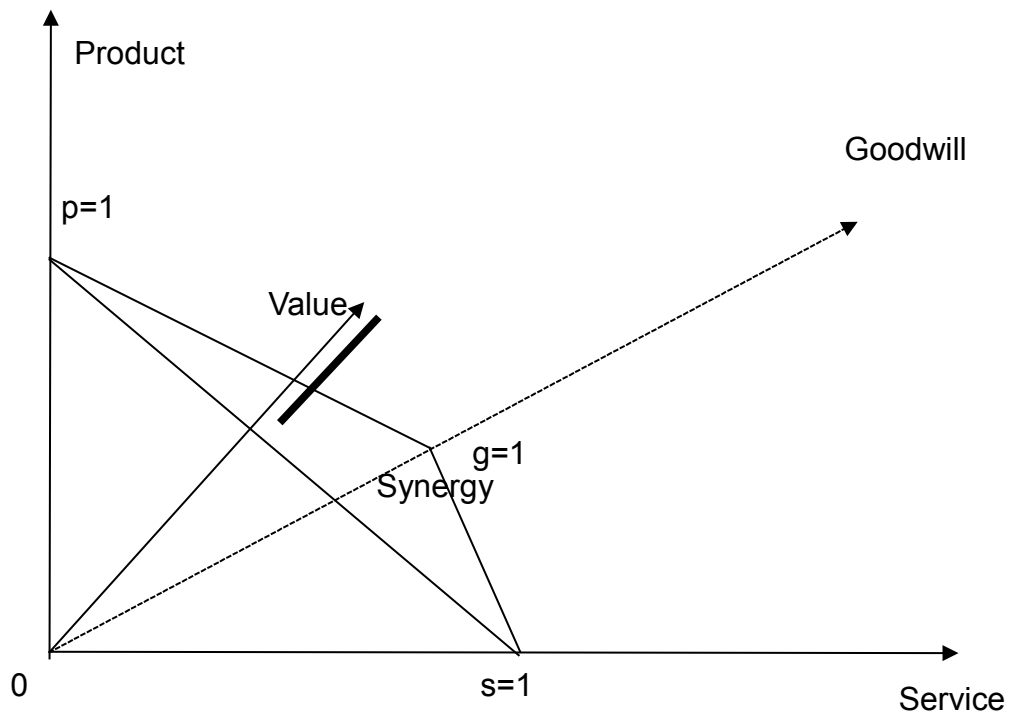
M= monetary selling price, N= non-monetary selling price

$$-1 < (p|s|g) < 1$$

To leave open the contribution of the value offering components, I introduced a negative weighting particularly for bad service but also for conceptual completeness.

The value V is visualised by the following extended graph in Figure 1.4:





**Figure 1.4: Illustrating value in the product, service, goodwill triangle**

This formula for one instance or *episode* (Möller and Svahn, 1999) of value exchange can of course be iterated, to result in the accumulation of value exchanges and ultimately the *relationship memory* (Ford, 2008). For clarification to an audience consisting of engineers, I thus draw the integral cursor  $n$  times over the singular occurrences, reflecting the extreme case to incremental summation as shown in picture 5. Whereas a frictional disequilibrium of the equation will occur from time to time, the imbalances in an ordered industrial relationship will aim at establishing an average *equilibrium* (Ford, 2008; 2011), a mutually balanced account, in the long run:

$$\int_{t=0}^n p_n P_n(t) dt + \int_{t=0}^n s_n S_n(t) dt + \int_{t=0}^n g_n G_n(t) dt = \int_{t=0}^n V_n(t) dt = \int_{t=0}^n T_n(t) dt + \int_{t=0}^n I_n(t) dt$$

Where  $|p_n, s_n, g_n| \leq 1$

where P=Product, S=Service, G=Goodwill, V=Value

T=tangible component of value, I=intangible component of value  
 $-1 < (p|s|g) < 1$

In most business exchanges, the single discrete occurrences may still be discernible, such as in contracts with work packages, or in annuities. The integral merely symbolises to the mathematician that a more or less defined sequence is generally depicted. Moreover, I don't expect all constants and factors in this integral to be quantifiable from this particular thesis' research findings. My intent for this modelling was to reflect business-to-business network scenario for a primarily technology-oriented audience.

### **1.5.2. Value exchange scorecard**

With the constituents of products, service, and goodwill, the key factors as recognized among those working in Company A, I had developed an instrumental tool in the course of several years of my preceding industrial business experience (Software AG, 2000-2005). As a service account manager in innovation projects, I had sought to demonstrate the degree of balance or imbalance of a joint collaboration with a long-term customer.

Filling epochal summaries into the respective fields, I had thus obtained a *scorecard* for discussion within my team but also for negotiation with customer management.

This best-practice tool revealed how Company A would benefit from my research as it illustrated the presumable usage of what I then labelled *value scorecard*.

In order to demonstrate the operationalisation of this analytic instrument, I chose the self-explanatory scenario of a fictional company buying a premium printer as in Table 1.2:

**Table 1.2: Value scorecard for a simple business-to-business exchange in the premium sector**

Product	Service	Goodwill	Monetary selling price	Non-monetary selling price	Tangible value	Intangible value
		Relationship formation		Awareness		Information, appreciation
	On-site demo from tech sales			Information about needs	250,00 €	Training, planning
Premium printer	Installation, Service level agreement	Key account status	5.000,00 €	Trust in provider	4.000,00 €	Reputation, peace of mind

This scenario I contrasted with a second scorecard in Table 1.3 telling the differential story, the fictional company this time buying a no-name printer:

**Table 1.3: Value scorecard for a simple B2B exchange in the discount sector**

Product	Service	Goodwill	Monetary selling price	Non-monetary selling price	Tangible value	Intangible value
No-name printer			1.200,00 €		1.000,00 €	Bargain feeling
	Extended hotline service		250,00 €	Preemptive trust	250,00 €	Financial planning security
		Supplier's free-of-charge instruction		Enhanced probability of repurchase	100,00 €	Controllability, information

In addition to the formulae set out above (which I see as the prevailing

vehicles for communicating my research objectives), the scorecards helped structuring my findings. Therefore, I drew on this mode of representation throughout the research project to explain my intermediate findings to my respondents and ensure further commitment.

The table's dimensions along episodes was to serve as a micro-sequencing means in my coding and analytical activities as well (see Chapter 7 of this thesis). The elements would remain basically unchanged during most of my research but the discussion would reveal new effects and refine the understanding on the framework depicted in Figure 1.1.

## 1.6. Outline of this thesis

The aim of this thesis is to carry together relevant current findings and research practices, weigh them in theory and verify them in the field. By the reflection on additional indications to inform managerial insight, I aim at refining extant models and potentially extending the research agenda. This thesis is structured as follows:

In this *first chapter*, I set out a framing of the research domain and the setting. I formulated the preliminary research questions, demonstrating relevance and practicality. In particular, I pointed to the business field to be scrutinised and the under-researched constituents therein. Devising mathematical formulae for value provision in business-to-business collaboration, I illustrated the systematics by which both the literature and the empirical phenomena will be examined in more depth.

The purpose of the subsequent literature review, comprising of Chapter 2 to 4, is to depict the insight already gained in business-to-business research, focusing on innovation collaboration in industrial networks, and the gaps identified therein.

In the *second chapter*, I will explain the phenomena in industrial innovation networks as to their coverage in the body of literature. Reviewing the concepts around visualisation, enactment, and sense-making of this metaphorical construct, I will reflect on the ARA model, power, influence, and conflict among actors, informing this thesis' particular network-related research agenda.

The *third chapter* will introduce the debate on value and innovation qualities in business-to-business collaboration networks. I will set out some of the current academic product and service schools and reflect on the advanced

concepts of customer-centric deployment of skills and capabilities. The review will expand on the value debate in history and literature and point to the necessity of alignment for innovation in networks. Instrumentally contrasting two scholarly concepts in business-to-business marketing, namely the ARA model and service-dominant logic, gaps relevant for refining this thesis' research questions will be identified.

In the *fourth chapter*, I will address the body of literature explaining temporality and justice in industrial networks. Referring to both the juridical and relational contracts, I will explain some scholarly approaches on utility and embeddedness. The focus will be on types of justice, distributive and procedural, on commitment, and sense-making of a relationship's history. Moreover, the various mechanistic and social notions of *time* and the inherent characteristics are discussed, leading to a justice- and temporality-related research agenda for this thesis.

The chapters on this thesis' philosophical foundation will explain my social constructionist stance in the interpretative paradigm. My methodological deliberations will cover pragmatism, abductive cycles including ethnography, engaged scholarship, and cognitive techniques. This thesis' advanced concept of scholarly practice I will further illustrate describing the operationalisation of my methods and the analytical cycles feeding into a refined theoretical framework.

Accordingly, the *fifth chapter* will propound this thesis' interpretative paradigm, in particular with social constructionist ontology and social constructivist epistemology. Instrumentally drawing on the constituents of the ARA model, I will visualise the sense-making and sense-giving dialectics in the Lebenswelt and further explain it by using the Ludo metaphor. Setting out social construction of reality, I will extend towards habitualisation and the dramaturgic approach of staging. The fifth chapter will conclude with a synopsis of the operationalised concepts laying the philosophical foundation

for this work.

*Chapter 6* will explain the methodological approach informing this thesis' analytical scrutiny. Adhering to pragmatist research, I will devise appropriately tailored abductive cycles for creative insight and idea generation. Arguing for case studies and predominantly qualitative field research, I will address the method of *ethnography at home*. I will particularly refer to the cognitive method of repertory grid studies, pointing to the need for various triangulation techniques in order to establish rigor and validity.

The *seventh chapter* introduces the detailed business setting, company A, and the three case studies analysed. Drawing on the concept of *engaged scholarship*, I will expound my actual research proceedings, their problematic and their benefits. In particular, I will introduce a new method of *micro-sequences* further processing coding results for a situated, normalised and abstracted story-telling.

In my case studies chapters, I will describe and analyse this thesis' three instances of longitudinal innovation project observation carried out in the course of over three years. The cross-case analyses aim at scrutinising network characteristics, value generating co-development, temporality, and justice with respect to my framework and the body of business-to-business literature.

The *eighth chapter* will describe the perception and enactment of the three cases' industrial collaboration networks. It will illustrate how individuals place themselves therein with respect to others and pragmatically cut out their own relevant web. I will further describe the transformation of interaction mechanisms in the wake of virtualisation and new communication technologies. Pointing to empirically observed manifestations of power, influence, and conflict, I will conclude with an adapted research agenda which considers the *actors* mainly through power and its related phenomena.

*Chapter 9* addresses the mechanisms by which *value* is created in a network and in the cellular dyads therein. The importance of a joint social construction of technology for an innovation enabling alignment is highlighted. Drawing on and comparing the ARA model and the service-dominant logic, I will contrast and reconcile them by this thesis' cross-case findings from both the supplier and the customer side and devise a mediated new model for an extended value discussion. Pointing to value-in-exchange as a predecessor for value-in-use, I will identify the differential as the alignment capability, which I find as equivalent to the intrinsic network value.

In *Chapter 10*, I will lay forth how contractually regulated innovation projects become embedded over time. Explaining the various characteristics and effects of distributive and procedural justice, I will exemplify how the actors observed in the three cases anticipated their situated balance and assumed an according attitude. Highlighting the role of the juridical contract both as a precursor for, and a regulator of the projects, I will expand on this under-researched area in business-to-business research. Extending towards the *relational contract* for the scholarly agenda, I will demonstrate how long-term activities can be instrumental for the assessment of positive network attitude.

In this thesis' conclusion, I will highlight my subject-related and methodical achievements, address some limitations of my studies and provide an outlook for further research.

The *eleventh chapter* will address this thesis' theoretical contribution. It will detail the subject-related advancements, drawing on the additional insight into the IMP group's ARA model. I will detail how this dissertation refined the value debate, and put juridical and relational contracts as pivotal governing devices in industrial networks to the fore. The repertory grid technique for a semi-quantitative triangulation of qualitative findings and the analytical value exchange scorecard complete the advancements of this thesis.



I will explain this thesis' benefit for managerial strategy and practice, pointing to a refined and more systematic understanding of value. The increased emphasis on power, justice, alignment, and contracts in an industrial network, as well as the scorecard as a relationship governing tool will enrich the discussion on customer driven innovation strategies. The last chapter will also depict the potential for further academic scrutiny, as well as the limitations of this thesis' research.

## 1.7. Conclusion

In this chapter, I introduced the research context in a German research centre of a multinational high technology corporation, company A.

I expounded the deliberations anteceding this research, induced by my personal professional background and identification of gaps in the IMP literature and reconciled with the business needs of company A's R&D division.

I set out this thesis' aim and objectives which I consequently put in context with the IMP group's approach for network relationships. By means of an own illustration for a conceptual framework, I thus demonstrated the congruence of my intentions with relevant sources in the literature.

Moreover, I introduced six research questions which are meant to further break down the scientific project into manageable and verifiable entities. These questions I referred back to the conceptual framework, illustrating how they tie into the preliminary framework set out earlier in the chapter.

I described the engagement process of my key respondents in the engineering domain. My purposive representation of the main constituents of socio-economic technological exchange and the presumed value therein in the language of mathematics was introduced. Instrumentalising this complex of formulae by a scorecard-type device further explained the rationale of the research proceedings. This ancillary categorisation of epochal interaction is to serve for ongoing validation and negotiation of my research findings as well as a prospective managerial device.

This chapter concluded with an brief outline of each of this thesis' consecutive chapters.

# Chapter 2

## 2. Networks and structures

*The industrial network is a specific structure which binds together actors, activities and resources in a certain pattern* (Håkansson and Johanson, 1988:375).

### 2.1. Introduction

Intricate webs of business-to-business collaboration in the IMP tradition are understood as a collection of narrower strategic networks which are combinations of discrete *nodes* of actors into predominantly dyadic relationships (Ford, 2008). These *strategic nets* (Möller and Halinen, 1999) are surrounded by an intricate web of multilateral technological, economic, and potentially social ties (Ford, 2008). Therein, resources undergo changed or unchanged transitions from one segment of the landscape to the next by active processes. The precise perception and utilisation of such a network are rarely negotiated, discussed, and jointly enacted, but reside in the respective minds as internalised potentials to be intuitively drawn upon, by *sense-making* (Weick, 1995).

To get hold of the complexities of a company's integration into a landscape with various counterparts, the surrounding *network* has to be considered. Researchers have to make themselves clear and reflect in their scholarly agenda how economic actors draw on suppliers, customers and allies to reap beneficial synergies for business performance (Holmen and Pedersen, 2003). A highly visible topic in the current academic business-to-business discussion (Henneberg et al., 2010; Ramos and Ford, 2011), networks and the sub-structures therein have been discussed in relevant publications.

This chapter will be outlined as follows: firstly, I will expound on the industrial networks as a research topic. I will start with a general distinction of the wider

network and the strategic, substructure thereof, the *immediate network*. Referring in particular to the tradition of the IMP group, I will introduce a definition and some of the characteristics described therein. Drawing on these traits, I will present three schematic outlines of what constitutes industrial networks and their substructures.

In the subsequent section, I will explain the IMP's *ARA* and *managing in networks* models. The concepts of network pictures, outcomes, and networking are explained and the interaction choices illustrated by the 6C model. I will further delimit these views against the more fundamental school of service-dominant logic.

Thereupon, the position as tools for sense-making, degree of objectivity, and enactment of network pictures will be discussed. I will refer to power as a particular characteristic of collaboration. Drawing on organisational traits such as industrial authority, individual capabilities, and relational rapport this highly faceted clout enables a particular form of influencing called *scripting*. Moreover, I will explain why networks have become the dominating form in contemporary business and accordingly on the industrial marketing research agenda. This chapter's conclusion will detail how networks can be comprehensibly scrutinised and lay forth the gaps I recognised for this thesis' research.

## 2.2. Industrial networks in extant research

There have been various theories about economic action in relation with sociality. Adam Smith (1776) first postulated that the exchange of goods has to reflect the inherent cost of labour. Other than in families or communities, economic behaviour has since then been considered as determined by the rational deliberations of individuals in pursuing their own relative well-being (Granovetter, 1985). During the past decades, this utilitarian approach has however been widely criticised for taking an under-socialised perspective and thus constituting a merely theoretical approach for *ceteris paribus* – phenomena (Granovetter, 1985:481).

Although networks have ever since prevailed in some domains of social activity, they gained particular attention since the emergence of the *networking society* (Wittel, 2001). Contemporary technological acceleration has made our enacted choices widen and the phenomenological world thus diminish. At a time drawing on virtualisation as a resource and a stabilising mechanism, the paradigmatic social form of the network has therefore gained prominence through enabling a more ludic and thus creative dealing with the mundane work environment (Wittel, 2001).

Rather than the traditional communities and organisations which are structurally defined and shaped by a collective experience and anecdotal accounts, networks draw on the exchange of information. Consequently, there is a voluntary reciprocal consideration of the offensive identity rather than compulsorily established social dependency of the defensive self which is encountered in traditional sociality (Wittel, 2001).

The business-to-business network can be seen as a master copy of Wittel's (2001) characterisation, in the sense that the potential actors are represented by individuals, teams, divisions, expert groups, and companies, forming the web subsequently or simultaneously. There is a permanent choice of assuming and discarding ties, enabled by the de-localisation force of virtualisation, but also the dilemma of making the right choice across the

many alternatives (Wittel, 2001). To a much greater extent than in a delimited organisation or community, voluntariness and choice prevail and, conversely, withdrawal is facilitated.

This non-rational business mindset and behaviour Granovetter (1985) calls embeddedness, a configuration in which social ties and obligations dominate economic exchange. Whereas this concept has conversely been widely refuted as over-socialised as it negates the room for rational decisions in business decisions when facing human counterparts, it prominently informs the IMP tradition (Ford, 2008). As, following Habermas and Luhmann (1971), meaning is dialectically provided and shaped by sociality, the economic exchange process however generates a companionship of its own. The claim of *embeddedness* is therefore true to the extent to which economy begets a secondary, non-private, differentiated social layer as an *epiphenomenon of the market* (Granovetter, 1985:482).

Accordingly, Håkansson and Snehota (1989) devise a shift of business strategy from intra-organisational processes towards a focus on organisational boundaries and beyond the realm of direct control of resources and activities, towards the interfaces which are marginal to their socio-economic context. As companies, especially in advanced industries, have only a limited choice of potential counterparts, they more or less recur on particular relationships which they ideally seek to perpetuate. Suppliers, customers, and even competitors thus exert a considerable clout on business-to-business exchange and almost equally on all other economic organisations (Håkansson, 1989; Håkansson and Snehota, 2006).

### 2.2.1. What constitutes a network?

There are numerous definitions of the network in the industrial marketing literature (Anderson et al., 1994; Hamel, 2000; Shafner, 2005). As of lately, Halinen and Törnroos (2005:1286) have been defining the *network* in industrial marketing and operations as

*a set of companies (and potentially other organizations) connected to each other for the purpose of doing business.*

In the past decades, IMP thought has been drawing on and widely confirming Håkansson's and Snehota's (1995) claims and detailed outline of accompanying phenomena (Ford, 2011). Briefly, Håkansson and Snehota (1989) write of a network as

*a grown and constantly enacted web of identifiable counterparts .*

While these definitions emphasise industrial trade and enactment, this thesis draws on the more detailed later outline of Håkansson and Snehota (1995). The authors have set out a comprehensive description of network-related phenomena. In their definition, a network is

*an obvious, quasi-physical, structure of complex interdependencies that affect investments in equipment and physical facilities, numbers of people involved and their contact nets, the knowledge of individuals and organizations, and organizational routines.*

My rationale for choosing this specific definition was the basic description of all important network constituents I had identified myself during my business experience. My view of the network is also that

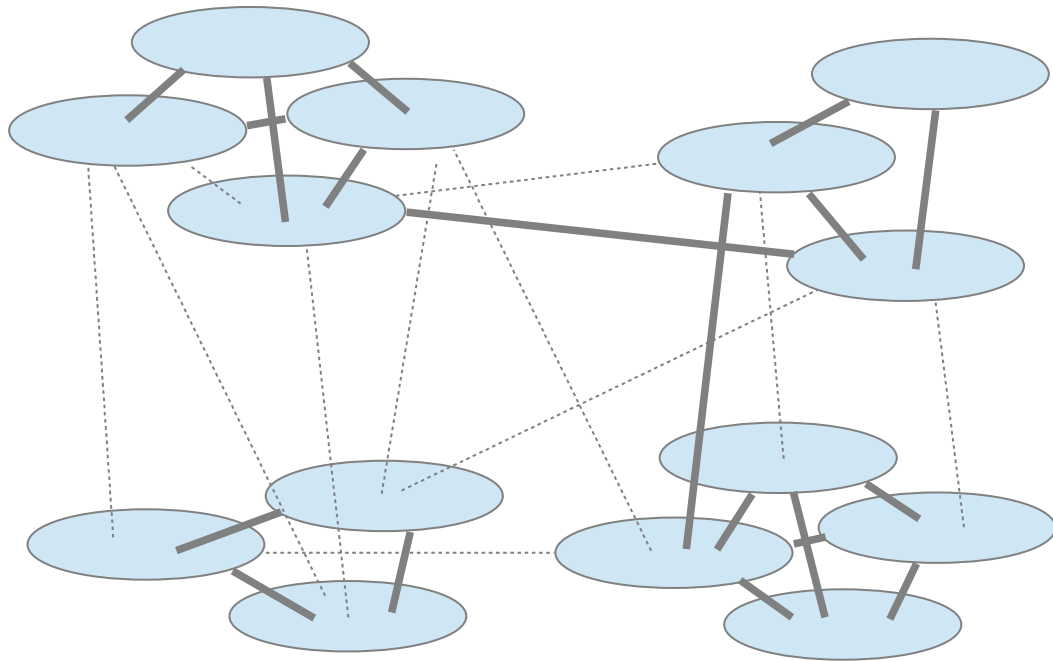


- of a *spatial arrangement*
- of *individuals and organisations*,
- as a structure with social (*complex interdependencies; contact nets*),
- economic (*investments*)
- and technological (*physical facilities, knowledge*) exchange (Håkansson and Snehota, 1995).

This view also served for confirming my overall stance in the IMP thought of business-to-business network phenomena. While thus comprehensive, the definition would moreover leave enough room for introducing my own ontological facets which I will lay forth in Figures 2.1 to 2.3.

Drawing on the IMP literature, I understand the actual *context* as *constituted by the first- and higher-order counterparts* which in this thesis I will term *the wider network*. This distinction reflects the additional complexity within a wider, to a lesser degree connected environment (Holmen and Pedersen, 2003; Håkansson and Snehota, 2006).

Drawing on these definitions, I visually present what is a network as follows (Figure 2.1):



**Figure 2.1: Schematic representation of an industrial network**

Organisations or units thereof (collective actors visualised as ellipses) operate in a business environment with an unlimited set of potential relationships (no line). With some organisations they maintain mechanistic trade or less intensive exchange of know-how (symbolised by the dotted lines). Such exchange is most frequent, achieved directly as well as through intermediaries (Holmen and Pedersen; 2003), and may occur both horizontally and vertically (Brito, 2001).

However, with some selected vertical and/or horizontal collective actors, deliberate exchange relationships are created and sustained. This *rich* exchange (symbolised by the bold lines in figure 2.1) is at least coined by socio-technological or socio-economic relations. In most cases, it consists of social, economic, and technological ties with strategic characteristics. A set of relationships maintaining such ties forms a subset of the industrial

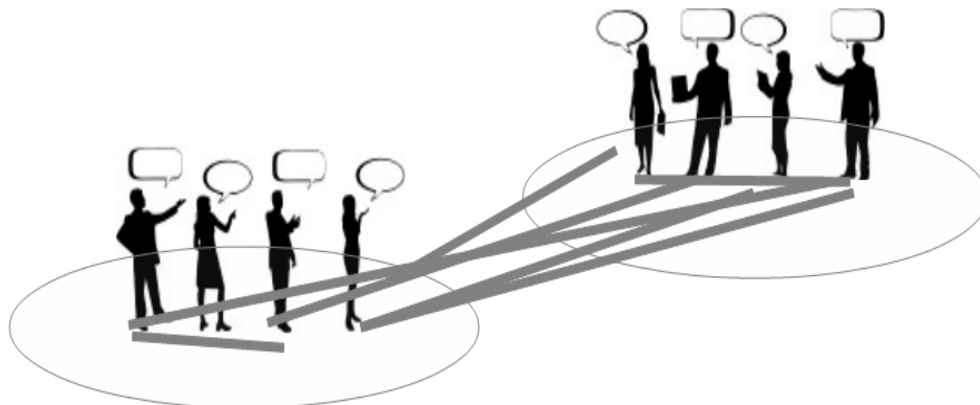
network of actors. This *immediate network* has also been labeled *net* by some IMP scholars (Möller and Svahn, 2003).

As opposed to this immediate network, the *network horizon* of a firm is defined by Holmen and Pedersen (2003) as

*those other firms and relationships of which a focal firm is aware—whether or not it considers them relevant.*

This distinction between the wider and immediate network draws the thematic boundary of this thesis: it is about the creation, usage and perpetuation of these voluntary ties and does *not* cover the mobilisation of further potential ties in the wider network, the so-called *network horizon*.

These rich exchanges symbolised by the bold lines in Figure 2.1 are particularly coined by relatedness which cannot be avoided in such a strategic substructure (Ford, 2008). This relationship between the individual actors populating the more collective actors (the ellipses in Figure 2.1) I visualise as a sub-structure by the following magnification in picture 2.2:



**Figure 2.2: Individual actors' rich interaction between collective actors**

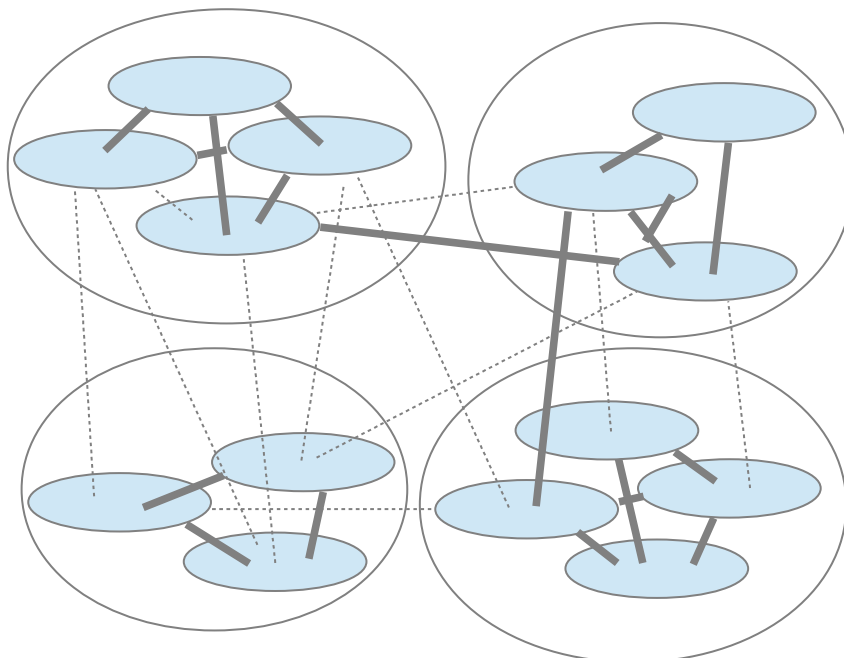
This sophisticated view of what I label *rich* exchange both in figures 2.1 and 2.2 is shared by Srari and Gregory (2008:394). In their claim, network

capabilities and configuration signify the

*arrangement or permutation [...] of the various operations within the [...] network and their integrating mechanisms, the flow of materials and information [...], the “role, inter-relationships, and governance” [...] and the value structure of the product or service delivered.*

As such rich ties are actively chosen and consciously maintained by the collective actors, they are more scarce than mundane transfers as indicated by the dotted lines in figure 1.1. The special and strategically placed exchange relationships symbolised by the bold lines in that figure indicate the formation of an immediate (sub)-network with artificial boundaries and special problem coping abilities (Ford, 2008). Also called a net, this sub-structure of *selected opportunity actively seized in network with intentional purpose-specific ties* bears strategic significance (Möller and Svahn, 2003).

These nets' artificial boundaries can be visualised in figure 1.1 to result in figure 1.3 as follows:



**Figure 2.3: Immediate networks in a wider industrial network**

In the IMP literature, the net and the immediate network are employed as quasi-synonymous terms. However, having to communicate in German during my empirical work, I found the expression *net* impracticable for two reasons:

First, for engineers the German translation *Netz* is immediately associated with (electric supply) mains and thus one of the most frequently employed electronic termini in company A.

Second, the use of the English original, *net*, would have caused confusion as it would have been taken for the homophone German *nett* – meaning *kind*.

I therefore employed the term *immediate network* or sometimes simply *network* for this particular strategic structure.

Some of the most important characteristics of such (immediate) industrial networks have been presented by Weber (1999) as follows:

Networks draw on the cooperation between the members therein, pointing to business relevant activities and the common goal of growth in often multi-organisational or otherwise intricate settings (Bagozzi, 1974; Rühle von Lilienstern, 1995; Bogaschewsky 1995).

Fully performing networks are reciprocal, every effort resulting in a compensation or a responding effort at least in the long term. For this, a kind of network memory is required (Johanson & Mattson, 1987).

Power is relevant and needed for stressing interests, resolving conflicts, and enforcing particular strategic goals (Benson, 1975; Sydow, 2010).

A network entails a certain or even strong degree of mutual dependency between its members. Far-reaching strategic changes or decisions cannot be made without the support or even consensus within certain parts of a network (Schneider, 1973).

By Weber's (1999) characterisation it is evident that sociality, personal interaction and behavioural intentions are vital aspects to an industrial cooperation. Accordingly, Wittel (2001) postulates the phenomenon of *micro dynamics of network relations*, like mutual confidence, voluntary continuation, even politics and dispute, which will be set out in the following.

## **2.3. IMP models for industrial networks**

In the past decades, IMP researchers have conducted particularly intensive empirical studies in industrial network scenarios (Ford, 2008). Drawing on the accumulated experience and synopsis thereof, a number of positive concepts have been stated. Two of these, outlining constituents of network interaction and constellations, will inform this thesis' empirical work and weft of thought: first, the model of actors, resources, and activities (*ARA*) brought about by Håkansson and Snehota (1995). Second, the *managing networks* triad of network pictures, networking, and network outcomes introduced by Ford et al. (2002).

Even though the more fundamental service-dominant logic (*SDL*) offers a normative conceptualisation that is different from the IMP's, I will conclude this section with a brief contrast of schools and an outlook on their ongoing convergence.

### **2.3.1. The ARA model for industrial networks**

In this chapter's introduction, I established the notion of the industrial network and some of the characteristics therein. There are business-to-business marketing schools and frameworks dealing specifically with the formation, sustaining and optimisation of these wider socio-economic constructs. The school I am particularly referring to in this thesis is the ARA approach of the IMP group (Ford, 2011). The interaction mechanisms set out in the first

section of this chapter – *resources* shaped and exchanged by *actors* in various *activities* – are described by the IMP group's conceptual *ARA* model (Håkansson and Snehota, 1995; Ford, 2011). This *academic brand* derived their conceptual framework from long standing empirical work in business-to-business research reflecting both the managerial and scholarly agenda (Cova et al., 2009). A more fundamental thought which also influences my work, the *service-dominant logic* (SDL) will be expounded and contrasted with the IMP group's model in Chapter 3 (Vargo and Lusch, 2008).

The IMP group's tradition draws on the overarching notion of the *actor* rather than seller and buyer, so as to avoid a potentially misleading dichotomy (Ford, 2011: 233). Moreover, for simplicity reasons, the approach does neither separate the company actor and the individual actor conceptually, nor distinguish between the different potential levels of mutual dependency (Ford, 2011: 236).

Actors, in the IMP thought, consist of any social unit with an identity playing their particular roles in the establishment and stabilisation of inter-organisational relationship landscapes (Håkansson and Snehota, 1995; Lowe and Hwang, 2012). These identity-bearers may well be individuals, groups, or wider business units, their respective constituents often being part of several so-called *actors*, sometimes even with conflicting objectives. Both companies and their staff become actors in the sense of the IMP school, participants performing a two-fold, potentially contradicting, role as part of the corporate actor and the self (Ford, 2011).

The bonds between these actors vary in intensity and characteristics. A typical network's main functions include relating, functional coordination with a third party, and insulating, with the counterpart taking over all the abstract coordination towards an unknown environment (Holmen and Pedersen, 2003). Rich and therefore multi-layered and multi-faceted interaction may involve a bureaucratic, social, and technical element in different proportions

over time. Less broad but nonetheless important bonds are established to meet financial reporting and legal requirements. Alongside each of these channels, the joint cognition of network participants is already shaped as an underlying topography of the established business-to-business exchange (Håkansson and Snehota, 1995).

Mutual familiarity will strongly coin the relationships over time; the perception of an individual network member will therefore depend on the memories and individual interpretations of past interaction (Håkansson and Snehota, 1997).

Within the thus shaped joint landscape, actors choose to perform simple to complex, sometimes even indirect or otherwise masked, activities on resources, which are related to as *transferring* and *transforming* of a network (Håkansson and Snehota, 1995). Highly engaged dyadic relationships with an established transaction chain, a symmetric constellation of supplier and customer as well as the distinction between long term and short term interaction processes are the basic elements in this conceptual metaphor. Increasingly steady and calculable, such business relationships in the particular sense of the IMP model are thus creatively feeding into the wider activity chains (Håkansson and Snehota, 1992; 1995).

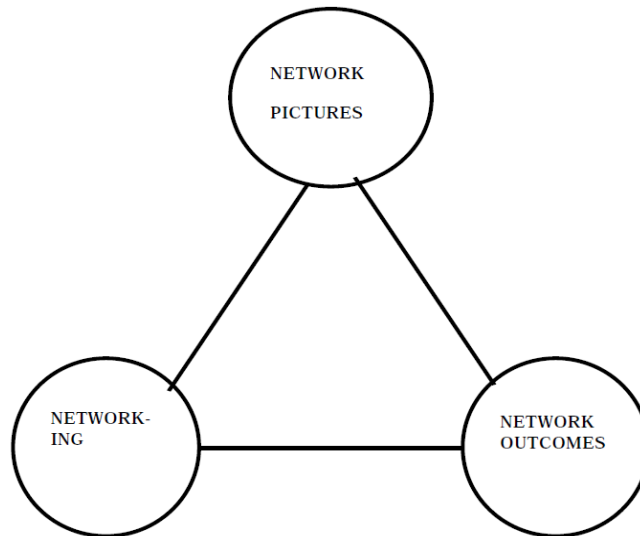
By combining a transformation with subsequent transfer, an activity may thus even affect remote actors beyond the immediate network. Moreover, the business interaction may require further adequate resources suited to transform other assistive means (Håkansson and Snehota, 1995). In the long term, the core location where products, services, and information are exchanged, where financial issues become obvious between the trading partners, and where social contacts are the most tight and crucial, is an intermediate realm spiralling the transformation of resources by actors, by IMP labelled as an *interaction process* interface.

The pivotal role of *activities* and interaction in industrial networks will be expounded in depth in Chapter 3. Moreover, in Chapter 4, the *resource* allocation and evaluation of fair distribution of input and outcome over time will be covered.



### 2.3.2. Managing in networks

Although IMP sees immediate networks as problem-oriented mutual self-serving systems (Ford and Mouzas, 2010), they need to be managed in order to remain sustainable relationships. This management has been described by Ford et al. (2002) in their *managing in networks* concept. This concept is schematically represented by the authors as follows:



**Figure 2.4: Managing in networks concept (Ford et al., 2002:5)**

As the first element of their tripartite concept, the authors recognise that actors perceive, experience and enact pictures of their environment's constellation; the partnering actors, resource ties and activity links. This perception of the *network picture* can potentially be influenced by as well as utilised for management and will be expounded in Section 2.4.

The second element in managing a network is labeled the *network outcomes*. Both the subsequent activities and the network perception of actors is affected by the presumed and verified achievement or failure or success. Resources as outcomes are put into relationship with the resources invested.

Thus the expected and actual outcomes determine the selection, stabilisation or de-selection of network ties and the network pictures thereof. This thesis is particularly concerned with the fair allocation and value of the benefits reaped in a relationship; these aspects will be covered in Chapter 3 and 4.

The network's past, current and future outcomes also affect the managerial activities therein (Ford et al., 2002). Managers draw on their own cognitive network pictures to make operational and strategic decisions (Corsaro et al., 2010:21). Based on these managerial resolutions, the immediate network is mutually coined by *suggesting, requesting, requiring and adapting activities, simultaneously* (Ford et al., 2002:7). This coining process is called *networking*.

This networking faces constant dilemmas of networking choices for which the 6C model has been set out by Ford et al. (2002). Its 6 Cs are represented by the following opposite activities in managing a network:

*Conform or confront*: existing network relationships are either utilised in a more actively shaping push (confront)- or in a mediating and reconciling pull (conform)- mechanism. This choice determines whether an actor dominates in introducing new problems to be coped with or technological directions to be taken in developments.

*Consolidate or create*: managers have the choice between sustaining or discarding extant resource ties (consolidate) and establishing new ones (create). This strategic reinforcement of repositioning may be achieved both in existing and new network relationships. Consolidation means a further concentration on an actor's acknowledged specialisation or niche in a particular network.

*Coerce or concede*: even though the network relationships in the IMP conception are thought to be more or less symmetric, one or more actors will try to impose views, activities or concessions on their counterparts whereas others may simply concede thereupon. Coercion is a quasi-aggressive quality which may influence the (inevitable) network relationship.

The phenomena associated with networking activities will be further explored in Chapter 3 as to their coverage in the literature. Moreover, the extant literature on temporal effects of networking will be expounded in Chapter 4.

### 2.3.3. IMP and SDL

Service-dominant logic has been widely criticised by IMP proponents, mainly through its normative character and less focus on scholarly and managerial practicability (Ford, 2008; 2011). Though not drawing on service-dominant logic in particular, there are some overlaps in IMP and SDL influencing this thesis.

Based on Ford's (2008; 2011) critique, in Table 2.1 I draw a synopsis of differences and similarities of both schools. Moreover, I lay forth how this critical debate influenced this thesis. The IMP stance represented in the 2<sup>nd</sup> column constitutes my general position; however some SDL elements informed my hypotheses and proved to provide an additional viewpoint for scrutiny:

**Table 2.1: Comparison of IMP and SDL; influence of SDL in this thesis**

Concept (Comparison by Ford, 2008; 2011)	IMP	SDL	Concepts and elements of SDL taken into account in this thesis
Value	Intentional relationships between specific companies over time	More general service orientation	My <i>goodwill</i> concept points to a general service orientation
Value creation	Joint problem orientation; core value is created <i>between</i> actors	<i>Supplier:</i> application of specialised skills and capabilities <i>Customer:</i> definition and creation of value	Drawing on both views in this thesis and trying to reconcile them in the value discussion
Foundation	Positive; large-scale empirical research → practice orientation	Normative; customer orientation	<i>What if</i> -modelling in scorecard introduced as a normative but practice-

			oriented element
Assumed domains for validity	B2B (strength through focus; less generalisable)	B2B and B2C (more fundamental)	-
Constituents of exchange	Among others, significant attention paid to <i>service</i> . Use of term <i>offering</i>	Emphasis on <i>service</i> and <i>offering</i>	Adopting the term <i>offering</i> from both schools
Locale where value of offering is created	Between actors (interstice)	Mainly in customer use	Adopting network value (IMP) and <i>value-in-use</i> (SDL)
Actors	Nodes in a network; customer-supplier distinction considered as misleading and weaker terms for role assignment employed.	Created reciprocally; value reaped by <i>customer</i> ; distinction and asymmetry.	I found SDL's <i>customer-supplier</i> distinction to be more practicable and relevant, particularly for the activity and value debate
Relationship	Selected ties developing mutual specialisation as part of the (immediate) network. The relationship in such a tie is inevitable.	Every organisation is independent and complete. There is a choice to enter a relationship.	SDL's approach applies to the wider network, whereas IMP's view pertains to the immediate network (as scrutinised in this thesis)
Personal interaction between organisational actors	Relatedness with quasi-organisational characteristics. Selected individuals relate n:n through specialisation over time	Inter-organisational relationships are selected multi-person contact patterns, however among fewer than in IMP thought.	-
Resolution of view	Network of <i>actors</i>	Single (interdependent) <i>suppliers</i> and <i>customers</i> as actors	In addition to the <i>network of actors</i> -view, I found the intra-case triangulation by the <i>supplier-customer</i> distinction useful
Stability of actor identity	Transient	Durable	I assumed and found practicable a durable ( <i>ceteris paribus</i> ) identity of actors

## 2.4. Network pictures and sense-making

Business-to-business marketing research has been recognising the extended sums of all relationship dyads, the *network*, as an important entity for scientific scrutiny. Johanson and Mattson (1994), for instance, derived such a network's, predominantly phenomenological, structure from the necessity of trade. The traditional approach still emphasised a company-centric view, as illustrated by this claim of Halinen et al. (1999:780):

*From the viewpoint of an individual company, the network that it perceives the most relevant and to which it is connected forms the context for its business operations. The network contains the company's activities but also provides new possibilities and opportunities to achieve desired goals.*

Therefore, the network has to be familiar to each actor so as to be able to navigate and operate within and cognitively draw thereon. In fact, a degree of inter-subjectivity of such a network perception has been verified as overlapping sense-making by Osborne et al. (2001).

Mainly induced by Weick's (1995) notion of the subjectively construed network, contemporary theory has however left the objectivity paradigm. It now links social, interactional and subjective mechanisms for making and giving sense (White et al., 2007). The *sense-making* therein aims at removing the confusing state of uncertainty or ambiguity by deliberate reflection (see also Chapter 5 on social constructionism).

Any activity within these webs is carried out in mutual orientation, reciprocal involvement and adaptation. The enactment is continuously adapting to the industrial business requirements and the changing value of resources therein (Ford et al., 1986; Håkansson and Snehota, 2006; Håkansson and Snehota, 2006b: 273). In fact, Leek and Mason (2010) found highly divergent, hardly

overlapping ways of looking at one and the same network. Other scholars claim that the resolutions applied by individuals differ and, moreover, the hierarchies are perceived inconsistently (Sydow, 2010; Möller, 2010; Coleville and Pye, 2010).

White et al. (2007) start from the dyadic constellation as the most elementary manifestation of a network, extended towards triangular relationships and entire *dramas* of four or many more partners by Håkansson and Snehota (2006). In such a stage play, a joint horizon is created by a *theme* outliving singular projects over time (White et al., 2007).

The term *network* as a spatial metaphor also implies a mental representation onto a cognitive map postulated by Henneberg et al. (2010; see also Öberg et al., 2012). The spinning threads of the web are spanned over an extant industrial landscape to link actors like roads link locations. Some roads are already paved, especially when there is a history of past exchange, some have to be created anew, and sometimes there is the need to drive past the immediate junction to reach a further one.

Industrial exchange relationships link objects including concepts and formulae and actors as landmarks of different sizes, importance, and distance to each other (Finch and Geiger, 2010). The centre of the map – containing a potentially highly influential actor (see section below) – is often subjective or transient, and may thus vary across episodes, epochs and entire projects (Leek and Mason, 2010). The overall structure may possibly be imposed from above or tacitly agreed within the cooperating parties (Coleville and Pye, 2010). In particular, the strengths and the quality of the *roads* leading from point to point will vary as much as the metaphorical width of street representations in geography (Holmen and Pedersen, 2003).

The referral to a metaphorical map also implies that the according proportions, distances and road widths between elements as detailed above are always inter-subjectively known by some agreed standards. By repeated cooperation and managerial consensus, an overlapping or blended map may

actually evolve over time as an objectification. However, Henneberg et al. (2010) concede that the individual's cognition will inevitably lead to divergent internalised representations. Albeit implying slightly different characteristics figuratively, the terms *map* and *network* are commonly used as quasi-synonyms for the industrial marketing discussion (Henneberg et al., 2010).

It is particularly in a concerted innovation effort with a highly uncertain success that the term *map* is preferably replaced by the notion of networks laid over socio-technological landscapes as it reflects the necessary flexibility (Möller, 2010). Originally invented by nature as the constructs of spiders, meshes symbolise adaptability, volatility, and constraints. They consist of ties, elastic and flexible, which are easily built, distorted, and torn down.

Depending on their comprehensiveness, the basic landscapes may take the form of simple frames where a particular interaction takes place (Finch and Geiger, 2010).

A joint network horizon is created by a shared meaning system outliving singular projects over time (Luhmann, 1995; Holmen and Pedersen, 2003; White et al., 2007). This meaning system is shaped and internalized within a dyad or among several parties during one or several projects and seamlessly handed over into the next stages of collaboration. Thus, the continuance and opportunistic revival of the relationships therein is facilitated in the long run (Mische and White, 1998).

So what is being transported along the highways and little roads of the relational landscapes? Scientific examinations of network structures aim at an objectification, scrutinising the realm of a potential *market object* as the abstract unit conveyed among partners. Comparing diverse business-to-business characteristics, among others using process-based maturity models, scholars have found regularities between a network's *capability* and its relative success (Netland et al., 2007; see also Srari and Gregory, 2005). Applying in-depth qualitative methods, structural, information and materials flow related, role-assigning and value-providing phenomena have been covered and compared empirically (Simchi-Levi et al., 2003; McCluskey:

2004; Foggin et al., 2007; Netland et al., 2007:7; Srari and Gregory, 2008).

Like a map's purposeful composition on a certain scale, the level of resolution in the business-to-business discussion has to be adapted to the desired phenomena to be observed (Holmen and Pedersen, 2003). Möller (2010) for instance postulates the existence of innovation niches beyond the network structure for which the resolution has to be recalibrated. These beneficial sub-constructs, the author claims, are stimulated by and continuously feed the established meso-level of the business network (Öberg et al., 2012). As this network is elastic and redefines itself from time to time, a window of opportunity for an innovation may arise to the eyes of an attentive observer, and disappear again before it can be seized. Such a chance for something new may be simply concealed by an inappropriate resolution in scientific or managerial analysis (Möller, 2010).

The simultaneous existence of differing and even hardly overlapping pictures of one and the same environment have actually been affirmed by Leek and Mason (2010) in their investigation of resource and commitment levels in networks. As to key actors and individuals contributing to network interaction, perception can be biased from the neglect of minor details up to the missing of the obvious. In addition, the same frame may be perceived as hierarchic by the one and as heterarchic by the other player (Sydow, 2010: 381; *ibid*: 383). Colville and Pye (2010) equally concede that there is no single *ideal* resolution but a collection of individual pragmatically resolved landscapes. The authors go as far as saying, if one were to adopt the attention-based view or a *myopic view* of a business, only the individuals' and collectives' sense-making would matter (Holmen and Pedersen, 2003; Coleville and Pye, 2010). This would imply that, if actors failed to perceive it, no exchange relationship existed at all (Coleville and Pye, 2010). On the other hand, industrial ties may well be perceived without yet being enacted, like in a planned or an emergent network (Sydow, 2010: 380).

A similarly overarching concept of Ellis and Hopkinson (2010) leads from the collective term of inter-firm relationship via analysis of boundary spanners'



conception to the wider and more complex business-to-business network picture. There will be a web of  $1:n$  reciprocal relationships across boundaries which is maintained by several or many people (Perrone et al., 2003; Sydow, 2010: 410). Subsequently, indirect bonds develop, channels are opened consecutively. Unless prohibited and enforced by strict rules, socio-economic mechanisms and mutual interdependence create and continuously reshape the network which thus becomes beneficial to the relationship at a given time (Öberg et al., 2012).

The observation and analysis of network structures and activities has been set out as one of the challenges in current business-to-business marketing research (Henneberg et al., 2010; Ramos and Ford, 2011). Managerial sense-making of the socio-economic business context has thus become an emerging topic for both academia and practice during the last decade.

In this tradition, processes of sense-making in and consequently sense-giving to networks in business-to-business relationships have been evaluated (Henneberg et al., 2010). Managers more or less consciously draw themselves a sensible map of the immediate and wider social environment constituting markets in the terms of networks as actors in which their businesses operate (Mouzas et al., 2008). Along the bonds of such a reified network, exchange, cooperation, and feedback are observed and assumed to take place (Henneberg et al., 2010).

So which role will such a picture obtained from network representation play for the organisation subsequently? To remain a valued partner in an industrial network, a company has to maintain a reasonable overview on the first and, potentially, second order counterparts and their mutual relationships. As the analysing person basically becomes a part of the situated network construct to be captured, what is initially meant as a mere visual aid becomes an actant and a meta-resource leading to resources in itself (Holmen and Pedersen, 2003).

Is there a potential for delimiting an industrial interaction, both for strategists and scholars? The boundaries of imaginative pictures the actors bear in mind

respectively, pragmatically consisting of situated snapshots within a network's *frame*, stake out the main realm of joint value-aggregating activities and exchanges. The perceived horizon may be quite restricted by myopia as postulated by Holmen and Pedersen (2003). Such a relatively short-sighted border bears relevance for a separation of a particular network from its environment in order to recognise necessary marketing efforts and market potential. A rough common understanding of a joint environment however may considerably facilitate the initialisation, alignment, and beneficial continuance of complex network constellations (Öberg et al., 2012).

Along the bonds of such a reified network, knowledge exchange and dispersion, cooperation, and normative feedback result in a collective mind informing a beneficial transformation of resources (Mouzas et al, 2008). The activity of sense-giving inevitably trades off the resolution level of such a network *image* for the practical usefulness in decision processes (Henneberg et al., 2010). Network visualisations enable the navigation within complex multi-directional interaction processes and result in insight and the phenomenological output. It is thus up to further scrutiny to set out a normed level of resolution for generating manageable units of research in such an amalgamation process (Mouzas et al., 2008).

As shown by this synopsis, there is no single objective or subjective approach to network envisioning which may well find its individual expression for appropriate sense-making and instrumentalisation. But equally, there are more palpable characteristics which, if captured and displayed, depict valuable potential for further collaboration and adaptation.

## 2.5. Power and dissent

In the IMP Group's notion, commercial organisations are significantly placed into the wider industrial environment, made up by market structures and macro determinants (Ford and Mouzas, 2010). As these firms enter their first occurrence of a new relationship interaction, they manoeuvre within an immediate atmosphere where relative power, dependence, cooperation, ties and expectations coin their joint perspectives. The particular networking activities *coerce* and *concede* as in the 6C concept (Ford and Mouzas, 2010) reflect the choice of gradients.

Henneberg et al. (2006) recognised power as one of eight mutually influential constituents in the industrial network debate. Ford and Mouzas (2010) referred in particular to internal power within organisations, however claiming that inter-firm ties command a symmetric mutual influence coined by unitarianism and embeddedness, albeit labelling coercion as one of the (6C) options in managing a network. Similarly, Ford (2011) claims a mutual influence of heterogeneous actors without a power gradient among them. Still, Ramos (2011) identified power, politics, position and conflict as important constituents in the strategic network debate, acknowledging the need for an accordingly extended agenda for this under-researched topic. This thesis will therefore advance the understanding and differentiation in the discussion about the mechanisms by which different coinages of power are acquired and exerted.

There is a considerable political aspect to liaisons of industrial companies. Seen through the cultural lens, a business network consists primarily of actors - groups and individuals – but also so-called *analysts* playing with personal ties and testing out mutual power relations, always challenging goals, roles, and hierarchies (Slater, 2002). By psychological self-protection mechanisms, this permanently questionable socio-cultural arrangement is, in

a less traditionalistic and increasingly sophisticated environment, labelled with an individual stable precursor inducing quite different perceptions among persons (Slater, 2002).

Networks have actually been found to command the competing determinants of *trust* and *control* (Nooteboom, 2002; Sydow and Windeler, 2003). Power is still relevant and needed for stressing divergent interests, for resolving disagreements, and for enforcing particular strategic goals (Benson, 1975). By their insignia, the incumbents of authority can impose sanctions on another party in case of misconduct or failure to meet agreements (Sydow, 2006).

The diversity in inherently heterogeneous networks is often seen as beneficial as it induces crises making the collaboration even more creative (Corsaro et al., 2012). This heterogeneity at a time bears the particular danger of knowledge leaks towards competitors and the exploitation through the free rider phenomenon. Moreover, an actor may feel to be like a hostage in a less desirable collaboration (Corsaro et al., 2012). In particular, heterogeneous goals often lead to disagreements in the right utilisation of commonly envisioned resources and therefore potential dissatisfaction of one or more counterparts (Zaefarian et al., 2012).

The exertion of hierarchic influence by a focal actor may imply coercion against the superior expertise in a network, leading to weakening ties and threatening the continuance intentions of the less powerful participants. Accordingly, power gradients among actors have been found to impose a higher detrimental potential on the innovativeness in a context than a merely capability- and expertise-related heterogeneity (Corsaro et al., 2012). In the long run, a more egalitarian collaboration will therefore be sought by the dominated party (Rampersad et al., 2010).

Meehan and Wright (2012) see power as a broad construct which is inherent in all social interaction, describing the marginal ability to influence others and

situations. Drawing on French and Raven (1959), they set out a five-base typology of power sources, namely reward, referent, legitimate, expert, and coercive, of which, however, in business-to-business relationships, only the referent (role model, prestige; see French and Raven, 1959: 69) and expert power are enabled (Meehan and Wright, 2012: 671).

Further differentiating these types, Meehan and Wright (2012) identify three complexes of power origin which commonly co-exist in any particular business-to-business interaction.

First, belonging to organisations, the authors span an exchange power matrix. Derived from the power regime theory, this matrix draws the *relative utility* against the *scarcity of resources*, which depicts the overall position in the market.

The next kind of power is a property of individuals. Drawing on social exchange theory, Meehan and Wright (2012) list economic dependency, but also approval, prestige and ego support. The inevitable dilemma of this characteristic lies in the membership of the persons in organisations; the power positions of both are not necessarily aligned. The result may thus be a discordance of interest, where typically the individual's goals dominate over the collective's.

The third and last type of power is a property of a relationship and thus highly context specific. Also drawing on the social exchange theory, this power is bidirectional and coined by mutual – often divergent – perception and unique criteria of balance (Meehan and Wright, 2012).

The systematics of power concepts in a network I thus visualised as follows:

**Table 2.2: Sources of power in a business-to-business network,**

adapted from Meehan and Wright (2012)

<b>Source of Power</b>	<b>Characteristics</b>
<b>Organisational = globally held power</b>	
Size / industrial rank	Number of employees, position in the industry, nationality, financial power, reputation of brand and products
Dependency / available alternatives/ sanctions available	Patent protection, unique technology, monopoly or oligopoly, influence on deciders, legal protection
<b>Individual = industry-wide held power</b>	
Knowledge	Education, specific expertise, creativity
Skills (here: monopoly)	Adaptability, experience, communication skills, technical or physical abilities
Insignia, Rank	Position, endowment, formal insignia, title
<b>Relational = power held specifically in a particular network</b>	
Justice	Procedural and distributive justice (see Chapter 4):  willingness to accept and adhere to jointly agreed rules and to overarching social norms
Alignment Capabilities	Ability of blackboxing and closing (see Chapter 3):  ability to reconcile different socio-technological cultures into a common subject-related understanding

According to Meehan and Wright (2012), justice and alignment capabilities are thus a source of power originating from a specific relationship. These important concepts will accordingly be covered in depth in Chapter 3 (alignment) and 4 (justice).

So, although the cooperation can in the first approximation be seen as symmetric, there is often one participant in a dyad taking the role as the more influential, focal, actor (Johnsen and Ford, 2001; Storbacka and Nenonen, 2011). This dominating player is able to alter the market configuration (the established set of norms and rules, see Chapter 3), thus commanding market *scripting* abilities (in the sense of dictating essential qualities therein; Storbacka and Nenonen, 2011).

In particular, networks with a highly centralist character typically imply a dominant (*scripting*) organisation in the centre (Sydow, 2010:381). As *markets* are however diversely defined and characterised in the extant literature, highly collaborative industrial networks may in fact be seen as specific business-to-business areas, commanding important traits like sociality and the use of habitualised information flow (Slater, 2002; Granovetter, 2005; Araujo et al., 2010:4). Characterised as rich, informed, and full of social, technological, economic, and cultural phenomena, these markets are increasingly seen as intricate trading networks with rich feedback mechanisms themselves (Finch and Geiger, 2010). Thus, the concepts of the focal actor and scripting can be applied to business-to-business scenarios, extending them to collaborative networks as outlined in Table 2.3:

**Table 2.3: Network concepts derived from Storbacka and Nenonen (2011)**

Concepts by Storbacka and Nenonen (2011)	Derived network concepts	Explanation
Focal market actor	Focal actor (of a dyad or a wider network)	An actor capable of significantly influencing and more likely to enforce their view on the dyad or network
Market scripting	Scripting (of a dyad or a wider network)	Taking strong influence on the dyad or network <i>Confront</i> in 6C model of Ford et al. (2002)

Colville and Pye (2010) claim that hierarchically organised large industrial actors may be able to strategically impose a certain network representation upon their environment. Such structures with a power gradient may have a slightly better chance to steer the flux and fate of their innovation, as the possibility to rule may facilitate the introduction of supporting technologies and applications (Sauer and Döhl, 1997).

This beneficial effect of *confronting* rather than *conforming* in the 6C model (Ford et al., 2002; Ford and Mouzas, 2010) and thus dominating has been observed in German multinational companies dominating a considerable field in their respective industries, like the apparel and the automotive sector (Steffen, 2001; Sydow and Wilhelm, 2007; Schonert, 2008).

Therefore, power exerted by a particular actor can be a source of constraint and disagreement, a phenomenon which by Ford et al. (2002) is called the 1<sup>st</sup> network paradox. However, there is some evidence that it may bear competitive advantage in a business-to-business network. An additional discussion on scripting is outlined in table 8.c in the appendix.



## 2.6. Why networks?

Does a historically grown collaboration, even if not to be expressed in numbers, make a difference? As Möller (2010) states, *immaterial* success in a network also increases the likelihood of a favourable financial performance. This under-researched question about synergetic and potentially superior network performance I will address in my empirical work accordingly.

Enterprises nowadays consider their transaction chains' supplier-customer cooperation partners from a strategic perspective (Reichheld and Sasser, 1990:106). The establishment of proven, medium to long term business relationships bears invaluable advantages like planning security, reduced need for supervision and control, stable product and service quality, and economies of scale (Womack et al., 1990:138ff; Diller, 1995:442ff; Bruhn, 2001). Specialist knowledge and value propositions of a firm are thus extended to the general context in order to generate intrinsic network capabilities of their own (Srai and Gregory, 2010: 391). The configuration may however consist of robust rather than sophisticated and innovative interaction and delivery processes as well as of favourable cost structures and low cost sourcing (Srai and Gregory, 2008: 406). But a network's merit may equally include the high availability of customised products and services (Goodson, 2002).

The operationalisation of the mental network representations as set out above therefore offers an additional long-term benefit. Most favourably, a technological niche may become a considerable business area through network development and dissemination. Möller (2010) postulates, as key competencies for management, *sense making, focusing, and agenda construction*, although a technology's potential to create a new business domain ultimately depends on whether society agrees to pave the ground for it. The maturation of common sense-making in a network dyad towards intrinsic capabilities, enabling application in businesses and the dissemination of innovation in particular, Möller (2010) asserts, can never be

achieved by a single actor. A far-reaching technological paradigm shift by the new business field will invariably increase the complexity of the scenery but also reap new innovation potential (Srai and Gregory, 2008:387).

One of the benefits of this increasingly popular form of coexistence and cooperation can certainly be seen in the relative voluntariness of relationships, with a special quality of active trust (Wittel, 2001). One of the most notable – internally positive – effects for network partners in a given industrial or regional cluster is certainly the creation of market entry barriers for new players (Madhavan et al., 1998; Koka et al., 2006; Hornych and Brachert, 2010: 59).

A joint horizon is created by a theme outliving singular projects over time. Themed complexes, according to Luhmann (1995) and White et al. (2007) are shaped and internalized within a dyad or a network during one or several projects and seamlessly handed over to the next collaboration episodes. Themes are even capable of inspiring new joint efforts, and of limiting the selection of potential cooperation partners to socio-technical insiders. Thus, a *longer-lasting, short-term or even long-term nexus of meaning* (Luhmann, 1995:155) is established. This *netdom* has been found to mutually correlate and seamlessly enable the communication context of its constituent actors (Luhmann, 1995; Mische and White, 1998).

Although the network concept theoretically devises complete variability – a market – from the outset, in reality the selection of the preferred cooperation partners is never completely arbitrary. Even in an era of globalisation, regional technological clusters as geographically determined networks constitute a special form of industrial interconnectedness (Boschma, 2005; Hornych and Brachert, 2010). Often initiated and continually fostered by public programmes, these clusters aim at strengthening competitiveness by collectively bundling innovation efforts (Vonortas and Okamura, 2008; Adiwa, 2010).

The intensity of network formation and development may vary considerably across industries, regions, and time. Radically new technological developments, for example, accelerate the pace in which new network partners are sought. This effect is attributed to the increased need to minimise risk and gain access to new relevant resources and knowledge (Hornych and Brachert, 2010: 58). Thus, collaborative ties are predominantly built and extended in phases of high technological uncertainty (Terwal and Boschma, 2009).

Conversely, incremental phases of innovation then tend to sustain the existing competitive landscape and thus strengthen existing networks. Both dynamics have been found by Hornych and Brachert (2010) examining a German regional cluster in the photovoltaic industry, by the analysis of joint patents, mutual ownerships, secondary publications and a comprehensive survey among managers (Hagedoorn and Schakenraad, 1994; Hornych and Brachert, 2010: 60; Hahn et al., 2008). In this regard, the wider relationship may provide the decisive impetus for initial network creation as well as one of the main rationales for coherence.

To be part of an integrated industrial landscape in the long term is seen to guarantee planning and technological security. The role which risk avoidance plays in a firm's strategic decision making, and the significance of the integration for the overall corporate success has for example been acknowledged as influential on external resource adoption (Karlsson and Lovén, 2005). From the interstitial realm of a cooperation, the boundary, the joint efforts of the buyer and supplier can lead to greater success of the exchange (Karlsson and Lovén, 2005). However, as Karlsson et al. (2010) point out, the buyer side of the integration may be as complicated to handle as it bears importance.

So which arrangement and collective *sense-making* in a business-to-business network is most likely to achieve superior synergies and innovativeness? According to Möller's (2006: 189 ff) predominantly quantitative industrial research, trust, participation (Weber et al., 2003:29),

fairness, congruence of aims, and strategic focus, mediated through selection and evaluation, enable allocation and regulation, leading to both material and immaterial success (Möller, 2006:223). Moreover, a higher immaterial success of a network will increase the probability for financial effectiveness accordingly (Möller, 2006:198). As the immaterial dimension of success is a highly flexible and subjective notion, it may in fact be the key to a further understanding of collaborative synergies in industrial corporations.

As the most advanced form, Coleville and Pye (2010) postulate the strategic network comprising of two or more organizations with separate operations but high interdependence in the *netdom* though established *themes* (Mische and White, 1998; White et al., 2007). This highly functional context is particularly promising for the dissemination of new technologies and the related services and has been found to effectively shield the outside market from intrusion (Coleville and Pye, 2010; Öberg et al., 2012).

## **2.6. Research on networks**

### **2.6.1. The network research agenda**

As expounded in the preceding sections, industrial networks have gained increasing practical importance, at the same time as facing increasing complexity (Achrol and Kotler, 1999; Möller and Halinen, 1999; Halinen and Törnroos, 2005:1285). Blurring boundaries and an accelerating pace of change dynamics may in particular complicate a comprehensive and adequate network research (Eisenhardt, 1989:534; Fletcher and Barrett, 2001; Halinen and Törnroos, 2005: 1287).

Each industrial network as well as of sub- and supra-network is unique by its location, dynamics of the embedding market, and socio-political environment. This singularity calls for special research methods, in particular pointing to the case study approach which will be expounded in Chapter 6 (Eisenhardt, 1989:534, see also Yin, 1989). The agenda spans from inter-organisational configurations over amalgamations of interactive networks and industrial clusters to regional comparisons (Srai and Gregory, 2008: 407; Hornich and Brachert, 2010). Multinational joint ventures have recently been examined by Sydow and Windeler (2003), Dyer and Chu (2003), and Sydow (2010).

Further scrutiny pertains to inter-partnership cooperation in general (Poppo and Zenger, 2002; Sydow, 2010). All these variant forms can be scientifically evaluated, providing valuable insight into peer-to-peer capabilities for researchers and strategists (Srai and Gregory, 2008: 407).

Laying the special research focus on value co-development, the cooperation-related socio-psychological lens takes a prominent role for potential systematisation and interpretation. In fact originating from industrial marketing, interaction theories evolve around the analysis and configuration of types and occurrences of synergetic processes. Differentiating the IMP view on actors set out above, networks between two or more individuals –

the personal interaction – have been considered in particular (Klee, 2000; Ford, 2011) Moreover, dyadic organisational interactions up to multi-organisational collaboration have been scrutinised (Backhaus & Voeth, 2007:116).

The characterisation of networks as expounded in Section 2.2 indicates that both behavioural intentions and embeddedness shape longitudinal industrial collaboration (Granovetter, 1985; Weber, 1999; see also Chapter 4 on justice and temporality in networks). Accordingly, the quality of such a relationship is composed by relationship *benefits* on the one side and relationship *sacrifices* on the other (Ulaga and Eggert, 2003; Hutchinson et al., 2011). These socio-cognitive constituents of a network seem under-researched in the body of literature (Ford, 2011).

Ramos and Ford (2011), having recognised this gap in the scholarly agenda, utilise several steps around drawing and matching individual cognitions of ideographic network pictures. The authors draw on cognitive and causal maps as well as belief structures as a device for qualitative research and an empirically derived scaffold for coding of narratives. As the phenomenologically enacted network picture is often not manifest as such in a person's mind, it is to be seen as a means to facilitate orientation by the observant researcher.

Therefore, Ramos and Ford (2011) have developed vital coordinates for an instrumental network characterisation in the coding of empirical materials, devising a new methodical toolset. Their model includes characteristics around *actors*, *resources*, and *activities* materialising the industrial construct, the goals, individual aspirations, politics and temporality (Ramos and Ford, 2011). The comprehensive the network research agenda is set out in Table 2.4:

**Table 2.4: Network research agenda**

<b>Concept</b>	<b>Explanation (examples)</b>
Actors	Individuals, groups, departments, divisions, organisations, expert bodies, buying organisations, regulatory bodies
Resources	Tangibles, skills, capabilities, capital, knowledge, information, assets, operating means and estate, production facilities
Virtualisation	Mobility of means, transportation, virtual togetherness, distributed facilities; globalised sourcing of knowledge, skills, goods, and productivity
Trust (active); choice	Active selection of network partner; pre-emptive trust; information provision, entering a vulnerable state, commitment
Hierarchy; scripting	Commanding a superior stance in the landscape by formal insignia or means; ability to dictate
Power; influence	Influencing more effectively than others; taking a lead in a cooperation through industrial authority and size (as an organisation), individual capabilities (as a person) and relational rapport (as an actor in general)
Conflict	Dissent, conflicting goals between actors, hidden agendas countering the aims of a collective, dispute over agreements or contracts
Information orientation	Information, specification, and expertise as the main <i>currencies</i> of exchange
Technological sociality	Technologically enabled fast and intensive flow of information and communication

### **2.6.2. Caveats in network research**

Researching networks entails some caveats. Respondents can have a distorted mental picture or miss out elements of networks they may perceive in other situations. Moreover, if research activated the cognition of certain bonds, how interventionist and potentially influencing, to stay in the attention-based view, would the investigation be? This will typically be dependent of variables like the importance of the business field to the parties involved, of the intensity and predominant direction of joint knowledge generation and transfer, and of interpersonal, sometimes highly political constellations (Srai and Gregory, 2008).

Given that such networks – organisational ties but also markets outside the frame – may be in fact endless, pragmatic scientific focus is placed on the

meaningful (Srai and Gregory, 2008: 392). This literature review has shown that the network has indeed a *meaning* generated by *sense-making* and is much more than a simple structural device.

## **2.7. Conclusion**

As set forth in this chapter, the industrial network has been identified as a pivotal entity both for research and business management.

I introduced the industrial networks as a research topic particularly in the IMP agenda. I laid forth how the wider network has to be distinguished from the more embedded, immediate, one. I introduced a definition of the networks, their phenomena, and an according set of schematic representations. The constituents of actors, resources and activities were introduced. Network management by choices of more active or passive relationship shaping was presented as the 6C model. Drawing on Ford's (2008; 2011) critique on SDL, I outlined how nevertheless single aspects of IMP and SDL can be reconciled in this thesis.

Illustrating the networks' evolvement over time and their structures and partnering mechanisms from dyads to multilateral relationships, I expounded on their adaptation to and position in the wider environment. Network pictures are envisioned and utilised by members, subjectively but also strategically, sometimes imposed, with different resolution and a potentially myopic horizon. Managing networks is achieved by drawing on these pictures to network towards the desired network outcomes. This chapter debated how power and dissent in these networking activities may be particularly interesting for business-to-business research. Pointing out the success of centralist and strategic networks, I emphasised the need of further structural research of embedded business environments.

I concluded this chapter by setting up a thus derived research agenda and depicting my thesis' contribution therein.



# Chapter 3

## **3. Value and innovation in customer-centric business-to-business collaboration**

### **3.1. Introduction**

Marketing as a science has, in the past decades, been shifting the discussion from the phenomenological exchange towards the actual value generated therein. Particularly in the business-to-business domain, modern industries in Western societies often maintain a strong engineering, technological and product focus when introducing the notion of value. The suppliers in particular adhere to a tangible culture of machinery, spare parts, and the accompanying instrumental availability services (Abernathy and Utterback, 1978; Bruhn, 2009). However, by the increased acknowledgement of the customer perspective, these business domains have particularly been challenged to incorporate a client-oriented mindset in parallel. These supplying organisations have to master the transition from a pure engineering market to a mixed perception of the industrial vendees' needs (Lindberg and Nordin, 2008). Jointly agreed criteria for success and key performance indicators now predominantly drive such rich industrial customer relationships (Grönroos and Ravald, 2011). The processes of exchange thus consider, on the one hand, availability rates, efficiency, and the leverage of further potential for optimisation and, on the other hand, a need for operational stabilisation and risk reduction (Van der Valk et al., 2009).

The initial research questions on value and the mechanisms for its achievement have been set out in Chapter 1 as follows:

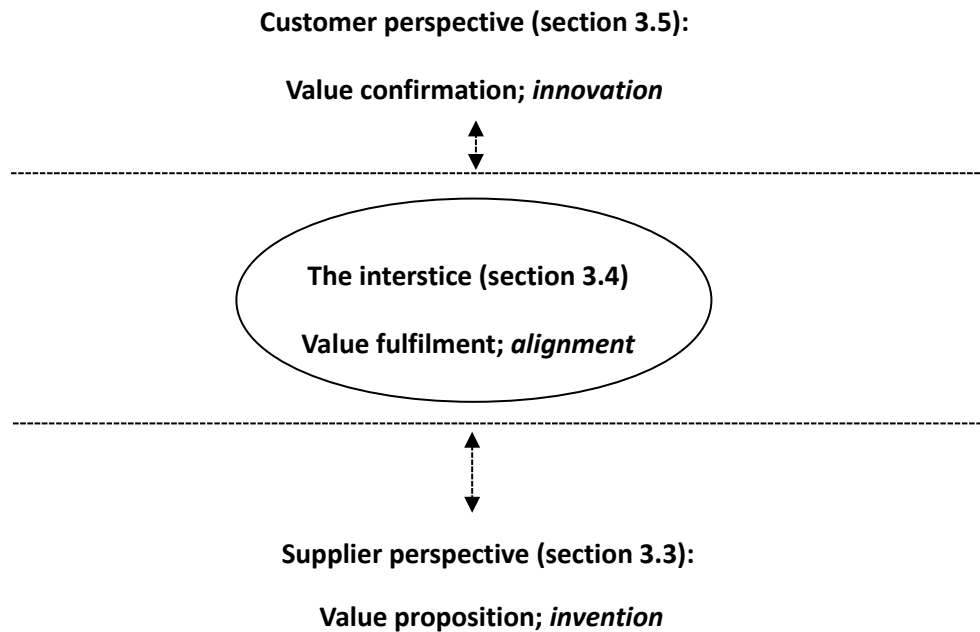
Research question 3:

**Which entities are exchanged in the research setting's immediate network by means of collaboration and by which mechanisms are they generated?**

Research question 4:

**How do different actors in this research setting value the distinct approach of developing innovation in a customer-centric manner?**

The value debate between in the domains of the customer perspective, client operations and negotiated realm of collaboration thus informs this chapter's research agenda as depicted in Figure 3.1:



**Figure 3.1: Customer centric value creation** (based on Grönroos and Ravald, 2011 and Cavalli, 2007)

Figure 3.1 highlights that the perception and processes of and for value may be divergent between proposition, fulfilment, and usefulness. This chapter's practically oriented literature review will be outlined as follows:

Firstly, the creation of a supporting value will be discussed from the supplier perspective. Reviewing the extant literature, I will highlight the delivering party's goods- and service-related activities and the according role of the *value facilitator*. I will examine which role the exchange value has played in industrial marketing management so far. The innovative aspect of rich

business-to-business relationship will be addressed from the supplier's invention activities.

Secondly, the integrated joint processes in the interaction area will be discussed. I will introduce the customer centric product and service abstraction by specialised capabilities of the supplier and need of the client. Moreover, I will explain how the actors in such a dyad cope with socio-technological differences and how the co-production of the resources flowing together therein result in value creation. Highlighting this mutual approximation, this chapter will evaluate whether such alignment qualities are considered a substantive value by current research.

Thirdly, some of the ideas in the body of literature considering the customer perspective will be illustrated. I will address the extant concepts on value creation and affirmation and the roles products and services are playing therein. I will depict the effectuation of invention, the innovation, from a collaborative angle.

To highlight the theoretical foundation for this chapter's value discussion, I will prepend a reflection on value and its historical discussion. Moreover, I will introduce the basic theory of a service paradigm, the service-dominant logic, which will predominantly serve as an instrumental catalyst for this thesis' research techniques. Partly contrasting, partly complementing the outline drawn in Figure 3.1, these thoughts mainly influence this thesis' methodical framing for the product, service and innovation related research agenda.

### **3.2. Theories of value**

*Value is the striving of a human to clarify the meaning and significance of our existence; it is an act of freedom, expression of subjectivity because it's based on our personal experience and preference. (Baeva, 2012)*

Value has been recognised as such an important quality by mankind that it is analysed and discussed in its own philosophy called axiology (Baeva, 2012). In the ethical discussion, Plato first acknowledged that besides an instrumental value, things and concepts could also have a value in themselves, the intrinsic value (Feldman, 2000). As it is often positively coined in most people's perception, the pragmatist Dewey considered value as creating a quality of goodness (Mitchell, 1945). Fundamentally, however, this concept neutrally denotes the degree of emphasis individuals and collectives put on events or qualities in life. Socio-philosophical discourses have been debating the values and norms of human coexistence, inter-human relations and solidarity, which are seen to be no objective givens but coined in context-specific inter-subjective discourses (Habermas, 1985).

In economics, it was already Adam Smith (1776) who distinguished between two complementary notions of value (Vargo et al., 2008:147). He first postulated that the exchange of goods has to either reflect the inherent cost of labour, or its objective (Smith, 1776). This notion was seen as one of the two valid sources of economic worth and value by Marx (1962), stating

*Bei der nützlichen, Gebrauchswerte schaffenden Arbeit „handelt es sich um das Wie und Was der Arbeit“, bei der wertbildenden Arbeit „um ihr Wieviel, ihre Zeitdauer“.* K. Marx, Kapital I, MEW 23, 60.

*The useful labour creating usable value revolves round the „how and what“ of labour, the [monetary] worth creating work round the „how much, how long“.* K. Marx, Kapital I, MEW 23, 60.

In the body of Anglophone literature, these types are called value-in-exchange (Marx: Tauschwert; an expression I am inclined to translate as worth rather than value) and value-in-use (Marx: Gebrauchswert; Storbacka and Nenonen, 2011:242; see also Grönroos, 2008; Venkatesh et al., 2006).

Nowadays, in industrial network scenarios as set out in this and the preceding chapter, is there still value-in-exchange, the swap equivalents of labour as postulated by Marx (1962), for their monetary counter-value? For business-to-business relationships, Meehan and Wright (2012) postulate that utility and scarcity of resources constitute a potential value-in-exchange. Trading in monetary value for equitable resources reflects the common legal viewpoint with regards to taxation, valuation and reporting. Thus, value-in-exchange conveys a deflated picture of business activities but equally no less than a company's relative attractiveness in the market.

A recent publication in the IMP tradition (see Chapter 2) has also set out a research agenda in the direction of value-centric innovation with a particular emphasis on networks of aligned inter-firm cooperation relationships (Cova et al., 2008; Weerawardena and Mavondo, 2011). In their longitudinal studies with a strong empirical foundation, Weerawardena and Mavondo (2011) were able to identify a gap in the research on value: the idea of value-in-exchange therein is a necessary precondition to the value which the customer finally materialises (Storbacka and Nenonen, 2011:242). Such an engaged, rich, collaboration thus enables the development of an unimitable cooperation potential which constitutes a self-sufficient value (Eisenhart and Martin, 2000; Chen and Tsou, 2012).

This is why, from the outset of a network being created, a delivery promise has to convey the message of a successful exchange as a valid quality. Even product-supporting scenarios already bear highly subjective elements of value perception, albeit one shared by the supplier and the customer (Higgins, 1998; Vriens and Hofstede, 2000; Möller and Cassack, 2008; Schmitz, 2008).

The expression of such value in monetary terms and thus a selling price is dependent on a customer's preference structures for such complex deliverables, as shown by Mai et al. (2008:687; see also Binner, 2000). This attempt to link features and priorities with pricing calculations is still largely independent from the service school assumed by the scholar (Möller and

Cassack, 2008) and as such compatible both with the traditional product-service distinction and the service-centric approaches explained below.

### **3.3. Service-dominant logic**

Various approaches address the occasionally controversial discussion about the distinction between products and services through sophisticated alternative definitions. Business-to-business marketing research has been trying to cope with the product-service dichotomy, the thought of hybrid offerings and the debate which element actually bears value and for whom. Although this thesis will not cover fundamental issues of service theory and is not aiming at modifying, refuting or contributing to service-dominant logic in particular, these discussions will be introduced as an impetus of thought and methodical catalyst in the following.

In their paradigmatic approach, Vargo and Lusch (2004) tried to overcome the ambiguities of tangibles and intangibles on the one hand and of the benefits reaped by the customer and supplier on the other. Their service-dominant logic emphasises the vendor-customer-relationship, considering it from a quite abstract angle which allows them to move away from the traditional product- towards a service-centred perspective. Any commercial exchange is under this lens reducible to specialised skills and knowledge. Service, seen as a human activity, thus becomes the least common denominator for all goods and services provided on the market (Vargo and Lusch, 2004; Lusch and Vargo, 2006; Ford, 2011).

Service-dominant logic makes a series of fundamental assumptions I consider useful for this thesis' instrumental research framing discussion (see Figure 3.3). Stauss (2005), among others, describes these propositions which draw on related the disciplines of supply chain management and quality management as well as on traditional, product-centric, service

marketing. In this thesis' value debate, two propositions are particularly interesting.

First, products as an embodiment of skills and knowledge are understood as a pure conveyor for services knowledge. Second, suppliers can only provide value offerings. The counter-value – value-in-use – is enacted by the customer. Thus, clients and their organisations always act as *co-producers*, making the customer an active and involved recipient.

There has been a lot of criticism to this very fundamental and thus little applied theory. Vargo and Lusch (2004) themselves concede that tangible goods are of course material. However, they claim that it is useful to consider the services around those goods, such as logistics, technical development, and quality assurance, as sources for the most immediate competitive advantage and thus value for the client. A fundamental value and actual impetus for exchange, in their claim, therefore originates from the dialogue of collaborative knowledge exchange between the provider and the customer (Blazevic and Lievens, 2008).

Innovation is in service-dominant logic a desirable abstract concept not primarily visible by a company's novel tangible output, but it can enhance extant resources by combining organisational capabilities (Vargo and Lusch 2008:5). Service innovation (which, in the theoretical realm of service-dominant logic, is all innovation), thus has to find efficient ways for the supplier to participate in the process of resource integration and creation of value for the buying organisation (Vargo 2007:14).

Extending this service-dominant logic towards developing a more applied thought, Grönroos' (2011) so-called *service logic* as illustrated in Figure 3.1 is characterised by buyer-seller interaction, joint practice matching, and reciprocal value creation. These interactive qualities require a relationship justice as to resource allocation, procedural clarity, and information sharing



(see Chapter 4). Therefore, the provider's role in service logic is, like in service-dominant logic, to predominantly facilitate value-in-use and strategically engage in customer centric collaboration (Grönroos, 2011). The temporal qualities of ongoing business-to-business interaction he emphasises as a *promises keeping period*. In his logic, value is mainly created in use, the customer becoming the *value co-creator* (Grönroos, 2011; see also Vargo and Lusch, 2008). The result perspective in service logic at a time considers the perspective of finance and growth and the idealistic facet of dedication, embeddedness, and peace of mind (Grönroos, 2011).

In addition, Storbacka (2011) tries to overcome the very anonymous and theoretical level of service-dominant logic by examining patterns of extant practices of customer-centric solution provision. Value statements – up to value quantification of a proposition – and solution configuration are thus essential capabilities of supplier (Storbacka, 2011).

Grönroos and Storbacka thus address some of the drawbacks of service-dominant logic. Due to its fundamental and less practice-related approach, this paradigm inevitably neglects the complexity of industrial processes, socio-technological dynamics, and mundane collaboration practices. Therefore, service-dominant logic will not be set out for a deeper subject-related scrutiny in this thesis but only serve as a blueprint for identifying potential gaps in the research agenda.

### **3.4. Value proposition: the supplier perspective**

*Goods are value-supporting resources and service activities are value-supporting processes provided by the supplier. Both are used by customers in a process, where value is created by them for them.* (Grönroos, 2008)

The discussion about the distinction between products and services has been informed by systematic frameworks enabling an instrumental

categorisation. In business-to-business marketing, the product-service dichotomy has been attempted to be addressed by the introduction of hybrid offerings and the value debate of product-service blends (Möller and Cassack, 2008; Meier et al., 2010).

In high-technological realms of business-to-business exchange, commonly both goods and services have to be provided to fulfil a customer's need. According to Grönroos and Ravald (2011), the combination of the supplier's specialised skills and capabilities into a product and a service initiates an exchange relationship aiming at delivering value to the target organisation. As highlighted in Figure 3.1, this so-called value proposition then enters an intermediate realm of value fulfilment and is confirmed by the customer in successful value creation (Grönroos and Ravald, 2011). Products and services are thus converted into a quality where the customer will be in a better position than without them (Vargo et al., 2008). The common denominator between the original value proposition and the useful quality for the client is therefore a translation between the parties of what is perceived as valuable.

In the following, I will begin with this initiation of a value provision, the value proposition, and the beginnings of an innovation, the invention, which are both situated in the domain of the supplier.

#### **3.4.1. Products and services as a source of value**

Traditional industrial understanding sees the classical intra-firm product development of engineers yielding new products as the origin of comparative advantage in technological markets (Lusch et al., 2010:29). Goods have ever since Adam Smith (1776) been the traditional focus of the exchange debate. Particularly in the German market with its high technology offering portfolio informing this thesis' case studies, the prevailing perception differs much

from the latest developments of statistic figures, the corporate strategic focus for a supplier's successful business still being laid on tangibles. This goods-dominated lens considers industrial exchange to be centred round the tangible good passed over to customer organisations. Therein, services are seen as mere add-ons supporting the instrumentalisation of the core product (Abernathy and Utterback, 1978; Barras, 1986).

The traditional view centred round tangibles would hence imply that goods create the actual value for industrial customers, services thus taking the role of quality enhancing and efficiency promoting add-ons. In fact, Lindberg and Nordin (2008) still propose that the specific case of the high-volume, standardised commodity-style service is to be treated and marketed as a product in the classical sense. Their fundamental postulate of a goods-dominant logic applying to modules of services however mainly points to the abstract need for standardization and interoperability of such highly iterative services for increased manageability and comparability (Lindberg and Nordin, 2008).

As indicated above, the statistical data differ much from the common, product-centric, perception. Services have been found to be a major source of business revenue, up-and cross-selling potential and organisational competitiveness. In 2008, more than 70% of the German gross value generation have been achieved by services, with an organically increasing significance (Corsten, 2001; Meffert and Bruhn, 2003:15; Meffert, 2006; Möller and Cassack, 2008: 160; Statistisches Bundesamt, 2011).

The actual distinction between services and goods was traditionally characterised by four dimensions (Barras, 1986): immateriality of services, heterogeneity, inseparability of production and consumption, and perishability (*IHIP*). Due to novel developments and the availability of virtual technologies, however, the delimitation has increasingly become difficult, if not impracticable. Some researchers therefore eliminate the steps between

products and the (mostly accompanying) services.

One of the approaches attempting to overcome this duality dilemma is that of the *hybrid* product (Möller and Cassack, 2008). A hybrid – the service-accompanied product or the product-accompanied service – may explain some of the market mechanisms in a high technology industrial environment (Möller and Cassack, 2008). In order to sell, quantify, and put a price on services, researchers have for instance drawn on transaction costing for simplification (Gadrey, 2000; Callon et al., 2002; Baldwin, 2008). For facilitating the theoretical consideration, the combination of specialised skills and capabilities, be they tangible or intangible, are seen to be product-like. This hybrid state of pragmatic forward integration is achieved by a temporary stabilisation of most characteristics (Wise and Baumgartner, 1999; Goffin and New, 2001; Davies, 2003; 2004; Langlois, 2006; Baldwin and Clark, 2006:15; Davies et al., 2006).

Contemporary strategic options for supply shift the focus from goods and services towards the promise of a quality or availability (Spring and Araujo, 2009:451) or a *service-product* (Spring and Araujo, 2012). Contracts specifying the performance rather than the deliverable particularly for long-term buyer-supplier relationships have been superseding the strict enumeration of tangible and intangible units of trade altogether (Baines et al., 2009). Consequentially, products as hybrids are neither fully owned or leased (Lovelock and Gummesson, 2004). In performance-based contracting, the product-service-dichotomy recedes in significance as it rather blurs than clarifies the vision on key drivers in exchange (Lovelock and Gummesson, 2004; Lindberg and Nordin, 2008; Grönroos and Ravald, 2011).

There has been scholarly affirmation of the *hybrid* thought, in particular originating from product-supporting services, in field studies. Jacob and Ulaga (2008) found in an empirical investigation with ThyssenKrupp (an organisation very similar to company A) that all tangible goods can be seen

as the inducement for associated and inherent services. As capital intensive industrial equipment becomes increasingly complex and durable, the simple selling and replacement of machines and technologies recede as guarantors for non-cyclic revenues of a supplier. Conversely, repair, maintenance, and advanced services gain importance, leading to a better exchange margin than staying in the product range and to a higher overall revenue (Stremersch et al., 2001; Meier et al., 2010; Lin et al., 2012). In the installed base, such a preliminary validation may also necessitate the analysis of the spectrum of voluntary, so far mostly uncharged helping hand (Bullinger and Meiren, 2001:153). These gratuitous services can induce an additional offering outside the customer base and the set-up of an according pricing catalogue for all clients (Rösner, 1998:154; Möller and Cassack, 2008:169). Without those (formerly) voluntary services, an exploration of business potential for a product-centric service blend would be much less efficient and focused (Bullinger and Meiren, 2001; Lin et al., 2012).

The trend towards product-centric hybrids has been accelerated by the rapidly developing electronic, mechanic, information, and telecommunication capabilities (Lin et al., 2012). By these technologies, the mediation into an overall product-service-integrated offering portfolio is facilitated, mediated, or even enabled altogether (Geum et al., 2011).

Therefore, as already depicted in the introductory chapter, the value offering constituted by either product or service – is to be extended by customer-centric processes and stabilisation of the exchange. These will be discussed later in this chapter.

### **3.4.2. Invention as a source of value**

Industrial innovation has been named as the major driver for economic growth and well-being among German experts (Wirtschaftswoche, 2012). The processes and mechanisms by which value is actually generated and

experienced particularly in innovations are however still considered as under-researched (Kersten et al., 2006; Möller and Cassack, 2008:170).

According to van de Ven and Poole (1990: 317), the process of innovation is defined as

*motivating and coordinating people to develop and implement new ideas by engaging in transactions (or relationships) with others and making the adaptations needed to achieve desired outcomes within changing institutional and organizational contexts.*

This definition depicts how the establishment of a new, desirable state is dependent on people, their ideas, and motivation. Mechanistically, Hauschildt and Salomo (2007) consider both sides of a supplier-customer dyad as potential initiators. The supplier may push an invention onto the market which then reacts with acceptance and exchange. The customer thereupon signals need and seeks to reap innovation capabilities of a suitable supplier in a demand pull. Typically, however, a joint industrial invention-to-innovation cycle will entail a blend of both availability and request (Harrison and Kjellberg, 2010).

Particularly in markets where attractive switching alternatives are available for the customer, the construction of a powerful and comprehensive innovation network will thus be a pivotal criterion for success (Michel et al., 2008:57; Augusto and Coelho, 2009; see also Chapter 2).

Where strategic emphasis is posed on synergistic new development with a set of target companies, the supplier should therefore rely on exposing differentiated resources, skills, and capabilities pertaining both to operations and joint innovation (Gebauer, 2008).

What makes a high-technology company an actual provider of value? To explore this question, Matthysen and Vandenbempt (2009) draw a distinction

between process and application suppliers.

Process suppliers tend to stay in the vicinities of their capabilities and their offerings are commonly less venturous but also less radical in their novelty. Application suppliers deliver a whole set of problem and process solutions and more deeply interfere with the customer company's processes. Knowing the operations across boundaries, such a provider may over time reach the most efficient level of the super customer bond (Matthyssens and Vandembemt, 2009). This potential is established by the employment of high-cost personnel which is sophisticatedly scheduled in order to keep cost at an affordable level (Schmitz, 2008).

Grönroos (2011) further distinguishes between the supplier's activity of value generation - which may or may not lead to successful operationalisation of the offering for the customer – and the actual creation of value-in-use by the recipient, albeit mediated by continuous service provision of the supplier. This value facilitation according to Grönroos (2011) makes both parties gain a competitive edge and therefore requires strategic focus.

### **3.5. The interstice**

After looking at the supplier's perspective, this chapter moves forward into the customer's direction and considers the interstice as depicted in Figure 3.1. Products, services, and hybrids thereof are further transported along the value chain in a value fulfilment process called servitisation. The particular process of innovation in this interstice takes place in an aligned setting. This grown quality enabling an ongoing social construction of technology in a particular collaborative realm the IMP tradition has been set out as an intrinsic network value (Ford; 2011).

*[T]echnologies change organisational and occupational structures by transforming patterns of action and interaction. [...] Alignment of technology and structure begins with micro-social processes triggered by new*

*technologies and traces structural changes upward from below (Barley, 1990:63).*

Recent research has been linking technical and social phenomena for explaining the industrial *associations* or *network of actors* (such as in *Actor Network Theory*; Dolwick, 2009:36). In a network, the *alignment of technology and structure* set out by Barley (1990) is thus mainly negotiated and coordinated in the interstice between the supplier and the customer in a network dyad as outlined in Figure 3.1. It is this alignment which will successfully convert an invention into a useful tradable entity, the innovation.

The ability to innovate has been found a key quality which is highly desirable for positive business performance and continued differentiation and therefore competitiveness of both supplier and customer organisations (Salunke et al., 2011). Customer-centric new developments require the creation, preservation and continuous adaptation of the inventing parties on the one side and the designated beneficiaries on the other. Some of the extant literature even considers innovation only possible in cooperation (Siguaw et al., 2006).

These realms may command quite diverse traits and are often difficult to reconcile. Especially innovation networks are often coined through heterogeneity, uniting different cultures and meaning systems into a collaborating dyad. These diverse characteristics of counterparts may originate from different sources, like goals, core competencies, power and wealth, and customariness (Corsaro et al., 2012). Such innovation liaisons unite business companies of diverse industries, geographical location, size, and technical maturity (Ramos et al., 2011). Where fundamental inventions are sought to be made marketable, academic and scientific institutions often collude in knowledge transfer partnerships (Doloreux, 2004).

Effective value provision, innovation, and continuous synergistic exchange in a business-to-business environment generally characterise a desirable,



aligned, constellation within inter-firm collaboration, created in a mutual approximation called *alignment* (Claycomb and Frankwick, 2010). This process spans the organisational gap between a supplier's invention and its operational application, the innovation (Agarwal and Selen, 2009).

To initiate such an alignment and reap potential benefits, the customer chooses to source certain qualities externally. Theoretically, two distinctive paths contribute to the success of any innovative venture: a technology push where the sheer availability of newly invented possibilities stimulates demand and a demand pull fulfilling an already extant purpose, like cost reduction in the target industry (Damanpour and Gopalakrishnan, 1999:62; Hauschildt and Salomo, 2007:3). Practically, the dynamics of innovation adaption will comprise a blend of the two (Keh and Xie, 2009).

As set out above, these criteria have to be formally specified and delimited as products, services, or performance indicators, in order to become a tradable entity (Slater, 2002:110). This delimitation and specification is initiated upon entering a dyadic relationship with the designated or potential supplier. The effectiveness of this consensual process relies on a joint cutting out – semiotically: *découpage* – of a viable offering which is assumed to mobilise the desired effects towards the target organisation. An effective bilateral exchange will thus succeed only if the supplier can *découper* – cut out – and present the preferable specialised skills and capabilities (Slater, 2002). Entities are not yet exchanged but characteristics and inventions displayed (Cavalli, 2007). Thus, the interstice contains a mutually mobilised set of potentials and claims, selectively on a flat display of originally complex givens (Latour, 1986).

Tangible products, if involved in the alignment process, become highly flexible – partly social – objects, tradable goods, which also tend to be *découpés* to simplistic signs. This process has been labelled disentangling (Slater, 2002:107; Finch and Geiger; 2010). Similarly, goods entailing a new invention are converted into innovative products which are stabilised within

the new or extended environment where they become effective. Any subsequent black-boxing, as a product, a service, or simply a piece of information to be exchanged, is both a social and an economic process (Callon and Latour, 1981:285). Thus, abstract value propositions are converted into transactable entities (Slater, 2002:111).

By these mechanisms, the desirable qualities of a beneficial exchange and, in particular, genuine innovation, are bilaterally negotiated by recombining perceptions and experiences inter-subjectively. Much of the initial flat display is left to interpretation and has to be stabilised (I will lay forth this thesis' interpretive paradigm in Chapter 5). Normative knowledge – jointly agreed symbols and wordings – is relevant for this collective *sense-making*. The abstraction and symbolisation taking place in the dyadic interstice can be seen as socially constructing technology. Actors negotiate and politically translate facts, artefacts, and devices as technical objects integrated into the semiotic context, thus generating common symbols laden with proprietary meanings (Barry and Slater, 2002; Helmhout et al., 2004; Prell, 2009).

This joint socio-technological sense-making, if successful, can lead to harmonisation through *closing* of norms and rules. This pragmatic translation enables further effective alignment of formerly incommensurable value systems (Cavalli, 2007; Prell, 2009; Storbacka and Nenonen, 2011).

An illustration of these fundamental alignment concepts in the literature together with their proponents is summarised in Table 3.a in the appendix. These phenomena, according to Hald et al. (2009), most likely occur in a constellation of mutual attraction, an active choice of dyadic partner delivering good quality in an atmosphere of sincerity and sympathy. It is through a linguistically induced and enacted lens that no objective foundation for decisions, communication, influence, and lastly even human identity is possible and an only inter-subjective industrial relationship facticity is established (Ellis and Hopkinson, 2010). For sense-making, language thus assumes the central linking function between reality and knowledge (Lowe et al., 2008; Ellis and Hopkinson, 2010).

The dilemma will be that the joint sense-making will never be exhaustive. The pragmatic balance between exploration – further refining collaboration – and exploitation – stabilising a certain state and reaping the benefits thereof – has to be maintained (March, 1991).

So which overarching landscape does most accommodate the need for high technology innovation? Colville and Pye (2010) assert that the IMP group's view on industrial networks as set out in Chapter 2 facilitates the exploration of novel business exchange. Such a network consists of loose, actively chosen, dyadic ties between partners with some common interest and typically involves cross-organisational divisions and many further suppliers. In particular, such a network's longitudinal perspective creates a fostering context for making inventions mature towards applicable innovations (Coleville and Pye, 2010).

### **3.6. The customer perspective**

Having covered the supplier perspective on products and services and the alignment in the interstice in a business-to business dyad, this chapter considers the customer's stance as represented in Figure 3.1. The offerings jointly generated in the intermediate realm between the exchange partners are confirmed as valuable by the client. The *useful value* is created on this side; it is determined both by a positive business outcome of the customer operations and the preferences and perceptions of the client's staff (Ford, 2011). This way, the innovativeness and value-in-use introduced by the supplier's inventions and joint alignment in particular is confirmed or refuted (Cavalli, 2007).

#### **3.6.1. Value-in-use**

For business operations, the successful generation of value is seen as a main source of success (Horváth, 2006). The transition from intra-firm

development to sales and marketing with and for the industrial customer as pointed out in Chapter 2 on networks therefore requires micro- to macro-innovative efforts for creating value for the target organisation.

Scholars have found that the least common denominator for value-in-use is the successful combination of potential, processes, and outcome (Corsten, 2001:22; Bruhn, 2004:19; Möller and Cassack, 2008:163). This value is congruent with the value-in-use postulated by Marx (1962) and is reflected by the more general and fundamental postulate in the service-dominant logic introduced above (Vargo and Lusch, 2004).

The customer organisation is shielded from the supplier by the interstice in which the exchange is prepared. The product-service blend refined and adapted by mutual negotiation is the actual outcome which passes the boundary towards the target operation. From the customer organisation's perspective, the value realised is measured by operational data, like an increase in downstream business, or assessed through implicit criteria like personal satisfaction (Horváth, 2006:553).

The perceived characteristics of the value offering are thus primarily assessed by a customer's weighting of the actual deliverable versus the promised qualities and characteristics. However, the degree of risk moderates this perception, a particularly high uncertainty negatively impacting the impression. This risk is seen as most imminent in first-time encounters (Parasuraman, 1998:312; Mitchell, 1999; van der Valk et al., 2009:817).

Over time, this initial risk is mitigated. As the customer continuously express and refine their needs, the provider company gains experience and improves the offering over time, thus reducing risk for the recipient organisation (Wynstra et al., 2006: 490). Therefore, a repetitive delivery of desirable qualities will improve the client's impression of useful value as much as of

manageability and is considered as particularly desirable.

Van der Valk et al. (2009) have accordingly been scrutinising the customer's hybrid product-service experience with regard to the degree of repetition. Modular services with pre-built, semi-manufactured product packages for further customisation make only the on-site tailoring visible (see also Kaplan and Anderson, 2003; Möller and Cassack, 2008:172). Instrumental services refining a customer's operational processes, strategies, or configuration, like strategic revision activities, are typically punctual and collaboration intensive, thus creating high awareness.

Of particular industrial interest, product-supporting component services entail the positioning of the supplier's staff, ancillary equipment, and processes on a customer's production site. The socio-technical interaction routine arising thereof guarantees a high appreciation of the input process and its outcome (Van der Valk et al., 2009).

In contrast, consumption services predominantly enhance a client company's supporting functions. Such a value offering in the form of on-site machine provision and operations is acknowledged but taken for granted after some time (Wynstra et al. 2006; Ellram et al., 2008; Van der Valk et al., 2009: 810).

As indicated by the dilemma of predictability, the lack of appreciation of pure services compared to goods may in addition relate to their less deterministic nature. Rather than a stabilised quality, services are considered as an input with some potential. The more the recipient organisation participates in the value creation process, the more the outcome will be deemed controllable (Meyer, 1991: 198; Woratschek, 2001a: 265; Möller and Cassack, 2008: 163).

In their logic of complex services, Neely et al. (2011) postulate the *co-creation* of sophisticated technologies within the contracting timescale. Value-

in-use is thus the combination of success experienced by the customer for in-house operations, downstream trade and business development, combined with a minimised risk of the input provided by the supplier.

### **3.6.2. Innovation as a source of value**

In a traditional, goods-dominated, industrial paradigm as set out above, innovation comprises the development of products incorporating new technologies. The static qualities of the thus developed new good have traditionally been deemed more important and value-generating than the development and supporting processes. Moreover, any subsequent innovation on the same good would only contain a process reaping additional advantages of the original unit of exchange (Abernathy and Utterback, 1978).

In the high-technology realm, however, activities supersede actors and resources in economic significance in an innovation-driven industrial situation (Håkansson and Snehota, 2006b: 273). As Håkansson and Snehota (2006b) state, the actual alignment becomes more important than the preceding processes of selecting network partners and resources. By the mutually negotiated social construction of technology, the identity of a company is coined and reflected within the framework, with new core capabilities being acquired and existing ones reinforced (Håkansson and Snehota, 2006: 261). This *transformation journey* is set out as a business activity in the logic of complex services (Neely et al, 2011).

Innovation is thus not simply an exchange through which objects are alienated, marketed, and transferred, but a meaningful interaction based on need and invention. This transformation process entails more than just monetary selling price, product, service, but a collaborative, or at arm's length, relationship learning. By gradually maturing synergies, the particular value-in-use derived from a customer-centric innovation in a business relationship can thus be reaped to its full potential (Augusto and Coelho,

2009; Fang et al., 2011; Ford et al., 2011).

### **3.7. The value research agenda**

In Chapter 2 and the previous sections, I laid forth some of the applied thoughts of the ARA model of the IMP tradition and how it considers the mutually adjusting activities in the network interstices approximated as dyadic.

Moreover, I set out the fundamental service mindset of the service-dominant logic scaffolding the realms where capabilities are combined into an offering and value is created in use.

Acknowledging the different generality levels of these schools, I nevertheless found them useful for determining the instrumental contradictions and overlaps in the extant body of research and reconcile some of their thoughts into a research agenda. The aim of this section therefore is to establish an instrumental overlap between the IMP school on the one hand and the service-dominant logic on the other. I will position my research agenda within this synopsis and explain my contribution, pointing to unresolved pluralities and potential overlaps in the aforementioned models.

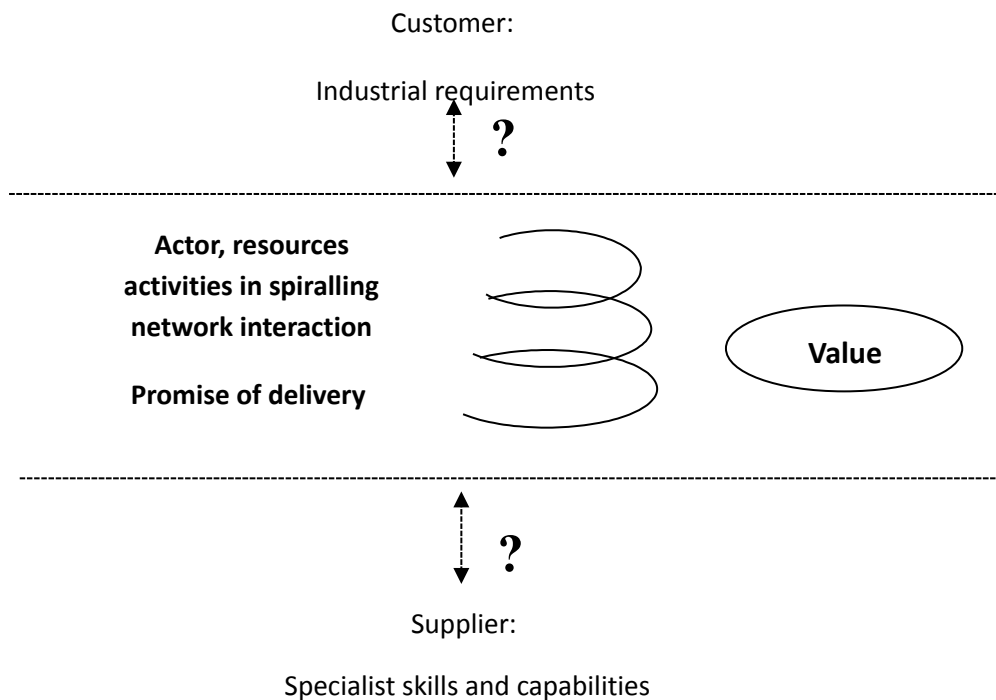
#### **3.7.1. Instrumental expressiveness of the IMP model**

As detailed in Chapter 2, the IMP tradition has been advocating the ARA model with its constituents, actors, resources, and activities, effectuated in a metaphorical industrial network (Håkansson and Snehota, 1995; Olkkonen, 2001).

In such a network's predominantly dyadic and often symmetric nodes between participating actors, a shared perception of relevant business

activities and attributes prevails (Henneberg et al., 2010). This jointly created common realm where resources are shaped and exchanged by activities is seen as the locale of the network's capabilities transporting the promise of value generation and exchangeability (Matthyssens and Vandenbempt, 2008; Srai and Gregory, 2008; Mouzas et al, 2008).

The spiralling refinement mechanisms for this beneficial potential include politics, social interaction, and formalities (Olkkonen, 2001). Dialectically, this internalised visualisation exerts further influence on the complex interaction processes in the business domain and thus results in *insight* and the according phenomenological output (Mouzas et al., 2008). Sterically drawing on Grönroos' service logic (Grönroos and Ravald, 2011; see Figure 3.1), the network interaction model's constituents are outlined in figure 3.2:



**Figure 3.2: Visualisation of the IMP network interaction model (own representation)**

Both the supplier and the customer envision the wider network as well as the promise of delivery, the value, in their common dyadic realm. This information and sense-making results in further action and review activities in the



amalgamation process (Mouzas et al., 2008).

However, the question remains how value generated as a promise of delivery in the interstice, reaches and ultimately benefits the customer. How is the promise of delivery converted into unilateral input? By which criteria is the effect on the target organisation verified (Storbacka, 2011)?

A similar challenge, also from without the dyadic intersection, in my view is the incorporation of further resources, e.g. from innovation niches existing in the wider network (Möller, 2010). How do jointly created domains of network interaction embody new developments and mobilise these for further tradeability?

The constituents of the IMP network interaction model visualised in figure 3.1 is sterically congruent with the service-dominant logic's exchange model (see figure 3.2 below). Contrasting both concepts, however, I see a divergence in the above network thought and the ARA thought's interaction mechanisms in a dyad. These are indicated by question marks in the drawing of figure 3.2.

### **3.7.2. Instrumental expressiveness of service-dominant logic**

As set out earlier in this chapter, the service-dominant logic can be seen as a rigorous, paradigmatic theory pointing to the question of actual value and the role of human intervention therein. Although this thesis will undertake a phenomenological scrutiny on a much more applied level, I found this conceptual school useful as a mental catalyst for abstracting and ordering my initial research questions and driving them further in explaining and discussing them with my industrial respondents. The basic thoughts of the customer enacting a proposed value and the fundamental propositions of Vargo and Lusch (2004) forced me to think in a more abstract direction

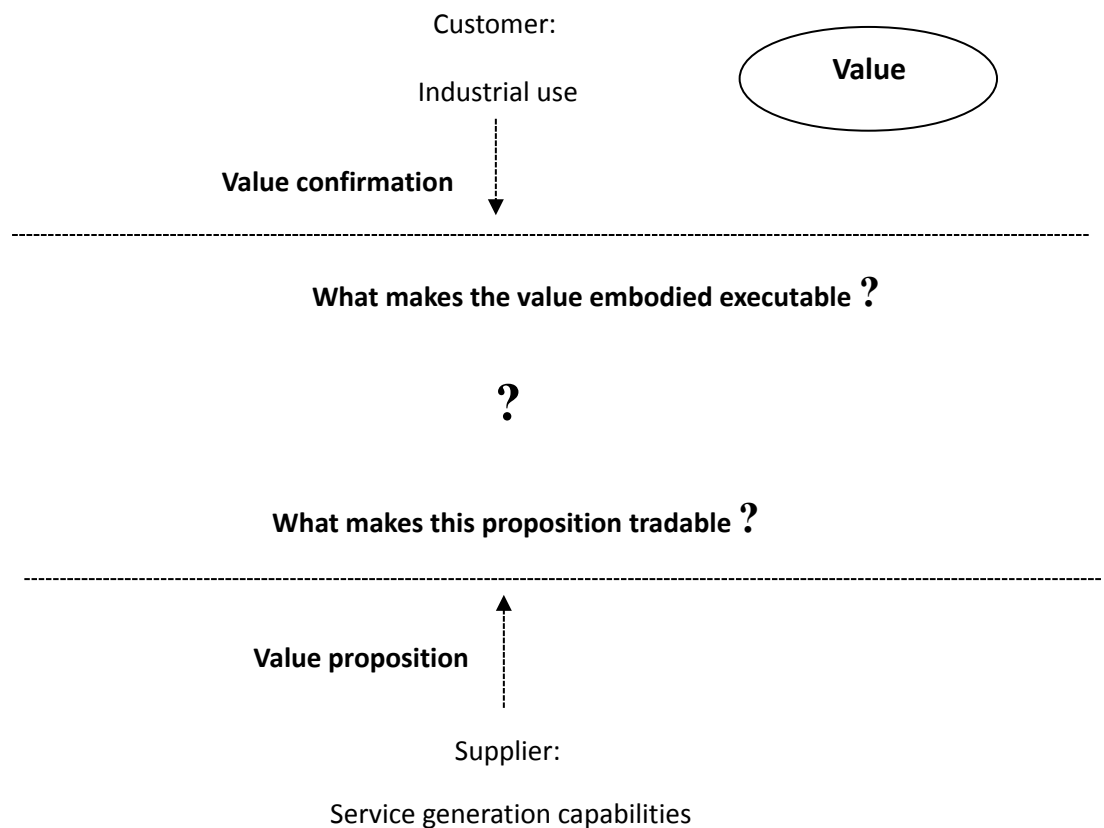
before doing research in a field which I already intimately knew. This thesis is therefore not aiming at a contribution to service-dominant logic which, like the metaphorical catalyst, remains the same after utilisation.

Like the IMP model, albeit less of a practical framework than a paradigm, the service-dominant logic has also received prominent attention in scientific scrutiny (Vargo and Lusch, 2004). In the fundamental view, rich ongoing exchange is seen to lead to an enacted mutual interest with a commonly constructed niche in inter-organisational reality (Vargo and Lusch, 2008:7-8; Vargo and Lusch, 2011). Similar to the IMP group's model on ARA outlined above, this influential academic brand (a term coined by Cova et al., 2009) is thus anchored in the idea of the joint social construction of technology.

For an exchange to take place, service-dominant logic argues, a supplier combines special capabilities and resources and makes an offer, a value proposition. Conversely, the customer examines this offer as to its potential value for their operations and trade, as an actual counter-value with regards to company-specific, temporary, and peculiar circumstances. Hence, customer orientation is at the core values of the service-dominant logic. The need for integration on various levels and ongoing interaction points to stabilised customer-bonding characterised by bi-directional transfer of tangibles and intangibles and clearly defined roles (Morgan and Hunt, 1994; Michel et al., 2008:54). The service-dominant paradigm thus considers the combination of specialised skills into marketable services a core activity for any unit placing an offering (Vargo and Lusch, 2004).

In synergistically moderating and informing an exchange from the supplier, the customer becomes a *co-producer* (Vargo and Lusch, 2004). Materiality recedes in significance against associated and inherent services, which in the IMP thought is seen as the actual benefit of the designated recipient (Lusch & Vargo, 2006).

As the constituents of the service-dominant logic's exchange, if visualised for dyadic exchange, is sterically congruent with the Grönroos' service logic (Grönroos and Ravald, 2011; see Figure 3.1) and IMP's network interaction model (see Figure 3.2), the according service-dominant concept can be depicted as follows:



**Figure 3.3: Visualisation of service-dominant logic interaction model (own representation)**

As indicated in this interpretation of service-dominant logic (figure 3.3), the rich spiralling interaction taking place in a common realm in the IMP approach (figure 3.2) is replaced by an abstract harmonisation of value proposition and value confirmation leaving open a projection surface. Although this sequence is iterated across subsequent instances of exchange, its social and political dynamics accompanying economic and technological alignment are not apparent. What is happening in the interstice between the

two arrows in the picture?

The questions arising from the question mark's position in Figure 3.3 yet to be more thoroughly covered, *caveats* in the service-dominant logic's understanding are therefore the following:

How can, in such a quasi-formalised iteration of value proposition and confirmation, dedication, altruistic information sharing, and continuance intentions from both the provider and the customer, be ensured and optimised? What makes the difference between decoupled value offering, feedback, and acceptance, and genuine synergies? How can frustration or exploitation arising from misunderstandings, resentments, and conflicting goals of individuals respective to their groups in such a relationship be prevented or mitigated?

Moreover, the narrow definition of value, which in Vargo's and Lusch's (2004) claim, can only be generated in use as indicated by the oval in Figure 3.3 may be a faceted and even contradicting quality within one customer organisation (Macdonald et al., 2011). Value-in-use for the beneficiary may predominantly be represented by increasing competitiveness, revenue, and higher profitability as the value proposition is accepted. The individual within the same customer firm may however experience peace of mind and ease of personal tasks as the essential benefit (Macdonald et al., 2011: 677).

On the supplier's side, the question of stabilisation of the offering into a tradable good or invention and its transferability across organisational boundaries arises. By which complex arrangements of specification, feedback, delivery and utilisation can actors achieve an objectification into an entity to be traded (Grönroos and Ravald, 2011)?

In summary, though it addresses major crucial parameters in industrial customer orientation, the service-dominant logic's consideration shows much less symmetry than its IMP equivalent. This obvious difference in two models

describing basically the same phenomena in my opinion points to an issue still to be reconciled by an overarching model.

### **3.7.3. Instrumental overlap of both approaches**

One of the most significant differences between the models of the IMP group and service-dominant logic, as visualised in Figure 3.2 and 3.3, is the locale of value generation. The fundamental processes of harmonisation of goals, information transfer, establishment of continuance, and delivery are basically implied in both models as an essential insight confirmed by contemporary academics. However, the actual value generation is placed into diametrically different positions in these two models.

The benefit realised in exchange in the IMP thought is clearly constituted by a promise positioned within the collective realm bearing its own dynamics, conscience, and joint knowledge (Mouzas et al., 2008). The initiation and change, continuance or termination, beneficial input or sanctions the actors exert on the common realm from without are yet not sufficiently covered. How can a symmetric interaction be maintained in political and social dynamics, disparity of financial power, or scarcity of resources? What are the drivers leading to contribution and continuance? How can positive attitude, of individuals and groups, towards the common realm be established and fostered?

In service-dominant logic, conversely, the quality of an offering can only be leveraged by the customer, in utilisation towards the recipient's corporate goals. This discrepancy is illustrated by the oval-shaped value inscriptions in the respective drawings.

So the dilemma identified in comparison of both concepts leads to a central question of my thesis: Where is value actually generated, how is it brought to action? Are the both models contradicting or complementing? Which types of

value, if there are multiple, are possibly implemented? Who determines what is beneficial and how can this benefit be maximised? The absence of what kind of value would be perceived as failure?

The answer to these questions may also contribute to the insight into the issues raised in the previous sections, as to expectations in a dyad, tradeability of value, and leverage of synergies.

Lately, scholars have tried to address this dualism. Macdonald et al. (2011) distinguish quality of service, relationship, network, and usage process (Macdonald et al., 2011: 677) – the equivalent of the IMP group's notion of value (Ford, 2011) - and the value-in-use as literally advocated by service-dominant logic (Vargo and Lusch, 2004).

Equally, Storbacka (2011) recedes from some of the ARA model's aspects, highlighting additional service-dominant informed facets in the IMP discussion. Stepping down from the school to the phenomenological level, the author addresses both the value promise positioned towards a producer's organisation and the actual value of the delivered solution. Though the practical insight thus gained virtually comes to a halt at the boundary towards the customer organisation, and moreover still draws a very anonymous picture leaving out conflicting interests and politics, only by further deep observation in the field seemingly contradicting concepts become reconcilable (Storbacka, 2011).

### **3.8. Conclusion**

In this chapter, I reflection on value and its discussion in history and set out a basic service paradigm both shared by IMP and SDL in the extant literature.

In this chapter's main sections, I showed that value is still a major area of research which is deemed under-researched by scholars. This thesis' research agenda follows the predominant flow of goods and services as outlined in Figure 3.1, I highlighted the goods- and service-related activities and the concept of hybrid services.

I introduced how, in customer-centric product and service abstraction, a dyad copes with socio-technological ambiguity. By mutual alignment mechanisms, the literature declares, the transition from invention to innovation will generate a particularly dyadic quality which has found to be yet under-discussed by current research.

The so-called value-in-use has been found to be the most influential quality in assessing the result perspective of trading products and services. This useful value will, according to the extant body of literature, also decide whether an invention merges into an innovation.

This chapter also emphasised the ARA model and the – purely catalytic – thought of service-dominant logic. Methodical frames for the value related research questions, I depicted the instrumental significance and overlap of IMP and SDL and positioned my research project relatively to the illustration of extant research.

# Chapter 4



## **4. Justice and Temporality**

### **4.1. Introduction**

This chapter will cover the extant literature on justice and temporality in the immediate industrial network. It will show how distributive fairness of network outcomes over time affects the long-term relationships. Moreover, it will point to procedural justice as an important trait of networking activities.

Drawing on the body of literature, I will lay forth how justice is assessed by actors. A common network memory accumulates these instances of justice or injustice and further influence the collaboration. Pace and the degree of long-term thinking in a joint project influences this accumulated perception.

Moreover, I will show how satisfaction with the overall justice in a network relates to the relational contract. This beneficial attitude continues the intent of the juridical contract of common networking objectives and desired outcomes thereof. I will point to the under-discussed issue of contracts and of this thesis' research agenda derived thereof.

## 4.2. Justice

*It is well documented that individuals can coordinate their behaviour to mutual advantage even if doing so requires different individuals to perform different actions and receive inequitable rewards. [...] Correlated equilibrium has the potential to capture the coordination of behaviour through the observance of rules and conformity to norms.[...] In equity of opportunity, [...] the distribution of roles within the group can be seen as fair, and equity of expected payoff, [...] outcomes can be seen as fair (Cartwright and Wooders, 2007). Conflict-free social and economic transactions depend on trust and the absence of malfeasance (Granovetter, 1985:484).*

In this thesis' introduction, I set out a research agenda towards the equilibrium in business-to-business network exchange. Reviewing the first fundamental sources of literature, it became clear that I had implied a correlated equilibrium informed by embeddedness as set out by Cartwright and Wooders (2007) rather than the Nash equilibrium making assertions in a turbid environment. The discussion with other scholars (in particular Ford, 2011) reinforced my impression that the equilibrium-related field of scrutiny would lead to the socio-economic discussion of justice and fairness.

The benefit of networks as the nowadays popular form of looser coexistence and co-operation can be seen in the relative voluntariness of relationships, with a special quality of *active trust* (Wittel, 2001). The assumed link of relational factors to a complex readiness for rich collaboration lays further focus on the question of personal and group-related agendas.

**Table 4.1: Governance and control mechanisms for business and private processes**

	Intrinsic governance	Extrinsic governance
<b>Business processes, Public processes, Non-familiar processes</b>	<p><b>Relational contract (Macneil, 1980)</b>            Influence/power drawing on relational sources*:            * <b>Justice (allocation mechanisms = desert, need)</b>            * Alignment (see Chapter 3)</p> <p><b>Voluntariness</b>  <b>Altruism</b>  <b>Conscientiousness</b>  <b>Social norms for courtesy</b>  <b>Voluntary information sharing</b>  <b>Voice</b></p>	<p><b>Juridical contract</b>            Power drawing on material sources (see Chapter 2)*:            * Company size            * Know-how, technology            * Financial power</p> <p>Laws            Industry norms  <b>Norms for/ contractually enforced information sharing</b></p>
Private processes, Familiar processes	<p>Attachment            Altruism            Voluntariness</p> <p>Justice (allocation mechanisms = need, equality)</p>	<p>Social laws            Marriage contract            Common law</p>

\* drawing on Meehan and Wright (2012)

The synopsis in Table 4.1 depicts the differences and commonalities of non-familiar and private processes. The upper part of the matrix, valid for business-to-business realms, equally serves as a frame for this chapter's agenda on justice. In particular, the terms in bold will be laid forth as to their coverage in the literature to further illustrate the process-related phenomena in industrial networks I recognise as relevant for this thesis.

Why justice and correlated *equilibrium*? Fully performing networks have been found to entail highly reciprocal relationships, every effort resulting in compensation or a responding effort in the long term (Johanson & Mattson, 1987; see Chapter 2 on networks). Justice and fairness, which are used

synonymously in scientific literature, have been recognised as an increasingly important complex replacing the face-to-face bound principle of morale especially for business, public, and other abstract exchange (Colquitt et al., 2001; Dux, 2008). Griffith, Harvey and Lusch (2006) point to justice as a necessary quality in the exchange mechanisms as advocated in service-dominant logic. Current research has also found the negative implications, injustice in joint operations and developments causing conflicts and putting formerly unproblematic relationships at risk (De Cuyper et al., 2011).

Continuously reinforcing its beneficial effects, justice provides the rules and principles to be drawn upon when facing everyday decisions in the triangle of individual goals, necessary co-operation with others, and the risk of exploitation (Fetchenhauer et al., 2010).

However, not all beneficial interaction is voluntary. As set out in Table 4.1, there are also external sources of governance in business-to-business activities. A productive attitude is often enforced by the alternative mechanisms of formal contracts, rules and laws, and the materially founded power of dominating actors (Fiske, 1993; Fetchenhauer et al., 2010; the role of the formal contract is explained later in this chapter). These extrinsic sources of control are often seen to command more factual strength, as they may be legally claimed and their non-compliance more efficiently sanctioned (Ott and Ivens, 2009). However, the embeddedness equally makes individuals seek social appreciation, harmony and approval, leading to a strong binding nature of ethical and societal standards. This self-regulation among persons or groups is reinforced by the risk of peers turning away or of *losing face* (Ott and Ivens, 2009).

#### **4.2.1. Distributive justice**

Societies, groups, and the individuals therein have always been concerned with justice. Originally an ethical and religious complex, the most deeply anchored principle which is also easiest to monitor has been that of equality. The basic notions of normative justice favoured by a plurality of an entire population are primary ones and enforced by the constitutional law and societal mechanisms (Lind and Tyler, 1988; Fetchenhauer et al., 2010). An according ethical foundation for negotiating and establishing fairness and reciprocity has been postulated for business-to-business relationships as well (Howard and Caldwell, 2010).

However, cultural traditions have also acknowledged the existence of more differentiated and thus individual entitlements. Such secondary constructs consider rational interests of social groupings and are thus mainly propagated by these (Liebig and Wegener, 1995).

The body of literature aims at establishing a systematic outline of constituents and characteristics of justice, making out different dimensions thereof. There is the resource-related, distributive justice on the one hand and the activity-related, procedural justice on the other (Van den Bos and Lind, 2002; Bock et al., 2005; Fang and Chiu, 2010). These types are often inseparably intertwined into an overall justice (Organ and Ryan, 1995; Gilliland, 2008; Patel et al., 2011).

The resource-related complex, distributive justice, offers a set of first-order social norms. It governs exchange of interacting partners, like trade and other reciprocal phenomena, and the allocation of resources which are distributed, e.g. by authorities. Firstly, there is the principle of equality in which every member of a social entity receives an identical share. It is the allocation mechanism first adopted in childhood, often applied in less important or

mundane distributive situations as well. The second, albeit currently receding, governance is that of claim, drawing on social entitlements and legal rights, in traditional families also on a senior age or stance, in some cultures on male gender.

More prominent is the third allocation mechanism, merit, frequently employed in employee remuneration and competitions for particular motivation. This principle draws on Adams' (1965) *equity theory* which purports that social actors should obtain adequate revenue (like salary) in proportion to their efforts (like labour).

Fourthly, distribution can be governed by need; this mechanism can be found in solidary health insurances, social welfare systems, families, and in other predominantly altruistic entities (Fetchenhauer et al., 2010).

A fifth principle, efficiency, to some scholars complements this list of four: therein, societal consensus is gained in a highly diverse setting by a sophisticated allocation of means (Scott et al., 2001).

These normative considerations of justice have been underpinned by empirical research. This scientific area examines why the idea of fairness dominates certain conditions in life more than others and how perceived justice governs various domains (Fetchenhauer et al., 2010).

Distribution based on power and the dynamics of supply and demand (as indicated in the right parts of Table 4.1) still drive contemporary societies (Fetchenhauer et al., 2010). However, research has been widely affirming the significant strive for justice in economic decision-making of every scale (Falk et al., 2003; signified by the left parts of Table 4.1). It has been particularly shown empirically that, as set out in Table 4.1, in non-private contexts there is a specific focus on attribution and distribution perceived as balanced by the participant actors (Fetchenhauer et al., 2010). The objectifiable as well as the subjective and emotional elements affect sentiments and consequential behaviour of individuals and groups such as the workplace behaviour of employees and the repurchase intentions of customers (Liebig, 1995;

Homburg et al., 2005).

In laboratory tests simulating the distribution of means and income, scholars have encountered ample manifestations of the inequality aversion in society. Academic findings suggest both a positive and a negative reciprocity, in which however the maximisation of the collective benefit has been acknowledged as a discrete goal of individuals (Engelmann and Strobel, 2004). In a mix of efficiency and equality deliberations, most actors make situated decisions indicating the competing influences of selfishness and embeddedness. The simulation of other participants' poverty has been found to influence the behaviour of women significantly, whereas men could not be manipulated (Scott et al., 2001).

#### **4.2.2. Procedural justice**

Apart from the equilibrium of distribution of means, an *enacted* justice has been recognised as a useful quality in socio-economic togetherness. This complex of fairness related to processes and activities, namely *procedural justice*, governs rich social interaction processes in particular. This principle ensures that every actor is considered in their dignity, need for participation, and curiosity. As a comprehensive source of fairness it has been segmented into three subcategories, processual, interactional, and informational justice (Lind and Tyler, 1988; Konovsky, 2000; Cropanzano et al., 2001; Fang and Chiu, 2010).

The first of these qualities has been labelled processual justice. It denotes the consistency of socio-economic processes over time and among the different actors affected. Like in court proceedings, bias arising from the diversity of individuals and groups has to be eliminated and the most

applicable procedure chosen accordingly. Processual justice is partly a primary notion of society inasmuch as it can be legally enforced, e.g. in the fulfilment of contracts and the adherence to non-disclosure agreements (Kernan and Hanges, 2002).

The second quality of procedural justice is called interactional justice (Colquitt, 2001). This quality addresses the voice and empowerment single and collective actors are given, the respectful politeness and the circumspection necessary in more difficult situations. Interactional justice is partially enforceable as a primary notion of justice, by human right laws such as the anti-discrimination act. As a secondary construct, it is commonly ensured by contracts and governance guidelines in the workplace (Kernan and Hanges, 2002).

The third element of procedural justice relates to information sharing. In hierarchic organisations, this concept determines how precisely and comprehensively individuals are informed by their superiors. In more equalising constructs, such as industrial networks, informational justice is established by granting each other insight in the latest findings, developments, and difficulties in order to establish subject-related transparency (Kernan and Hanges, 2002). Particularly in project contracts, the pace and quality of information sharing is commonly detailed in an important separate section (Software AG, 2000-2005).

Procedural justice has been acknowledged as an important principle in business domains and a pivotal quality for superior trade position (Brockner and Siegel, 1996; Noritz, 2011). This kind of justice has been found to compensate the anonymity of rules and regulations and establishing *system trust* by facilitation of responsibility and participation in decision processes (Adler, 2001).



The body of literature attributes a compensatory potential of procedural justice. In their concept called equality theory, Lind and Kray (2001) state that in cultures where belonging and harmony are comparably highly valued, the fact of being heard, e.g. in a business project situation, already leads to an improved acceptance of the conclusive decisions. This positive correlation is even observable when procedural participation does not alter the factual outcome of a debate (Lind and Kray, 2001, Meyer, 2001). The inclusion into the procedure symbolises social rank and trustworthiness within a group (Lind, 2001; Van den Bos and Lind, 2002). Folger and Konovsky (1989) call this fundamental appreciation of all actors is a *virtue [...] as its own reward*, fostering joint commitment and altruism and thus increasing overall motivation (Cropanzano et al., 2001). The actually perceived degree of justice will rise among actors even when they know their concerns or ideas will not be taken into account (Tyler, 1989).

The importance of this kind of fairness has been underlined by empirically linking justice judgements to employees' attitude towards their organisation. The mindset positively correlated to justice in the literature includes knowledge sharing, trust in and acceptance of superiors by the workforce, and an affected and committed labour attitude (Cohen-Charash and Speltor, 2001; Neves and Caetano, 2006 Asgari et al., 2008; Lin, 2008; Neves and Caetano, 2009).

Concepts as the *psychological contract* (Rosen et al., 2009), and workplace identification, as well as trust in members of an organisation have also been positively linked with the experience of procedural balance (Hubbell and Chory-Assad, 2005; Klendauer and Deller, 2009; Fang and Chiu, 2010; Heuer and Stroessner, 2011). The perception of the opposite construct, injustice, referred to as systemic injustice in organisations, may be provoked by e.g. erratic instructions, tolerance of presenteeism or social loafing, and systematic discrimination (Gilliland, 2008; Patel et al., 2011) .

In public domains, for example, there is strong indication that fair and transparent processes foster the readiness for reconciliation in a dispute and improve the acceptance of a verdict (Lind and Tyler, 1988:28). In employee relations, to name another example, surveys on the acceptance of unequal pay raises have shown that employees accept distributive justice based on the principle of merit if the process is made transparent (Folger and Konovsky, 1989; Bowen et al., 1999). Members of staff recognise their own fault more readily if they perceive the treatment as fair (Barclay et al., 2005). In the business domain, a similar acceptance has been found for price increases where the justification conveyed a reasonable explanation for the higher burden of the supplier (Rijlaarsdam, 2007; Khandelwal and Bajpai, 2012).

Recent findings of Van den Bos et al. (2010) have been reinforcing the indication of a higher significance of procedural justice over distributive justice. It has been shown that adhering to principles of neutrality, dignity of the individual, and voice, even unfair allocations are considered much fairer than without procedural justice. In masculine cultures like the US, a stronger relationship of formal, like distributive, justice with fairness perception prevails whereas in more feminine cultures, like the Netherlands (Hofstede, 2001). Having a voice and thus being granted interactional and procedural values influence fairness heuristics (Van den Bos et al., 2010). Conversely, the retaliation mechanisms arising from lack of procedural justice have recently been confirmed for organisational contexts (Zaheer, 2011).

These examples illustrate how socio-economic processes are governed by justice deliberations and influenced by justice-relevant facts in a blend of rationality and behavioural traits. The outcome of a business decision or the willingness to cooperate may thus be considerably affected by the establishment or absence of distributive or procedural fairness.

### 4.2.3. Justice heuristics

For drawing on the benefits of justice as just detailed by examples from the current body of research, industrial actors have to actually perceive it subjectively and in their own terms. Although some of the exchange constituents will be measurable (like monetary resources spent and revenues gained), the internalised synopsis of all facets of equilibrium – distributive and procedural justice – will determine the situated reaction thereupon. Research has thus gained wide evidence on a social intuitionist coping mechanism in justice-related human behaviour (Campbell, 2007).

Actors in socio-economic exchange – individuals and groups – make sense of the perceived *balance* in intricate situations. This mechanism is explained by the *fairness heuristics theory* (Lind and Kray, 2001). Extending the principle of equilibrium to both material and non-material dimensions of justice, Lind and Kray (2001) claim that an individual human fairness assessment is invoked with any social reciprocation. Based on the personal, collective, and political experience in a social context, a situated fairness index is calculated (Konovsky, 2000; Rosen et al., 2009).

This mostly internalised judgement process is cognitively rating chances of confidence breach or discrimination against economic incentives and dependence dynamics (Van den Bos and Lind, 2002; Gu and Wang, 2011). The accumulation of past events, lessons learned and the resulting knowledge, feelings and attitudes thus form the repertoire for this partly rational, partly affectively influenced, fairness heuristics (Van den Bos, 2003).

Liebig and Wegener (1995) have found the justice heuristics just described to apply in basic questions of society, involving more fundamental, first order, rational deliberations and inter-subjective consensual processes. Equally,

these justice assessment mechanisms take place in complex economic organisations, where structure and the specific culture lay the foundation for secondary notions of justice (Liebig and Wegener, 1995).

These fairness heuristics are co-determined by temporality and the intensity of a situation. Lind and Kray (2001) state that, for two or more justice-related events, the order in which they occur will set the paradigm for justice heuristics. Some scholars argue in the sense of social neuroscience that justice heuristics are accompanied by semiotic stimuli of threat (Van den Bos et al., 2008). Activating human alertness biochemically, such stimuli induce more drastic justice judgement mechanisms than regular processes. In individuals' histories, the related discrete events result in an aggregated fairness perception, which may ex post inform a more prejudiced cognition under similar circumstances (Dawes, 1998). Under this so-called *primacy effect*, the more negative experience preceding, a less favourable tenor will guide the judgement even in overall fair continuance situations (Lind and Kray, 2001).

In the business domain, an intuitive, emotion-based rating mechanism has been found by Haidt (2001), followed by posterior affirmation on rational motives for this judgement. Such interplay, often in a temporal sequence of irrationality and rationality, has been underlined empirically in post-consumption evaluations by Szymanski and Henard (2001). It has been described as particularly common in economic contexts (Falk et al., 2003; Homburg et al., 2005). Khandelwal and Bajpai found that the rational perception can however be provoked favourably by transparency in communication and a courteous behaviour of the customer. Price increases which were explained appropriately were received much more positively than those communicated without insignia of procedural justice (Rijlaarsdam, 2007; Khandelwal and Bajpai, 2012).

Powell (1990) details how networks in particular draw on justice-governed relationships involving human and subliminal means of communication. In such a less embedded context, ties can be more easily chosen and discarded. Accordingly, the motives inferred from others' activities are more readily answered by positive or, in particular, negative reciprocity (Kahneman et al., 1986; Homburg et al., 2005; Rijlaarsdam, 2007, Campbell, 2007; Falk et al., 2003). The qualities of fairness heuristics are much more prevalent in networks than in communities (Wittel, 2001; see Chapter 2). Therefore, conflict avoidance or resolution in any socio-economic web has to deliberately take into account the anticipated and experienced fairness of exchange and procedures (Powell, 1990).

The basic conditions of an allocation of means and opportunities are however often left in the turbid in real-life industrial situations. Is there more to be distributed than is actually known to an actor, and will others get a greater share at one's own expense? This fear constitutes a great dilemma, as nevertheless decisions and concessions have to be made to enable an industrial collaboration. This dilemma has been recognised as an ethical issue for consumer marketing by Takala and Uusitalo (1996) and, as of recently, in industrial marketing by Howard and Caldwell (2010). Drawing on Rawls' (1971) *Theory of Justice*, both groups of authors claim that an implicit standard has to be adhered to by the actor with the superior knowledge.

To cope with the non-transparency, allocation and reaction upon it is decided on in the face of a *veil of ignorance* (Rawls, 1971; Traub et al., 2005; Kroggel, 2007). Beyond the visible realm of collaboration external beneficiaries or unknown free riders may arrogate some of the outcome and new insight. This uncertainty inherent in any fairness consideration has to be taken into account (Irlenbusch, 2003; Falk et al., 2003).

As these outside actors may well be competitors or adversaries to the own

organisation, the invisible domain beyond the veil of ignorance is experienced as a threat. The lesser known the project partners, the higher will be the unease about their organisation-specific wider network and the more preliminary trust in the situation will be required to sustain a relationship therein (Howard and Caldwell, 2010).

The unknown realm beyond the veil of ignorance leaves room for an assumption of the respective partner in a distribution scenario. As Howard and Caldwell (2010) assert, positive inferred motives of counterparts find their expression in mutual trust. The willingness to cooperate even in turbid environment is therefore particularly dependent on the ability to overcome the doubts on the unknown realm beyond the veil of ignorance. In particular, in business-to-business marketing, a rich customer-seller relationship has to entail an experience of a fair joint history to make the buyer's justice heuristics more favourable (Howard and Caldwell, 2010).

The underlying fairness heuristics have been found by Rawls (1971) to follow the liberty principle and the difference principle. In an industrial network, Howard and Caldwell (2010) claim, these principles imply the maximisation of the liberty available to all business-to-business participants simultaneously, a thought represented by the liberty principle. Moreover, the equal chance for every actor to capitalise extraordinary benefit on the context is required so as for an allocation to be perceived as a fair (Howard and Caldwell, 2010).

More generally, Ford (1980) states that the pragmatic business-to-business goal is always the balanced return on the relationship as perceived individually. What will be assessed as an actor's fair share, mainly depends on the mixed rational and intuitive judgement on the cumulative experience (Ford, 1980). Both this judgement and the resulting behaviour are intricate socio-economic complexes which have been found under-researched for industrial networks in particular (Ford, 2011a).

#### 4.2.4. Justice-related research agenda

*The investment logic puts an emphasis on long –term relationships since initial costs can only be balanced by revenues generated over time. (Ford et al., 2010:92)*

*At a specific point in time, the distribution network has a certain structure with regard to the organization of activities, resources and actors.*

*However, a network is never static, nor complete, and it is never in equilibrium. (Hulthén and Mattson, 2010:171)*

IMP scholars have been less preoccupied by idea of an overall fairness in network dyads and the wider web so far. As of lately, they have been recognising the actors' respective need to balance their own expenses over time (Ford et al., 2010:92). As the exchange in industrial trade is reciprocal, this postulate would imply every actor to get their fair share.

Similarly, an equilibrial state has been theoretically considered and practically refuted for business-to-business webs by IMP research (Hulthén and Mattson, 2010:171). Even if such a (presumably correlated) equilibrium may seem to cover mundane matching of supplies and demand in an industrial network, it points to the necessity to reconcile mutual interests. These deliberations remind of the *third law of thermodynamics* which postulates that there can be no perfect maximisation of order.

The preceding discussion highlights the importance of justice deliberations and the relational contract as a lantern slide for collaboration theory. Scholars setting out research agendas have acknowledged the need to further scrutinise justice in the business-to-business domain (Griffith et al., 2006; Howard and Caldwell, 2010; Ford, 2011a; Tokman and Beitelspacher, 2011). Some significant justice-related theories and their scientific proponents are summarised in Table 4.2:

**Table 4.2: Justice-related concepts in the literature**

<b>Justice (General)</b>	<b>Authors</b>	<b>Explanation</b>	<b>Potential empirical indication</b>
Fairness Index	Van den Bos and Lind, 2002	Cognitive perception of the situated fairness balance	Project outcomes/effort ratio perceived as <i>fair</i>
Justice Heuristics	Van den Bos, 2003; Falk et al., 2003; Rosen et al., 2009	Subjective mechanism guiding situated fairness deliberations	Deliberations whether or not to continue collaboration in a given socio-economic setting
Primacy Effect	Cropanzano et al., 2001; Lind and Kray, 2001; Van den Bos, 2003	Coining potential of preceding justice-relevant events	Implying justice after prior incidents of fair behaviour
Veil of Ignorance	Rawls, 1971; Traub et al., 2005; Kroggel, 2007	Limitation to personal realm of judgement relevant information	The <i>wider justice</i> in a collaborative network, unknown beyond a point
<b>Justice (Types)</b>			
Distributive Justice	Brockner and Siegel, 1996; Traub et al., 2005; Fetchenhauer et al., 2010	Even allocation of means and risk; allocated by mechanisms of desert, need, equality, or equity.	Equal distribution of means, effort, risk, and outcome
Procedural Justice	Brockner and Siegel, 1996; Adler, 2001; Cropanzano et al., 2001; Colquitt, 2001; Neves and Caetano, 2006; Fang and Chiu, 2010; Noritz, 2011	Interpersonal justice, interactional justice, informational justice.	Dignity and courtesy, transparent processes, voice to everyone, flow of information
Group Value Theory, Voice	Tyler, 1989; Folger and Konovski, 1989; Lind, 2001; Van den Bos and Lind, 2002	Being heard as a procedural satisfaction per se, regardless the outcome.	High acceptance of an outcome after being heard, regardless of the factual influence



Drawing on these concepts, I have identified a considerable gap in the justice and fairness discussion in business-to-business research. This gap my thesis will address by covering the following issues:

How scholars perceive the creation and enactment of innovative industrial networks has been detailed in Chapter 2. These scenarios can be seen as a set of mutually related dyads which are synergistically aligned, claimed by the body of literature as shown in Chapter 3, interwoven into an embedded context which draws on situated adaptability.

An industrial value-adding relationship draws on mixed rational and intuitive heuristics of fair treatment in terms of distributive and procedural justice. Allocation mechanisms of desert and need, accompanied by their transparent communication, have been found to be a particular incentive. Moreover, the granting of voice is claimed to constitute a distinct quality facilitating knowledge sharing and enthusiasm for collaboration towards a joint effort.

The role of adequate compensation for an effort – distributive justice – has been found to be currently under-researched by the body of literature. It is still unclear whether short-term compensation is required or which time horizons an established network commands in this regard.

Field engineers, specialists, and managers face a technical and business-related uncertainty and perceive themselves as particularly vulnerable by the realm beyond the veil of ignorance. The role which procedural – processual and interpersonal – justice plays in rich collaboration has to be further scrutinised. I will analyse how such a fostering project environment is established and perceived and whether it potentially even complements or compensates distributive fairness. There is indication in the literature that procedural justice and *voice* may be the right answers to this perceived threat and ensure the goodwill of this thesis' initial claim. I will address this blend of

rational and less rational mechanisms of groups and single actors and contrast findings of both sides of singular dyads to further the knowledge on these complexes of justice.

This chapter's literature review reveals that the goodwill necessary for such a beneficial contribution to a business-to-business network implies positive reciprocity and an inference of benevolent intentions of counterparts. What are the approved recipes for balancing customer input, supplier input, and value and how are these achieved? How can a long-term distributive and relational justice be established and maintained? How do the facets of justice feed into the relational contract in an industrial network? How does lack of justice look like and what are the consequences?

### **4.3. Contracts in business networks**

*Macneil tries to describe a number of norms that can be observed in the practice and operation of contracts, thus constituting norms in fact. [...] We should however note that by using the term “relational” Macneil means two different things. Firstly, he means that every contract may be related to a given social context, a context that is very simple but even apparent even in mere transactions. Secondly, he means that some contracts, especially these concerning business relations, may involve a complex and on-going relationship between parties, a relationship that unavoidably influences the function of these contracts. (Diathesopoulos, 2010:18).*

IMP scholars have been acknowledging the particular vulnerability of formal business-to-business relationships. The resulting insecurity in interaction has to be addressed with qualities of trustworthiness and reliability. In addition to a contract, a quasi-contractual social frame for the dyad or network is required; such a construct has been described by Macneil (1985) as the *relational contract* (Mouzas and Blois, 2008; Laaksonen et al., 2008; Tuusjärvi, 2009).

#### **4.3.1. The relational contract**

I have referred to the scholarly findings of the turbid socio-economic environment impeding a rather objective view on an overall network equilibrium. A nevertheless dedicated exchange coined by trust and commitment is possible on the grounds of the relational contract as advocated by Macneil (1985). I will expand on the intricate conditions making this foundation necessary, on its formation, characteristics, and benefits in the following.

As large companies in particular unify many different areas of business under one organisational roof, it is quite likely that outside the envisioned network

context, there is simultaneous competition (Lerch et al., 2010:218). Among powerful enterprises, this does not necessarily mean the tension of rivalry (Boari et al., 2003:471; Oelsnitz and Tiberius, 2007). Rather, a careful selection of an overlapping interest and a clear – contractual – delimitation of the collaborative focus enables a punctual or domain-specific rich collaboration (Lerch et al., 2010; see also Sydow and Möllering, 2009:239; Sydow, 2010:409).

It would be even highly uneconomic to exclude all knowledge-related exchange with companies where at least one area of business overlaps, so this so-called cooptation constitutes one of the most frequent phenomena around industrial networks (Bengtsson and Knock, 2000; Hasse, 2003; Oliver, 2004; Schramm-Klein, 2005; Lerch et al., 2010:223). Scholars have so far particularly observed this dual nature of corporate relationships in interconnected clusters and regional development initiatives (Knyphausen-Aufseß, 1999; Cooke, 2001; Boari et al., 2003; Sydow and Windeler, 2003).

But even in non-competitive relationship initiation, partners face a lack of social ties and juridical contracts are necessarily invoked (Zaefarian et al., 2012). While serving as an important formal frame, *all complex contracts are unavoidably incomplete*, as provocatively formulated by Williamson (2002:5). As the joint projects and processes proceed, the indispensable formal sanctions therefore require an endorsement by mutual behavioural and, to a certain degree, even affective commitment of the signatory parties (Roels et al., 2010; Zaefarian et al., 2012).

However, in uncertain situations like those involving the use and development of new knowledge and innovation, a signed contract cannot anticipate all unforeseen development, organisational change and arising potential for evasive or self-serving moves of a participant (Oxley, 1999). Moreover, the danger of exploitation in unclear competitive situations makes an orderly written juridical framework indispensable (Lerch et al., 2010).

So, starting from the juridical contract, a collaboration initiation is encouraged

so as to reduce its risk (Coase, 1937:21). It is this regulation which only makes furtherance and thus alignment and justice possible. First guided by the formally fair distribution of cost and benefit, the actual contractual fulfilment and its active shaping is concretised over time (Coase, 1937:21). In these subsequent phases, the necessary reconciliation of situated goal changes draws attention onto the interplay of the collaborating parties. These may not only be the elementary dyads but – directly or indirectly – the web of several actors, up to comprehensive business-to-business networks (Berry, 1983; Kern, 1990; Ford, 1990; see also Chapter 2).

In a positively developing industrial collaboration, the initially formally aggregated actors become more embedded and, dialectically, more aligned with every exchange episode (Granovetter, 1985; see Chapter 3). As the formal contract loses its initial impetus, or proves to be impracticable altogether, continuance intentions are both reinforced by on-going *closure* and fairness (Posner and Rosenfield, 1977:85). This increasing robustness bears the particular advantage of saving the *relational cost* which a recurrent need for negotiation and formal contracts would entail (Corsaro and Snehota, 2012:277). This way, an increasing understanding of mutuality plays an important role in converting an initially anonymous joint project or process into a dedicated one.

The mechanisms of justice judgement as set out in the preceding section have been found to inform a beneficial attitude and behaviour which complements the formal contract (Wang and Hou, 2011). Researchers have found in particular that a positive justice experience will enhance the *contextual performance* (Rosen et al., 2009), the degree of *conscientiousness* (Nejati and Nejati, 2008; Asgari et al., 2008), *altruism* (Mackenzie et al., 1999), and *trust* (Lind and Kray, 2001; Folger, 2001; Wang et al., 2011).

Mutual confidence on the continuance intentions result in the reciprocation

between all kinds of social actors, and in improved coping abilities in stressful uncertainty (Van den Bos and Lind, 2002; Wang et al., 2011). This dedicated state is embraced by the concept of the relational contract as postulated by Macneil (1985). The proven positive correlations of justice with this relational contract highlight the importance of justice and fairness concerns. Moreover, these findings emphasise the need for corrective action in transformational leadership behaviour (Asgari et al., 2008).

Particularly for *economic communities*, increasingly characterised by a consent-dependent democratic climate, an *integrated social contract* has normatively been postulated by Donaldson and Dunfee (1996). Similar to this concept, however completely independently, Macneil (1980; 1985) draws on his *balance theory* which fundamentally postulates that in voluntary obligations, justice is sought, and on Goetz' and Scott's (1983) notion of the contract as a promise. Macneil (2000) defines his particular notion of such contracts as any potentially repetitive attempt of episodes of subjective social mutuality and reciprocity (Turnbull and Valla, 1986; Macneil, 2000; IMP Group, 2002). Albeit sometimes not easily discernible, this manifestation of a particular embeddedness in enveloping and complex relations can be characterised by common patterns of regular contractual behaviour (Macneil, 2000).

These relationship traits include the actors' role integrity, reciprocity, implementation upon planning, solidarity, and the linkage of interests (Macneil, 2000; see also Blois and Ivens, 2006). Moreover, shared norms are established, often already within the business-to-business setting or even the whole society, like flexibility, consent, restraint of excess power, propriety of means, and harmonisation with extant norms in the overarching social matrix (Macneil, 2000). These principles apply predominantly on the behavioural vector of exchange, e.g. occurring in business-to-business relations rather than on their objective, pointing to the core of *doing business* (Blois and

Ivens, 2007).

Consequently, highlighting the relationship mechanism for marketing research, Kaufmann and Stern (1988) were among the first to operationalise the balance theory and the idea of the relational contract empirically (Levin and McDowell's 1983; Macneil, 1985; see also Ivens and Blois, 2004; Blois and Ivens, 2006). Further emphasising the necessity of the social thought, this framework was subsequently accommodated to the special questions in industrial marketing by Blois and Ivens (2007).

Thus, according to Macneil (1985),

*complementarity and accommodation are the cornerstones of successful [...] networks*

where reciprocity as an *equivalent of benefits* leads to intermediate conditions of mutual indebtedness (Keohane, 1986). Such a balanced encounter is enhanced by a long-term perspective coined by trust and common goals (Powell, 1990: 305). Complex collaboration situations where decisions are commonly driven by fairness heuristics may be positively influenced by an already established relational contract (Macneil, 1985).

So what are the phenomenological characteristics of the relational contract for Macneil (2000)? They include the resistance on changes in economic relationship networks which would offer chances for opportunism and exploitation of other actors in favour of *win-win-solutions* (Whetten, 1982; Blois, 2002; Harrison, 2004). Consequently, in Macneil's tradition, Feinman (2000) postulates

*extensive, long term relationships [...] as a distinctive form of contracting.*

According to Harrison (2004), the implied contract has not been confirmed by English jurisdiction. The German principle *auf Treu und Glauben* points to the binding nature of consent becoming a facticity over time (Latin *bona fide*, Pfister, 1998; Teubner, 2001). In my perennial management activities, I have always found this German legal principle to be a helpful governance instrument for longitudinal business-to-business relationships (Software AG, 2000-2005).

In human resource management, this pseudo-contractual quality has been acknowledged as *organisational citizenship behaviour* (Organ, 1988; Podsakoff et al., 1990; Liu, 2009). It depicts the beneficial attitude of staff who counter organisational slack, and of pluralism resulting in selfishness (Folger, 2001). Organisational citizenship behaviour has been found to positively influence job satisfaction and foster mechanisms like knowledge sharing (Lin, 2008; Klendauer and Deller, 2009; Fang and Chiu, 2010).

Current scholarly efforts extend the realm into the socio-technological domain as a *virtual community of practice* with joint altruistic and conscientious knowledge sharing (Fang and Chiu, 2010). Similarly, downstream operations in a channel programme characterised by knowledge and power asymmetry draw on this citizenship attitude (Gu and Wang, 2011). The body of literature has also shown that good *relationship governance* in the sense of Macneil's (2000) dimensions of the social contract bears significant performance implications and thus strategic value (Stephen and Coote, 2007; Wang et al., 2011).

#### **4.3.2 The juridical contract**

Business-to-business exchange is regulated through formal contractual agreements throughout (*Pacta sunt servanda*, Wehberg, 1959). Although this element has been widely neglected in much of the IMP group's research of



the past decades, it is well acknowledged as a distinct discipline (Buchanan, 1975; Ford and Mouzas, 2012). Particularly in the early stages of an innovation-driven business-to-business relationship, a juridical construct is capable of keeping human bias, opportunism and egoist behaviour at bay; certainly the major reason why it is a central element to any contemporary industrial exchange (Wang et al., 2011).

In industrial settings, the change of firms' relationships over time was first scrutinised in the 1980s, for instance by scholars such as Ford (1980) and Dwyer et al. (1987), leading to differentiation of various relationship phases (see also Corsaro and Snehota, 2012) coining an industrial exchange.

Starting from the juridical contract, a collaboration initiation is encouraged (Coase, 1937:21). The joint risk is reduced and regulated, a furthering condition making alignment and justice possible in the first place. Coase (1937) recognised that, guided by the formal *direction of resources* from the start, the actual contractual fulfilment and its active shaping is concretised over time in a mutual consent (Mouzas and Ford, 2012a:158). But even without written contracts there may be juridical regulation: in long-standing exchange, the partly legal, partly attitudinal German principle *auf Treu und Glauben* in particular binds actors to tacit formal agreements (Teubner, 2001). As of recently, Mouzas and Ford (2012a: 158) have found that even for non-German business environments secrecy and respect for property rights thus become a pseudo-contractual facticity over time.

Goetz and Scott (1983) have been recognising an additional anticipatory element inherent in every contract, thus making it more than a mechanical device but a tool for justice heuristics. Unified by the *promise*, initially loosely aggregated actors increasingly grow together with every exchange episode (Goetz and Scott, 1983). As the formal contract loses its initial impetus, or proves to be widely impracticable, the participants in a network become

socially embedded and interested in sustaining the relationship and making it synergistic (Posner and Rosenfield, 1977:85; Granovetter, 1985).

If such a particular embeddedness fails to materialise, relational costs as a recurring need for negotiation and the adjustment of the formal contract remain at a high level (Corsaro and Snehota, 2012:277; Zaefarian et al., 2012). Moreover, contractual risk increases with the degree of technological complexity, size, and variety of participants (Oxley, 1999: 289; Lerch et al., 2010). This uncertainty augmenting with every single new component or insight involved would either lead to increased exertion of power or necessitate over-proportionate efforts in project control (Oxley, 1999; Yang et al., 2011; Zaefarian et al., 2012). The potential for evasive behaviour in collaboration with reduced mutual control is particularly high, thus calling for an additional clause (Roels et al., 2010; Mouzas and Ford, 2012a:158).

Lately, the need for a deeper research on contracting as a business enabler has been acknowledged by Mouzas and Ford (2012b). As an under-researched key element particularly in joint knowledge intensive process initiation, the juridical frame thus requires additional scientific focus (Mouzas and Ford, 2012a).

#### **4.3.3. Contracts and justice**

Setting the relational traits of group and individual actors into relation with the justice concepts identified in the previous section, it becomes clear that the social side cannot be governed by formal parameters. Predominantly attitudinal, relational contract and network citizenship behaviour are voluntary, non-regulated expressions of justice and alignment intentions. This can be illustrated by the systematic classification in Table 4.3:

**Table 4.3: Formalisms and constructs contributing to justice**

<b>Constructs</b>	<b>Formal</b>	<b>Attitudinal</b>
<b>Organisational</b>	Adherence to formal contracts, laws, rules and norms  Enforced distributive and procedural justice	Relational contract  Voluntary distributive and procedural justice
<b>Individual</b>	Adherence to work contract, formal tasks, laws and rules  In-role performance	Network citizenship behaviour  Conscientious, altruism

The elements in this synopsis, particularly formal contracts, voluntary establishment of justice, altruism of both organisations and individuals, and the relational contract, therefore constitute this thesis' relational research agenda. As the attitudinal traits may develop or fluctuate strongly over the period of collaboration, they provide a particularly strong link between justice and temporality.

#### **4.4. Temporality**

As set out in this thesis's literature review so far, business-to-business activities accumulate to a network's formation and metamorphosis and to a subject-related alignment over time. Moreover, as shown above, justice heuristics contributing to a positive collaboration attitude take into account the temporal qualities of a general or a particular joint history of an inter-organisational exchange. Moreover, trust and distributive balancing capabilities among partners have actually been recognised to be positively correlated with the age and the pace of a specific network (Anderson and

Weitz, 1989; Ramos and Ford, 2011).

Hence, the network research agenda has been extended by Ramos and Ford (2011) towards joint and secretive intentionality of actors, their sharing of capabilities and resources, and their joint or conflicting attempt for shaping a network's past, present, and future events. On the one hand, these activities have been found to be governed by the juridical contract (Mouzas and Ford, 2012a). On the other hand, these insignia of temporality in an industrial network are manifestations of the relational contract as postulated by Macneil (1985). As both types of contracts draw on a comprehensive record of relationship balance, the cumulative dynamic qualities in business-to-business exchange bear particular significance for justice and the relational consent.

#### **4.4.1. Temporality in industrial innovation networks**

*Networks are typically characterized as loosely coupled systems and flexible by nature, which also means that change is an inherent feature in them. The temporal dimension cannot therefore be ignored in research (Halinen and Törnroos, 2005:1286).*

So far, I have covered mechanisms and regularities for established business dyads or networks. The interaction as set forth in the previous chapters is a temporally iterative and mutual process requiring foresight and intentionality. This is particularly necessary because, in an exchange coined by mutual adaptation, it is quite likely to incur a frictional disequilibrium in favour of a beneficial perspective (Ford, 2011). So-called *episodes* of network interaction consist of personal meetings, exchange of goods, documentation and information, financial swap, and all kinds of novel developments (Ford, 2011: 235). Thus, the mental pictures enacted for utilisation of resources (see

Chapter 2) evolve through and over time (Öberg et al., 2012).

This term, *time*, both stands for a certain temporal date as well as for a longitudinal concept of duration (Quintens and Matthyssens, 2010:191). In management science, it is commonly perceived as an ordering device for synchronising both events and processes accessed from diverse sources and viewpoints (Araujo and Easton, 2012). Therefore, scholars have been recognising that sense-making of time as a resource and process quality requires further emphasis.

For instance, Quintens and Matthyssens (2010) try to derive implications capturing temporal interactions by appropriate segmentation using the notion of time in both natural scientific and sociological terms. Time, in the authors' opinion, is yet insufficiently specified, and in some cultures like the Western is perceived to proceed linearly. Among people and their exchange relationships, temporality will consist of a blend of weighted subjectivity and uniform measurands. The sequential exchange of products and services, iterated over episodes (Ford, 2011: 236), dominates the metrologic objectification of time in management science (Araujo and Easton, 2012). For practicality reasons, accountancy considers time as proceeding as a linear vector, thus enabling quantification, accounting, and planning calculations (Quintens and Matthyssens, 2010).

Investigating further extant terms and classifications around the notion of time in industrial exchange, Quintens and Matthyssens (2010) link processes to duration, sequence, pace, and make out seven different dimensions of temporality. Whereas the physical reference system is also quite helpful in business, providing an objective timeframe for human work to be expressed in accounting units, the authors also refer to sociological approaches to cover the subjective component in temporality (Quintens and Matthyssens, 2010). For goodwill and any kind of intrinsic value provided along the interaction

process, time as experienced and internalised cannot be reduced to  $\Delta t$  and sequence.

Events tend to mix up in order by subjective retrospect where mental causalities are re-established and psychologically processed. Czarniawska (2004) points to *kairotic* time as opposed to the more commonly employed metrologic time. Kairos, the opportune moment, in human cognition extends exciting phases and contracts boring ones. As a subjective perspective on temporality, this situated and ex-post perspective is equally valid (Araujo and Easton, 2012). Thus, in any given current subjective experience, timelines are often difficult to objectify.

Quintens and Matthyssens (2010:94) point to the issue of divisibility, the ancillary fragmentation of time into equal periods, most commonly known from a clock's equidistant representation. Fundamentally, however, time may also be seen as flowing continuously like in the kairos thought, in natural science resolved by resorting to integrals for infinitely small divisions (Araujo and Easton, 2010: 316). This is also covered by my own representational approach (as in the formulae set out in Chapter 1), indicating that industrial relationships proceed over time but may well be structured along discrete summands to be perpetuated in an integral.

However, the shift from organisations and communities towards the *network* as a preferred construct has considerably favoured the social temporality of periodical interaction (Wittel, 2001). Whereas integrals may be suitable for continuous services, like the provision of power or broadband capacity, even slightly more complex scenarios cannot be treated as linear (Czarniawska, 2004).

Rather than experiencing equivalent periods, people tend to perceive epochs (Quintens and Matthyssens, 2010:93). This quasi-division which Lowe and Hwang (2012) also call *epoché temporality* is another notion of kairotic time.

It depicts how people increasingly attribute a perceived significance to temporal periods and thus weigh them in impact and impression respectively (Czarniawska, 2004; Lowe and Hwang, 2012).

The order of processes and activities is often chosen by personal preferences and individual traits in a mono- or polychromic sequence (Quintens and Matthyssens, 2010:94). According to Trompenaars, the culture of origin plays a pivotal role in harmonising or colliding of temporal pace: people either prefer an ordered, sequential approach to projects or a simultaneous and flexible order in which they complete tasks (Trompenaars and Hampden-Turner, 1997).

A higher frequency in change and events or strong emotional situations therefore leads to an increasing resolution of time perception – illustrated by the fact that in retrospect low-stimulus periods to us seem much faster than turbulent ones kairotically (Czarniawska, 2004; Rudd et al., 2012). This dimension of industrial network's resolution thus adds to the merely structural one, multiplying the inherent complexity of the phenomenological scrutiny therein.

#### **4.4.2. Long-term perspective in industrial networks**

Temporal stability of any organisational setup is seen to offer the advantage of reduced risk of investment in knowledge and infrastructure and coordination facilitating effects (Windeler et al., 2000; Sydow, 2010:381). As pointed out in the previous section, however, today's volatile socio-economic environment asks for adaptability in industrial operations and innovation processes. Therefore, even the most static networks command dynamics indicating the flow of materials, information, the direction of influence and the alignment in an obdurate configuration (Srai and Gregory, 2008:394; Sydow, 2010:385).

Whether networks are newly formed or extended by mergers, strategically devised or randomly selected, gradual to radical change takes place at any

time, typically augmenting the number and complexity of interdependencies (De Rond and Bouchikhi, 2004; Kale et al., 2000; Sydow and Möllering, 2009). Thus, time as a dimension like distance or resources reflects the increasing dynamics of intra- and inter-corporate architectures (Ballering, 2000; Sydow, 2010:376). A network symbolising interaction predominantly represents a merely punctual or constant epochal state, as shown in Chapter 2. Therefore, all the dynamics, stages, and the historicity of an industrial supplier-customer relationship are difficult, if not impossible, to be captured. It is only by systematically comparing a series of subsequent empirical materials with compatible conventions, like value over time that the temporal element, a manifestation of the relationship memory, becomes palpable in this approach (Eggert et al., 2006; Corsaro and Snehota, 2012:277).

Phenomenologically, the temporality in the interaction occurs intermittently, in so-called transaction episodes (Ford, 2011). Epochs of more or less intense co-operation thus align seamlessly after the first contact. Time horizons denote both long-term orientation, in most projects indicating months or years, and short-term planning, mostly hours up to days (Quintens and Matthyssens, 2010).

In the long run, the core location where products, services, and information are exchanged and the attunement of actors' subjective stances can develop, is an intermediate realm spiralling the transformation of resources by actors, which the IMP school denotes as an interaction process interface (Geiger and Finch, 2009: 385; Ford, 2011). Ford (2011) postulates that the episodes become accumulated and extrapolated to an overall *relationship value* increasing the mutual confidence in future benefit.

As the episodes or epochs become steadier and increasingly calculable, a manifest business relationship in the sense of the ARA model leads to a long term orientation along the considered value and transaction chain. Second

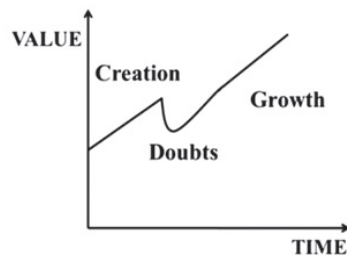


and higher order bonds develop, and channels are opened increasingly. The network is thus dialectically created by and shaping the relationships over time (Ellis and Hopkinson, 2010). Analysing past value provision stages with the help of boundary spanners, particularly valuable insight is gained by posterior sedimentation informing the regulative function of the network life cycle (Sydow, 2010:397; Corsaro and Snehota, 2012:283).

Whereas time-bound frames can serve as a configurative representation of a state, their subsequence is marked by more or less incremental realignment (Finch and Geiger, 2010; Corsaro and Snehota, 2012). In this process, transformations, attraction of additional complementary capabilities, and operational changes take place (Hamel, 1999; Srari and Gregory, 2008: 393).

An illustration of the steady flux is provided by Srari and Gregory (2008: 405) who are pointing to the essential flows of information and materials changing with every personnel shift and every other batch of delivery, both valid temporal (kairotic) units in industrial operations. This will be even more observable in social embeddedness which inevitably creates psycho-social dynamics in the scenario adding a further dimension to the flow of time (Srari and Gregory, 2008; Corsaro and Snehota, 2012). The higher the density of insight sought in any given frame, the more frequent but also incremental the observed changes will possibly be (Srari and Gregory, 2008: 395).

A suitable means to address the temporal nature of a configuration, Srari and Gregory (2008: 394) postulate an adaptability over time, existing nodes and potentials to products, services, capabilities, and value propositions being flexibly linked, decoupled, and rearranged according to operational and strategic requirements. These changes over time Corsaro and Snehota (2012) address in according relationship path pictures reflecting individual respondents' perception on business-to-business value exchanged in a specific dyad over a given timeframe:



**Figure 4.1: Relationship path picture (Corsaro and Snehota, 2012)**

As postulated for the depicted visual representation concept by Corsaro and Snehota (2012; see Figure 4.1), the new creation and subsequent life cycle of a business and industrial network commands several discernible *phases*.

Sydow (2010: 395ff), for example, describes the subsequence of *selection* (Galbraith, 1998: 86; Dacin et al., 2008), *allocation* (Hamel, 1999; Weißenfels, 2007; Wilhelm, 2009), *regulation including learning* (Knight and Pye, 2007; Oelsnitz and Tiberius, 2007; Crook and Coombs, 2007), and *evaluation* (De Man and Roijackers, 2009; Sydow and Möllering, 2009).

Even though the physical measurand time,  $\Delta t$ , is the naturally given chronological order, physically measured by the oscillation of an atom, in this life cycle, industrial co-operation time is mostly marked by kairoitic epochs, sequences, or loops (Czarniawska, 2004). This *epoché temporality* facilitates process iteration in value provision leading to stabilisation and perpetuation in inter-organisational exchange (Sydow, 2010; Lowe and Hwang, 2012).

#### **4.4.3. Temporality-related research agenda**

I have shown in this chapter how the discussion of activities, joint development over time, and epochal value are covered in the body of literature. As temporality is in my eyes a very crucial point for valuing the relationship memory of an industrial network accordingly, I will incorporate this element into my industrial research design. By the attentive analysis of the history of provision of products, services, and goodwill, the history of

value, innovation and synergistic efforts in a network will be captured. Moreover, the scorecard as set out in Chapter 1 offers a temporally ordering instrument for control and analysis of collaboration effects over time.

Informed by the literature described in this section and in part confirmed by the coding dimensions set out in Ramos' and Ford's (2011) network analysis, my according research agenda is set out as listed in Table 4.a and 4.b in this thesis' appendix. I identified under-discussed areas particularly worth covering in my research, in particular justice and the temporal dimension. Moreover, the relational contract arising from temporal qualities constitutes an important binding element between the equilibrium postulate and the longitudinal perspective in a network.

How are industrial networks coined by their common memory on fair exchange, and how do actors draw on their subjective epochal or *kairoitic* perception? How does this balanced collaboration change over time? Do relationships follow paths, and if, are those subjectively experienced or do they carry objectifiable traits? How does the relational contract supersede and replace the juridical contract over time in particular? What do both short-term and long-term activities and thus pace mean for synergies and continuance intentions of business-to-business network actors?

As this thesis predominantly examines processes and long-term activities, I will be able to address these questions of temporality in particular and relate them back to the accumulation of justice and the sustainment of the relational contract.

## **4.5. Conclusion**

This chapter has covered a relevant body of literature on justice, contracts,

and temporality in business-to-business value-adding supply networks.

I expounded on the principles of justice governing industrial exchange.

Distributive justice indicates how effort and return are balanced and by which basic socio-economic principle such an equilibrium is achieved. Procedural justice is established by process transparency, information sharing, voice and dignity.

Based on the perceived degree of these two kinds of fairness, actors decide whether they want to enter, sustain and extend a relationship or a more comprehensive network. This mechanism is called justice heuristics.

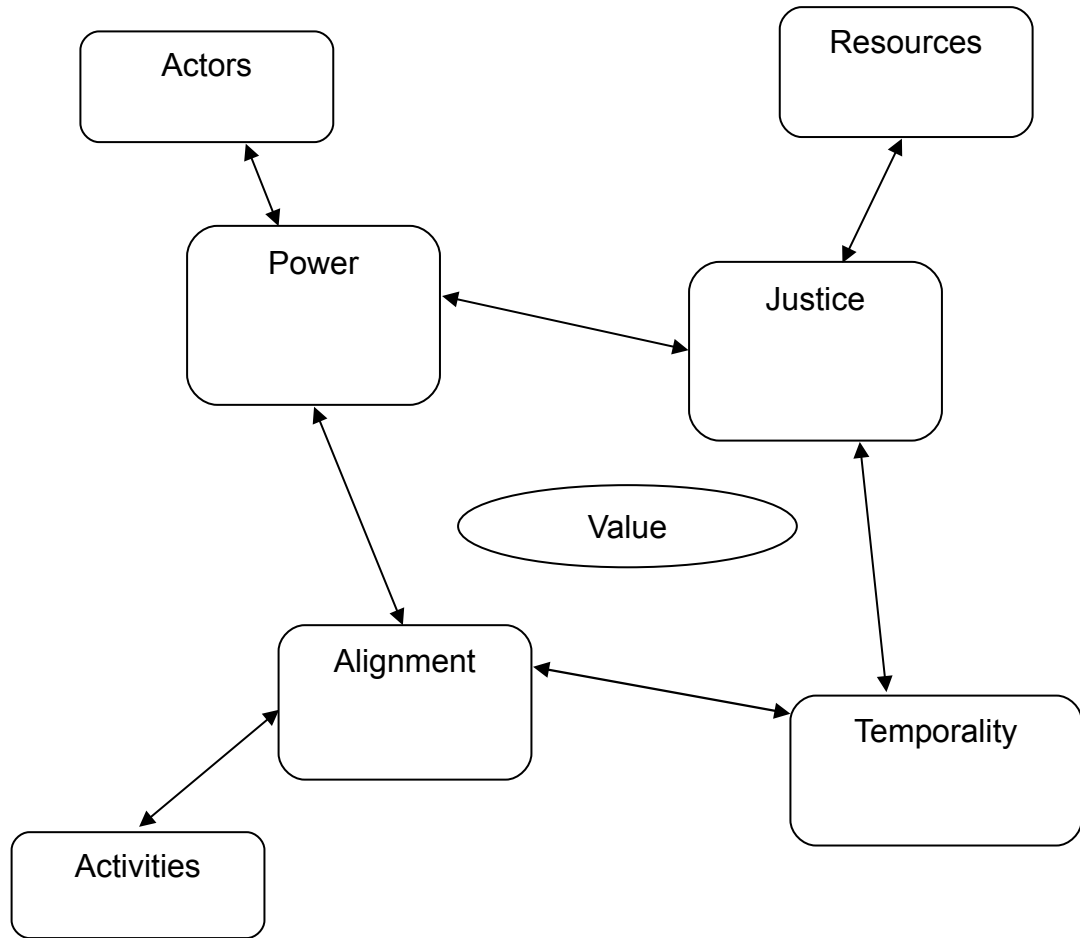
Positive justice heuristics leads to an beneficial attitude, the relational contract. As the initial juridical frame becomes obsolescent, the relational contract level either impedes or fosters the common pursuit of goals, circumspection and continuous mutual adjustment among partners and is thus of pivotal significance for success in a network.

The memory of a collective history of fairness, contractual developments, and commitment has found to be an under-researched for strategic industrial networks.

#### **4.6. Conclusion of the literature review**

In the preceding three literature review chapters, I laid forth the discussion of innovation in industrial networks with a focus of the IMP tradition in particular. In Figure 1.1 of Chapter 1, I had introduced a conceptual framework for this thesis' empirical research. Drawing on the findings of this literature review, this framework can be refined with the scholarly concepts recognised as relevant. This modification of the framework is illustrated in Figure 4.2 as

follows:



**Figure 4.2: This thesis' conceptual framework refined with themes from the literature review**

This thesis' literature review outlined the constituents of this debate:

#### **4.6.1. Collaboration in networks**

The *network* metaphor is the commonly employed mental representation for sense-making of collaborating in an immediate innovation context. This immediate network is particularly coined by *rich* – economic, technological and social – exchange.

I presented a definition of the network and a set of graphical representations.

The concepts of *actors*, *resources* and *activities* ARA for network interaction (Håkansson and Snehota, 1995) were laid forth. Moreover, I introduced the managing in networks model of *network pictures*, *networking* and *network outcomes* (Ford et al., 2002). The comprehensive synopsis was completed by Ford's (2008) critique on SDL and a weighting against IMP concepts. I identified the principles of power and scripting in a network as important topics for this thesis' research.

Chapter 2 therefore relates to the first two research questions:

Research question 1:

**How do individuals as actors in the research setting draw on their immediate business-to-business network to achieve rich exchange and innovation?**

Research question 2:

**Which governing and control mechanisms can be observed in the research setting's rich exchanges and episodes of innovation?**

#### **4.6.2. Value and innovation**

In Chapter 3, I expounded on the strategies for achieving innovativeness. The extant literature acknowledges adaptation mechanisms in an immediate network as a self-sufficient value.

However, the inherent high technical uncertainty commonly makes the provision and incorporation of novel developments a considerable financial and operational risk. The associated relational stress in a buyer-seller dyad and immediate network may affect the reputation in the wider network

additionally.

Chapter 3 therefore relates to the second set of research questions:

Research question 3:

**Which entities are exchanged in the research setting's immediate network by means of collaboration and by which mechanisms are they generated?**

Research question 4:

**How do different actors in this research setting value the distinct approach of developing innovation in a customer-centric manner?**

#### **4.6.3. Justice and fairness**

An industrial network will at any level seek a long-term balance. The extant literature has acknowledged the need for distributive and procedural justice in long-term collaborations in particular. In an overall balanced immediate network, the initial contract will then be positively enhanced and superseded by a relational contract with joint goals and the pursuit of mutual interests. The first part of Chapter 4 therefore relates to the following research question:

Research question 5:

**In the research setting's immediate industrial network, what are the governing principles and mechanisms for balancing customer input, supplier input, and value?**

#### **4.6.4. Temporality in business-to-business exchange**

In the extant literature, particularly of IMP, the longitudinal nature of value-adding exchange in business-to-business relationships is acknowledged. The objective determination by physical measurement is opposed to human continuity and the perception and enactment. Sense-making often occurs in non-chronological sequences and accumulates to a joint memory. Network pictures and networking activities can only develop over time to yield the network outcomes. The role of short- and longer-term oriented activities is still under-researched.

The second part of Chapter 4 therefore relates to the following research question:

Research question 6':

**How do immediate networks in the research setting accumulate an own *memory* of joint experience of the actors therein over time? How do actors draw on this memory to influence the performance in a particular innovation project?**

Drawing on the concept as depicted in Figure 4.2, this thesis' field studies will be conducted in the light of these research questions.



# Chapter 5

## **5. Philosophical Foundation of this thesis**

### **5.1. Introduction**

The aim of this chapter is to set out a research philosophy which will guide the methodological foundation for the empirical scrutiny and analysis of this thesis. I will address this objective by explaining my social constructionist stance under the interpretative paradigm. Describing the sense-making and sense-giving dialectics in our everyday life world, I will draw on relevant scholars who have explained lenses by which social phenomena can be captured, systematised, and analysed.

This meta-methodological framework of sense-making will be transferred into the instrumental, Peircian approach. Peirce's pragmatist sense-making called perceptual judgement I will draw on and further develop in Chapter 6.

This chapter will be arranged as follows. Propounding the interpretivist paradigm, I will depict how some of the most influential philosophical and sociological schools inform this thesis' industrial research. I will explain how Weick's sense-making and sense-giving yield social construction of reality. The concepts of primary and secondary socialisation as described by Berger and Luckmann will elucidate how a pragmatic togetherness and understanding is achieved in everyday social interaction.

I will explain how the shared Lebensraum is further structured by different endowments and societal predispositions, in particular drawing on the habitus concept advocated by Bourdieu. Conclusively, I will demonstrate how the identity of the self-adapting to various social settings, in Goffman's metaphor a role play on situated stages, strengthens the situative repertoire for symbiotic behaviour among a collection of individuals.

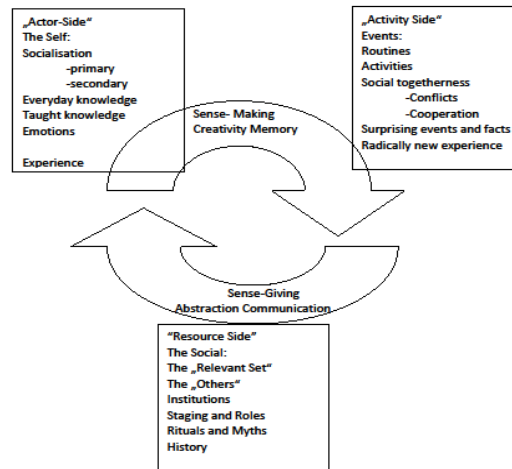
## 5.2. Social constructionism in social sciences

The philosophical school for a research approach constitutes the lens through which other scholars comprehend the *Weltanschauung*, image of humanity, analytical approach, and interpretations. I will now introduce the notion of our *Lebenswelt* where humans draw on individual sense-making and sense-giving to result in an ongoing social construction of reality. In the following, I will introduce social constructionism in the social science with a general explanation.

### 5.2.1. Lebenswelt

The *self*, the events that are accumulating to *life*, and the resources constantly design and re-design our *Lebenswelt* (Husserl, 1935; 1954). This life world, as a tangible variation also labelled *Lebensraum* we make sense of and attribute sense to inter-subjectively (Lewin, 1934).

This Figure 5.1 as shown below thus sets out the structure of the subsequent discussion. I am drawing on the IMP group's conceptual structure of actors, resources and activities as presented in Chapter 2 (Håkansson and Johanson 1988: 375; Olkkonen, 2001) for structuring this chapter's outline as follows:



**Figure 5.1: Conceptual outline of Chapter 5**

This visualisation of the current chapter reflects the according configuration of the common Lebenswelt which will determine this thesis' philosophical stance.

### 5.2.2. Philosophical foundation of this thesis

This thesis analyses several complex industrial collaboration settings which I deem embedded within a particular Lebenswelt as set forth above. I anticipate that in the given context this perception is basically shaped and shared by the technological environment, potential participants, and respondents. However, the target groups for the scholarly insight will be non-technical researchers equally. The decoding-recoding activities I will undertake from my empirical materials and data will thus have to be generalisable across disciplines. The according encoding-decoding systematic of ontology, epistemology, and methodology I categorise in Table 5.1 as follows:

**Table 5.1: Synopsis of the philosophical stance underlying this thesis**

<b>Concept</b>	<b>Identifier</b>	<b>Characterisation</b>
<b>Ontology</b>	Social constructionism	Collective sense-giving of environment, rules and human activities
<b>Epistemology</b>	Social constructivism	Distributed sense-making of environment, rules and human activities
<b>Methodology/ Paradigm</b>	Interpretivism	Enriched conclusions from key encounters during observation through the lens of rules

As in an organically grown Lebenswelt, sense-giving and sense-making are mutually readjusting cyclic events. It is therefore not easy to discriminate between ontology and epistemology in this context. Social interaction, identity generation, and activities are already coined by our perception, they are not exclusively ontological constructs; an understanding is gained in a dialectic with epistemological reasoning. This thesis is therefore, where appropriate, referring to the ontological/ epistemological complex as philosophical stance and, as a workable simplification, social constructionism.

### **5.2.3. Concepts of social constructionism**

Society is objectively extant by adamant phenomena of comprehensive personal embeddedness and wiring within a Lebenswelt, by physical and natural givens and by the most basic human needs. At the same time however, realities are equally subjective as individual predisposition interpret the socio-behavioural impressions like communication and behaviour, and less basic human needs like self-actualisation arise.

By ongoing perception, stabilisation, and adaptation to temporal changes, this society and their accumulated phenomena constitute the conception of reality: our knowledge. The basic idea behind a concept of *social construction of reality* (Berger & Luckmann, 1966) purports that societal order

has to be understood as the product of permanent human activity and creativity. It is dialectically shaped and shaping by evolutionary sense-making and sense-giving in a particular society.

#### **5.2.4. Collective enactment and sense-making**

The Lebenswelt as set out above is situated in a context of natural phenomena and in Weick's view an *enacted* one (Smircich and Stubbart, 1985; Weick, 2001b:133). The process of *enactment* is central to his circular understanding of the human system and our Lebenswelt. In particular, he postulates that the unexpected is being construed by the relative labelling in organisations and not caused by *the unexpected* per se. The thus defined process Weick describes as *enactment* (Weick, 1969; Weick, 1988) – actively acting into the Lebenswelt. This lived coping thus perverts the usual notion of cause and effect, moulding the phenomenological *environment* to result in *what is* (Groth, 2003). To change the Lebenswelt, Weick (1985:219) concludes accordingly, people need to change their self-concept and behaviour.

Other scholars have labelled the mechanisms in this enacted environment *sense-making* (Mills, 2003), *rationality as rhetoric* (Dougherty and Drumheller, 2006), and *mindfulness* (Langer, 1989), all pointing to the situated and adaptive coping of societies with their physical, social, and economic contexts.

How do humans obtain a superior knowledge of reality? Our elaborate common *sense-making* distinguishes us from other creatures (Dewey, 1925). Although Dewey (1925) advocates *naturalistic metaphysics* in terms of a *naturalistic empiricism* (Suhr, 1994), his conception of human sense-making considerably overlaps with Weick's notion of reality construction. Our steady awareness and coping processes, Dewey (1925) asserts, draw on human abstraction of *raw experiences*, symbolisation, communication, and

intentionality. This *sense-making* is the result of subjecting communication processes to conventions.

In this commensurable conveyance of meaning, significant symbols enable abstract reasoning and the potential for re-enacting others' experience. What we call *social* is based on this foundation. Weick's (2001b) constructivist stance thus binds what constitutes *the environment* to system internalised processes of plausibility generation.

The concept of the thus enacted environment is placed by Weick in the wider context of Darwin's (1859) evolutionary process sequences: variation, selection, and retention – variation however being replaced by the enactment. This responsive nature of sense-making, Weick derived from Garfinkel's (1967) claims of posterior sense attribution, post-decisional justification and plausibilisation. Unlike Garfinkel, however, Weick postulates a pre-existing sense we draw upon in the extant context.

Although Weick's concept is highly relevant, the German-speaking research community may not yet be fully aware of him. This may originate from the confusion generated by the translation of his concepts. *Enactment* is not readily available in a German technical term. Some do not translate it at all (Groth, 2003), which brings it near the less-liked *empowerment* of postmodernist managerial talk (Cooper and Burrell, 1988). Then again, *sense-making* is translated with *Sinngebung* (Müller-Busch, 1996) which in my perception is the second step of the *sense-giving*. As long as this dilemma of terms is not resolved, a common reading will be difficult. This is why, like earlier Gioia and Chittipeddi (1991), I introduced *sense-making* (Sinn erzeugen) for *enactment* (Ring & Van der Ven, 1994) and *sense-giving* (Sinn geben) for Weick's (1995) *sensemaking* (Gioia & Chittipeddi, 1991).

### 5.2.5. The individual: the process of socialisation

The individual constitutes the least unit of observation for the action theory. Thus, social edifices can be analysed by single members' biographies and their chronologies of iterative reflection and action.

This *proto-sociology* has been set forth by Alfred Schütz' work (Brock et al., 2009). We draw on recipe knowledge, types of activities and interaction, and language as means for expressivity. Eberle (1999) has expounded on the *Lebenswelt* as an internationally coined term for the predominant reality of humans which is taken for granted and more or less shared by various constellations in every changing situation of our life. Schütz analyses how this *Lebenswelt* dialectically changed by humanity as well as frames human activities and thoughts (Münch, 2003). He claims that in everyday life humans get to understand the sense-making of others' activities (Endreß, 2006). The according *Verstehen*, for Schütz (1971) denotes the extended sense-making towards increasingly complex sense constructs which by inter-subjectivity is reinforced.

For Schütz, typification is the establishment of a context of meaning, drawing on a repertoire of experience for defining and managing, categorising and re-categorising every new situation (Abels, 2004). External knowledge is thus integrated as well; teachers, parents and other contemporaries enrich the context upon which is subsequently drawn. Idealisation, in Slater's (2002) terms *découpage*, helps solving mundane problems by ensuring that our mutual viewpoints are commensurable. This process of *cutting out*, together with the subsequent search for recurrent patterns, explain why similar organisations regularly make different sense of identical situations (Pentland et al., 2010).

Similarly, Berger and Luckmann (1966), carrying further their mentor Schütz' ideas in the realm of phenomenological sociology, postulated *reality* in our



everyday world to be socially constructed by ongoing interaction and coherent, dynamically bundled typecasts (Münch, 2003). The origin for their analysis is constituted by the individual, carrying through the constant and simultaneously occurring threefold of *externalisation – objectivication – internalisation* by means of symbolically enabled communication processes.

A society, Berger's and Luckmann (1966) assert, defines the narrow set of personal choices by primary and secondary socialisation. The latter, involving acquisition of role specific knowledge, introduces into the world of institutions (Searle, 2005). It makes us internalise processes and insignia of societal division of labour and its consequent distribution of knowledge. This process of *institutionalisation* into our social meso-context mainly consists of three processes, which Berger and Luckmann (1966) term *habitualisation*, *sedimentation*, and *tradition*. We are thus trained to assume our part in a feedback loop between instructor and disciple (Mannheim, 1923). An inter-subjective and commonly shared world according to Berger and Luckmann (1966) is not constantly questioned but reality is accepted as naturally given and structured spatially and temporally.

### **5.2.6. Habitus**

Social construction of reality as just set out also serves as point of departure for Bourdieu's (1982) theory of *habitus* (Eder, 1989). The primary socialisation as postulated by Berger and Luckmann (1966), Bourdieu argues, takes place in a *habitat*, quasi a segmentation of the Lebenswelt. This *habitat*, Bourdieu sets out, is a selection of the socio-cultural Lebensraum mainly determined by the familiar environment into which an individual is born (Bourdieu, 1976; Dirksmeier, 2007).

Secondary socialisation is moreover determined by a person's respectively overarching configuration in social practice: a *structured structure* – as a blueprint for habitual incorporation – and the *structuring structure*, re-creating the social reality anew and thus keeping the Lebenswelt segmentation alive

(Bourdieu, 1987a; El-Mafaalani and Wirtz, 2011). The *materialised social* among humans is thus compounded by economic, cultural, and *social capital*, differentiating our attitude, conduct, and actions (Bourdieu, 1983; Bourdieu and Wacquant, 1996:161).

Habitualisation enables us to navigate in our *meso system* which, like human instinct, has become second nature to us (Bourdieu, 1976; El-Mafaalani and Wirtz, 2011). Kraus and Gebauer (2008) even argue that evolution has biologically indentured habitus into our physical materiality, as a protection mechanism that cannot be altered consciously (Bourdieu, 2001).

To reduce the stress of social uncertainty, we share our Lebenswelt in an *ontological complicity* with other members (Bourdieu, 1989, 397; Kraus and Gebauer, 2008). We can thus rely on our co-habitants to react and behave in a sufficiently predictive manner. Still, the notion of habitus does not claim that we perform a *designated* role as postulated in symbolic interactionism (Arnscheid, 1999:87 following Mead, 1934; 1980).

Habitus thus only explains the range of likely behaviour and thought of individuals (Fuchs-Heinritz & König, 2005). Bourdieu concedes we command habitus independent mechanisms as learning and corrective experience. Rational consideration and the adherence to explicit norms supersede the particular coining especially where our habitus is in conflict with external objective structures (Bourdieu, 1970) like in the face of new laws or of divergent national cultures.

### **5.2.7. Dramaturgic Approach**

Berger and Luckmann (1966), as well as Bourdieu (1976), emphasise this *role* we assume in the play – that is, within institutions and private realms –, highly situated, and in conformance with rituals in our habitus.

This concept has been extended to an own independent school by Goffman

(Brock et al., 2009:107). He also applied a metaphor, considering everyday life as a stage play in a theatre. Goffman scrutinised our conduct – acting – as a mutual process of the *presentation of self* within the different social settings we are subjected to. Our Lebenswelt he calls *interactive zoo* as composed by us persons who act as the fundamental vehicles and mobile entities, and of our encounters (Goffman, 1994:68).

Mutually arranging, we thus form ensembles acting jointly and develop rituals like in secondary socialisation (Berger and Luckmann, 1966). Various staging formats in our repertory endow and coin structuring interaction sequences resembling choreographies (Goffman, 1994; see also Durkheim, 1965).

There is a hierarchy on stage. The dramaturgic approach accordingly introduces the *interaction order* similar to the status within a person's habitat (Bourdieu, 1976; Rawls, 1987). Goffman (1994) thus postulates the structuring of both punctual human encounters and longitudinal interaction. As at least two individuals enter a common Lebenswelt, a mostly tacit implicit or even explicit mutual ranking takes place (Goffman, 1981:28).

Encountering others, an individual enters a stabilising *interaction frame*, like in a theatrical stage (Bateson, 1955). In this permanently tested social reality, the true *self* is not revealed but dramaturgically processed in interaction (Goffman, 1977:16). The actor becomes an accomplice of his or her current ensemble (Goffman, 1959:77). Personal inclinations and even honesty may thus recede in favour of group conscientiousness. We adhere to a narrowly predefined set of specifically acceptable activities and behave appropriately during their execution.

This scheme facilitates a viable typification which we anticipate to be indicated in a given Lebenswelt (Goffman, 1959:219). Thus collectively simplifying interaction, we create niches of routine *backstage* and accordingly

avoid the potentially permanent socio-cultural stress biologically induced by instinctive, defensive reactions on the *front stage* (Bateson, 1955; Goffman, 1959).

Overlapping with construction, socialisation, and habitus, Goffman's (1959) concept thus complements the understanding necessary for categorising message and intentionality in human interaction and thus making sense of single social occurrences.

### **5.3. Social constructionism in B2B research**

Taking a perspective from afar and thus assessing the *organisational fit*, Weick was the thus most prominent scholar to suggest a socio-psychological lens also for managerial scrutiny (Müller-Busch, 1996; Fiedler, 1967; Ashour, 1973). In his work, he focused on borderline cases and situations under extreme time pressure and, for instance, life-threatening conditions in which social action has nevertheless to be coordinated and typically improvised (Feldman, 2000). For Weick, the *grammar of organizing*, that is, sense-giving processes, *heedful interrelating*, becomes most evident in such naturally coercive situations (Weick 1985:12; Pentland, 1995; Weick, 2001a; Bengtson et al., 2007).

This thesis in-depth scrutinises the longitudinal interaction of social actors in industrial networks as they attempt ambiguous innovation projects. The attempt to *Verstehen* will inevitably be linked to a preference for qualitative sociological methodology, which re-enacts social and individual interpretation complexes most vividly and thus captures them the closest possible (Wilson, 1982; Tomczak, 1992; Brock et al., 2009). As Brock et al. (2009) state, such research asks for the applied, concerted interpretivist efforts by social actors.

The shift towards qualitative social scrutiny has been so significant that it is now labelled *interpretative paradigm* and the emergent primeness of interpretation emphasised herein a *sociological turn* (Wilson, 1981;

Robertson, 1993; Brock et al., 2009).

### **5.3.1. Field studies in industrial marketing research**

From the very outset of my exploration of the research subject (starting 1999) the familiarisation with the underlying realms and processes of my empirical work follows a quasi-*grounded theory* approach which I am only now aware of (Glaser and Strauss, 2005). My professional experience in various business-to-business functions was no systematic and scientific research, but it gave me the fundamentally new insight I had yet lacked both by socialisation and by habitualisation.

Albeit not explicitly acknowledged, numerous theses arising from prior experience in a Lebensraum segment thus draw on a grounded first perspective.

In terms of the thesis project, my systematic scrutiny starts informed but reliant on the interpretative paradigm. This is why this thesis per se follows a pragmatic stance.

As shown in my sections on *habitus* (Bourdieu, 1976) and *staging* (Goffman, 1966), reception and active interpretation of social interaction can only be roughly predicted. However, in industrial scenarios, attitude and potential behaviour of singular decision makers and the support of very peculiar interest groups determine the likelihood of commercial success. Thus, any preceding simulation is likely to be equally distorting as revealing for the subsequent processes observed. Continuously, new structures are established in companies, with fluctuation of addressees in key functions and a changing social climate. New technologies create new *hypes* which are subject to cycles (Gartner, 2003). Business-to-business social research in a highly volatile technological and economic domain may thus be observing a *moving target*. It is thus necessary directly participate as the activities scrutinised take place for obtaining the most reliable data for interpretivist

analysis.

The practical field work will be similar to journalists' investigations, or ethnographers living with tribes as Goffman (1966), where long conversations, observed phenomena, and interviews are transcribed and thoroughly analysed. Additionally, the *natural*, which means physically available, data, like electronic files and contracts from the *original activity* have to be scrutinised for a differentiated comprehension of the process scenario (Brock et al., 2009).

This activity, in Goffman's (1966) notion the *play* and its framing has to be spatially, procedurally, and temporally delimited for research purposes (Finch and Geiger, 2010). Thus, a theatre play in a nutshell as a *defined situation* (Thomas, 1965; Goffman, 1976: 73) is created artificially. By isolating intentions and activities from the natural Lebensraum, the staged analysis systematically reveals organisational phenomena in intricate settings (Linton, 1979). Therein, secondary socialisation constitutes the conceptual lens through which thus empirical observations can be assessed. Thus, drawing on the concepts laid forth in this chapter, qualitative social research is made rigorous: founded, replicable, and consistent (Gibbert et al., 2008).

Observing the natural habitat of the industrial scenario requires intimate insight into one or more organisations. Ideally, there is unlimited access to a socio-cultural scenario to be examined (Boje, 1995). This would be the case if the researcher were the actor in personal union (Czarniawska-Joerges, 1995). For an experienced professional, however, there is no room for another demanding activity (Boyce, 1996). And even if this were viable, only one single person's perception would be covered (Boyce, 1995). This decisive position would bias the perception of other actors' realities (Czarniawska, 1997). Moreover, the researcher would encounter the dilemma of colliding interests as less flattering insight is gained.

With clearly negotiated access, intention, politics, and perspectives of an external researcher in an organisation, field studies promise a particularly rich insight. The *Chicago* school of sociology advocates such a qualitative, in-depth, longitudinal observation methodology and will be expounded in Chapter 6. It complements the interpretivist paradigm as an influential methodological approach to be applied in this thesis.

### **5.3.2. Limitations**

The philosophical and sociological concepts explained in this chapter exhibit some weaknesses. Social constructionist and constructivist thoughts may be viewed as the suggestion of a purely cognitivist stance. Therein, stability, congruence and coherence would be perceived as anachronistic in modernist complex, chaotic and conflict-laden knowledge intensive exchange relationships (Roos, 2002). Such a stressful condition would place research on industrial innovation networks into the realm of psychology and neurobiology rather than into socio-economics. Some scholars, like Berger, Berger and Kellner (1996) have been addressing their according *discomfort with [this] modernity*.

Meyer and Walgenbach (2007) have devised an alternative approach by combining neo-institutionalism with a diverse extension of Berger's and Luckmann's theory; thus trying to overcome this seeming contradiction between cognition and social construction (Müller, 1992).

A further weakness can be seen in Goffman's (1977:23) phenomenological examination of a flat projection of society as *is*, as a theatre spectator would see it. His concepts of interaction order inavoidably neglect the depth of the *stage*, the superstructures in sociology. These additional dimensions may be power relationships and unusual social phenomena leading to unilateralism or coercion (Claessens, 1974). Goffman (1976: 223) himself concedes that socialisation may fail as a lens for interpretation in less egalitarian or Eastern,

e.g. Confucian, societies. The applicability of the presentation of the self is thus limited to everyday processes of average ranks of predominantly Western cultures, and their Lebenswelt segments.

Moreover, an a priori focusing research on interpretative phenomena may be biased and lose some of its wider potential. Applying the lens of an extant society, habitat, and stage as set out in the concepts above may be misleading and narrowing down the view on individual or situated phenomena. Garfinkel (1967; 1973; 1980; 1990) has accordingly introduced an *ethnomethodology* stripping most prior sense from its context and inferring predominantly subjective, rather than inter-subjective, socio-economic analysis (see also Garfinkel-Sacks, 1976). Even though I found this thought appealing from the outset, it would have meant to co-enact rather re-enact my respondents' situations. So Garfinkel's approach proved widely impracticable for the pragmatist scrutiny I was to undertake.

The agenda for cooperation in technocratic societies is determined by practice and science equally (Österle et al., 1991:35). The socially constructed Lebensraum examined for this thesis however is the realm where industrial exchange takes place. This is why phenomena have to be isolated there in order to be authentic (Altrichter & Posch, 1998). According to Checkland (1981) however, researchers automatically forego their initial neutrality when fully immersing into the process under scrutiny as an observer and a participant. Thus, this thesis' methodical, data, and viewpoint triangulation which I will lay forth in the subsequent chapters have to provide the comprehensive understanding of the industrial Lebenswelt which is otherwise lost in subjectivity (Flick, 2008).



## 5.4. Conclusion

Social constructionism and its philosophical concepts take a great influence on research in complex industrial value exchange scenarios. The *common denominator* of mutually convertible values and perception, in the interpretivist paradigm, equally constitutes an essential mindset for doing joint business successfully. It is only by meeting inter-subjective criteria that a match of supply and demand can take place.

In this chapter, I expounded on this thesis' socio-philosophical foundation. I explained how the interpretivist *Weltanschauung* colludes with social construction of reality. Laying the foundation by Weick's sense-making and sense-giving, I expounded on the school of Berger and Luckmann, where primary and secondary socialisation facilitate everyday human interaction.

Drawing on Bourdieu's concept of *habitus* I expounded how this *Lebenswelt* is further segmented by individuals' financial, social, and cultural endowment. The roles claimed by Bourdieu for human interaction Goffman metaphorically calls a *theatre* with a front- and a backstage, ensembles, and concerted behaviour. I showed how, by considering a single stage play, a viable frame for a self-contained social observation unit is delimited.

Conclusively, I depicted how these concepts are carried through practically, and explored some of the limitations of interpretivism in this thesis' scientific agenda. In the following chapter, I will proceed with my philosophical foundation and establish the nexus between the interpretative paradigm and the appropriate methodology and methods for this thesis' qualitative field studies.

# Chapter 6

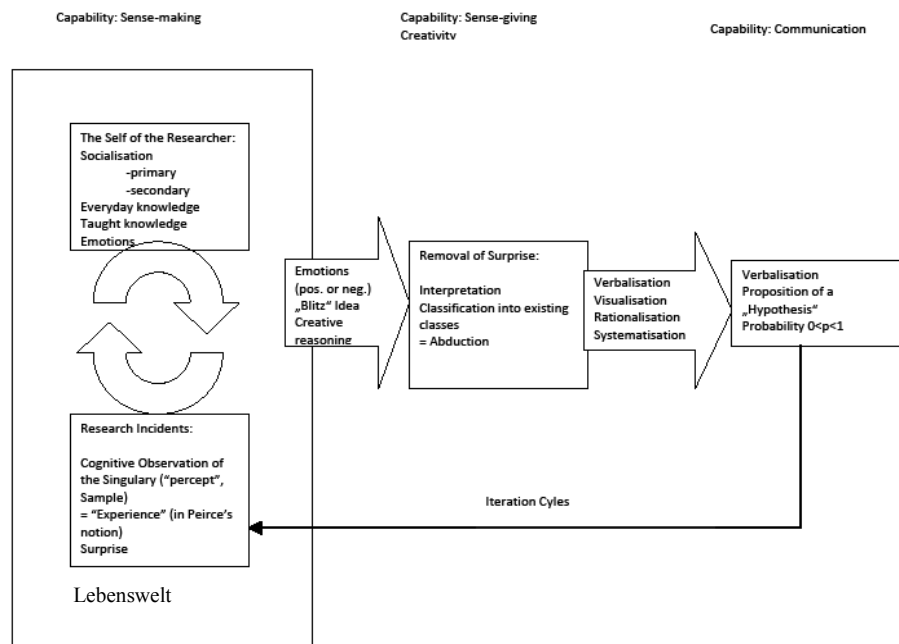
## 6. Methodology and methods

*The opinion which is fated to be ultimately agreed to by all who investigate, is what we mean by the truth, and the object represented in this opinion is the real. That is the way I would explain reality. (Peirce, CP 5.407)*

### 6.1. Introduction

In the current chapter, I will draw on this interpretivist foundation laid in the previous chapter and expost the methodical creation of scientific ideas from empirical insight. I will introduce the Peircian, scientific, notion of *sense-making* as set out in Chapter 5, namely the *perceptual judgement*. Employing the pragmatist technique of abduction in a qualitative research setting, surprising facts and routine observation can be thus combined to hypotheses to undergo subsequent verification.

This chapter's topical agenda I accordingly visualise in Figure 6.1:



**Figure 6.1: This thesis' methodological research agenda**

Following this outline, the current chapter will expound how my case studies in an industrial environment will be carried through in accordance with the interpretivism and social constructionism expounded in Chapter 5.

Methodologically informed by a Peircian pragmatist stance, I will describe the abductive cycle iterating observation, idea generation, verbalisation, and hypothesis re-evaluation. Triangulating methods such as cognitive socio-psychological landscaping will be demonstrated and integrated in the instrumental meta-cycle.

I will conclude illustrating the significance of qualitative case study research for this thesis. This concept encompasses case studies, ethnography, and the repertory grid technique. Drawing on Van de Ven (2007), I will put field study research into the context of the engaged scholarship concept. I will show how this nexus allows me to practically incorporate the methodological schools advocated in this thesis into the industrial Lebenswelt.

## **6.2. Pragmatism**

Pragmatism, introduced by the *Chicago School* and its proponents Charles S. Peirce, William James (1950), John Dewey (1910), and George Herbert Mead, (Lindner, 1990) is a philosophy of actions. It is therefore primarily concerned with people's interaction with their Lebenswelt and their coping with everyday problems. Nowadays called *the philosophy of usefulness* (Brock et al., 2009), it can thus be labelled a *science of thinking*. Drawing on human capabilities of learning, social integration, creativity, and emotions, the pragmatist school presents itself as a good match to the complexity of applied social research.

Pragmatist philosophy is positioned between utilitarianism on the one side and behaviourism on the other (Joas, 1996; Brock et al., 2009). Pragmatic scientists assume that by rational capabilities humans – themselves and

others – pursue paths they deem *most promising* and thus consciously risk potential errors and deviations.

Predominantly, Charles Saunders Peirce developed and formulated a theory of creativity in science (Peirce, CP 2.623). His concept of *abduction* entails a series of associative processes of sudden cognisance leading to the generation of new insight by flashes of inspiration. The pragmatist motto, *what works is true*, Peirce put into a methodological framework of *doing research*, to result in an enacted truth shared by all those who would do research on the same given, independent from the ontological or epistemological viewpoint assumed by them (Peirce, CP 4.207).

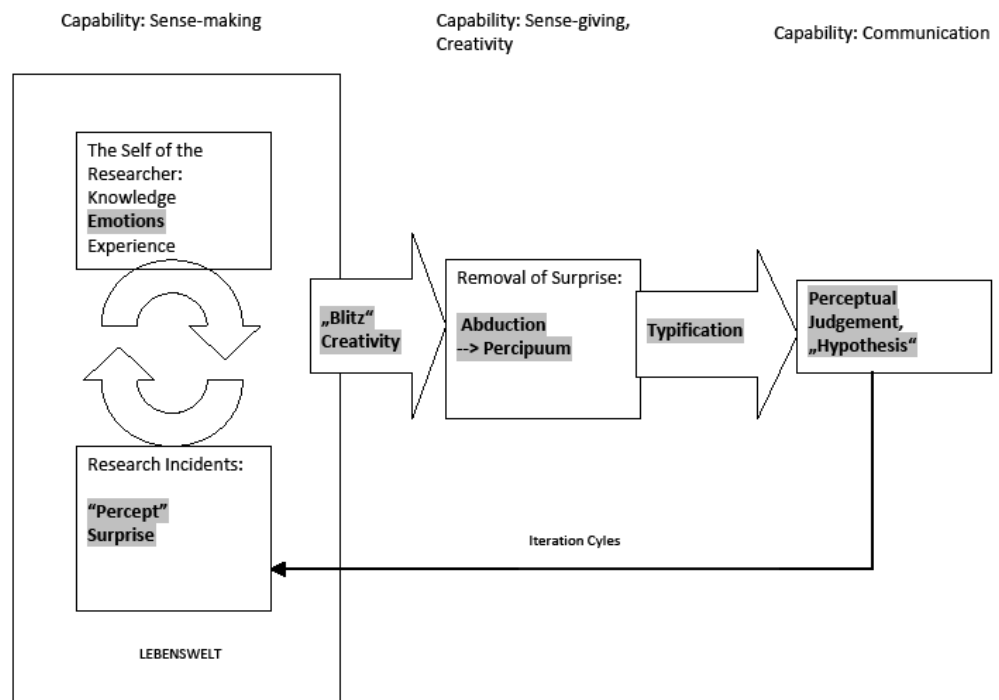
### **6.3. Abduction**

Peirce claimed his *abduction* be the only conclusive method capable of turning such surprises into new normality and thus genuinely extending mankind's knowledge. As business-to-business marketing researchers encounter new surprising findings, a new explanation is needed which may at first sight contradict their active or passive academic conviction. Hence, a new understanding has to be achieved and a generalisation derived. For this, the researcher's can draw on reproducible logics and his or her human *creativity* to remove the initial surprise.

Peirce labels the steps necessary for gaining a new understanding in his pragmatist methodology. He differentiates between the phenomenological content of an impression (the sensual reception he calls *percept*) and the conclusion drawn thereupon (the process he terms *perceptual judgement*), resulting in a *percipuum*. Thus Peirce distinguishes between the instrumental, empirical perception and the internalised judgement of a researcher, to result in the overall *sense-making* (Rosenthal, 1994: 52). Perceptual judgement and percipuum - contents as images and propositions as texts – Peirce sees as the ingredients of what he calls *scientific struggle* or

*inquiry* (Peirce, 1877; 1878).

Highlighting these abductive research activities according to my understanding results in a simplification of Figure 6.1 as in Figure 6.2:



**Figure 6.2: Peircian concepts in abduction**

This *situated creativity* pragmatists see as the *primordial form of human action* (Colapietro, 2009).

A business-to-business researcher's objective will be to find the *most promising* concept in the original focus of a research process (Feyerabend, 1976:47). This may well imply finding a variety of probable *percipua* first, to be narrowed down by further scrutiny.

In verbalisation we go beyond the core process of abduction to a step by

Peirce labelled *hypothesis* generation (Reichert, 2002). The finalising of the abductive stage leads to subsequent *detection* (Peirce, CP 2.430) with instrumental steps of further deductive and inductive inquiry (Peirce, CP 8.209; Wirth, 2000). These steps induce a new empirical cycle such as indicated in Figure 6.2.

The most interesting step in the abductive cycle is the percipuum generation. How can the *Blitz* necessary for this step be invoked? Peirce (1929:271) recognises two strategies as particularly promising. The first mental predisposition is induced by real doubt, unease, great pressure, and anxiety, the German *Angst* (Peirce 1992:170f). This state stimulates our *will to learn* (Peirce, 1929:271). Igniting strong personal motivation may be a particularly promising strategy for people who also outperform in examinations and under comparable self-imposed pressure.

The alternative, equally fertile, mindset is established during a state Peirce calls *musement* (Peirce CP 6.461). By reasoning, letting thoughts wander around, divining, loosely informed guessing, playing with visualisations, experiments, and dialogues, we reach the mental languor of daydreaming (Schleiermacher, 1838:283). This meditation, equally enabling the combination of new percipua, may well result in different orders than the pressured variant (Peirce, CP 6.461).

A contemporary active proponent of *in vivo* research is Checkland (1991). His concept of abductive cycles following the pragmatist tradition have been underpinning the request for a cyclic refinement (Joham et al., 2009; see also Checkland, 2000; Checkland, 2012). Non-positivist but rather pragmatist research bears its own epistemological and methodological legitimisation (Checkland & Holwell, 1998). The inherent iterations create opportunities for organisational learning as to economically and managerially relevant questions. Inter-subjective processes of making and giving sense to situations and findings thus provide an increasingly acknowledged base for

standardised field work (Reichertz, 2002).

In Checkland's (1991) *framework of ideas, research themes* declared ex ante take the role of Peirce's hypotheses. Together with a methodological foundation, a higher *truth claim* is attained which ensures the necessary recoverability (Toulmin et al., 1979:27; Checkland & Howell, 1998).

#### **6.4. Abductive research in action**

Industrial Marketing has seen a continuous shift from a purely transaction based to an additionally relationship driven focus, now predominantly represented by the network concept (Bruhn, 2009:9; see Chapter 2). Scientific *sense-making* of socio-economic industrial exchange and interaction herein requires a closely immersing view. Based on the interpretivist stance advocated in this thesis, the focus is on predominantly qualitative research techniques accordingly.

As pointed out above in explaining the scholarly view on the ludo game, the personal experience of the individual researcher will be deeply subjective. The meaning we assign to our observation therefore consists of intentionally coined and subconscious elements, called *interpretation* (Denzin, 2001). Denzin (2001) recommends *thick* levels for thus involving the respondents into the empirical process, enabling the target audience to include intuition into the views obtained from individual stances. As Van de Ven (2007) states, discussing alternative theories and concepts with our respondents enriches the view of our investigation.

As the research process thus becomes as a *social activity* (Salmi, 2010), the preferred technique is the case study. It may comprise of some or all of the following: interviews, document analysis, and observation, to a varying degree with a passive or more active role of the observant (Yin, 1989).



This thesis will draw on deep access to single scenarios where innovation of engineers, scientists, and project managers will meet the expectations of exemplary pioneering customers. Therefore, the type of in-depth generic case study, focussing on analysing few intensively covered settings, has evolved as the overarching concept of methodical choice (Checkland, 2006; Van de Ven, 2007; Ford and Mouzas, 2010:960). For this thesis' specific scrutiny, both this depth and the theoretical frame will be established by pragmatist iterative cycles of abductive inquiry.

The instrumental empirical process will combine in-depth interviews, semi-structured questionnaires, and – in a subsequent iteration cycle – ethnographic field studies with the socio-psychological evaluation of personal constructs (Kelly, 1955; Werz, 2006). In particular, this thesis will consider a set of comparable cases with similar parameters for advanced robustness. Moreover, I will triangulate data across respondents, over time, and with secondary materials for internal validity (Flick, 2008).

## **6.5. Case Studies**

*At a minimum, to be credible a new theory should provide a better explanation for a phenomenon than the status quo explanation.* (Van de Ven, 2007:126)

As set out above, following Peirce, abductive research has to produce a novel insight, the percipuum resulting in a hypothesis to be tested (Reichertz, 2002). This approach is congruent with early theory creation in qualitative case studies which Andersen and Kragh (2010) describe as *in vivo* approach. This strategy is marked by an early paradigmatic decision which is refined in empirical iterations.

Case study research in particular is considered a convenient classical

discipline and pivotal methodical approach, dating back on basic works in the 1950s (in Germany represented by Pirker et al., 1955; Institut für Sozialforschung, 1955; Popitz et al., 1957). Currently, case studies are collectively seen as not a single method but a research strategy combining diverse empirical techniques (Yin, 1989). From the outset, the direction of scrutiny is determined: focus and problem, analytical frame, the theory drawn upon, the definition of the *case* and the combination of techniques.

This way of narrowing down choices from the outset may however cause theoretical myopia (Andersen and Kragh, 2010). The abductive way of empirical testing and refining theories sequentially may thus be considered an *unorthodox* practice (Dubois and Gibbert, 2010). For such research to become *valid*, qualities of *craftsmanship* and negotiation are required, as well as a special focus on chances for realisation (Järvensivu & Törnroos, 2010). As this thesis is predominantly about processes and much less about states, the case study methodology is thus particularly adequate (Van de Ven, 2007).

For increasing robustness of socio-economic case studies in general, research has seen a shift from rudimentary single-case based studies to the consideration and evaluation of comparable processes. I will therefore apply a series of similarly structured abductive study cycles to three comparable and closed cases in this thesis' research project. The rich mode of immersing observation ensures the robustness and thus credibility of all comprehensive field studies (Matuschek et al., 2007; Borghini et al., 2010; Salmi, 2010). The price to be paid for these qualities is however the need for a high dedication by the researcher and a continuous commitment of those researched (Tullius, 2004).

## 6.6. Ethnography *at home*

Collaborative ways of doing social research like the described call for an emancipated position of the scientist in the organisation under scrutiny – assuming a longstanding participant view as well as actively immersing in power structures and processes (Van de Ven, 2007: 26f; Visconti, 2010).

Historically grown within anthropologic science, ethnographic field studies aim at researching humans over an extended period, in their natural Lebenswelt, by participant observation, collection of photographs, artefacts, documents, and by subsequent active analysis of the gathered by the researcher (Denzin and Lincoln, 1994; Emerson et al., 1995; Strauss and Corbin, 1996; Disselkamp-Niewiarra, 2000; Atkinson et al., 2001; Bryman, 2001; Beer, 2003). As claimed by Geertz (1973) who was drawing from symbolic anthropology, meanings not only of speech and writings. Actions and relationships are to be interpreted like the text of a book and complement the explicit knowledge of the researcher (Hirschhauer, 2006).

The Lebenswelt to be analysed is particularly familiar to me the researcher. My endeavour can thus be classified as *anthropology at home* more exactly. Therein, prior explicit and internalised knowledge enable an efficient harmonisation with those researched (Hirschhauer, 2006). Recent comparable ethnographic scrutiny has covered workplace scenarios such as the creative work in information and communication technologies and software engineers (Götz, 2007 and 2010; Barth, 2009; Braun, 2010; Dobrzynska, 2010). Hoholm and Araujo (2011) have recently conducted an immersing, real-time ethnographic, research particularly for innovation processes in industrial marketing.

My experience in the industry and my research systematics raise the potential to conduct several combinations of ethnographic studies as listed in Table 6.1:

**Table 6.1: Types of ethnography employed in my research**

Type of Ethnography	Insider <i>at home</i>	Outsider (tentative)
Non-interventionist	<b>Sitting at the table, making notes</b>  <b>(observing the game)</b>	Attempt to treat phenomena as anthropologically strange ( <i>trying to view the game from an outsider's perspective</i> )
Interventionist	Assuming role as technical expert for a change  <i>(teaching how to cast the dice)</i>	Punctual alienated participation as experiment  <i>(introducing a third dice)</i>

As indicated in bold in Table 6.1, my case study approach is a predominantly non-interventionist but from the perspective of an insider. The three other combinations recede in significance for this thesis, albeit I draw on them as well as the possibility arises. Recording an observation, I thus have to state the respective role I am assuming in that particular episode.

### **6.7. Triangulation with psychology of personal constructs**

*The greater the number and variety of tests that do not reject a hypothesis, the more credible it is.* (Van de Ven, 2007:125)

So far, this chapter expounded on the abductive cycles in this thesis' case study methodology, involving ethnography at home and abductive reasoning. The cycles as depicted in Figure 6.1 include triangulation across respondents and over time for internal validity (Flick, 2008).

A framework suitable for this triangulation has been suggested by George A. Kelly (1955). His instrumental theory examines and visualises the personal constructs of a thought Lebenswelt in a research scenario. Like Peirce, he advocates a concept *sense-making by perceptual judgement*, thus being in accordance with the interpretative paradigm. Extending this claim, Kelly (1955) postulates that the attitude of an individual is mediated and emotionally coined by the way in which events are personally anticipated. The person as such acts as a scientist endeavouring to understand the world by means of theory (foresight) and hypotheses (expectations), leading to behaviour as a continual *experiment with life* (Kelly, 1955).

Experiences, Kelly argues, are stored within ourselves in the shape of *constructs* which he labelled *helpful concepts*, *comfortable fictions*, and *transparent templates* synonymously. Humans place their individual schematics on the Lebenswelt and derive perceptions and behaviour from the result. This *personal* construct is thus individually coined as a unique trait like a personal fingerprint (Kelly, 1955).

#### **6.7.1. Theoretical foundation of personal constructs**

Kelly (1955:46-56), set out a framework for internal diagnosis, validation, and the subsequent triangulation of psychological constructs. In particular, he drew on simplifications of extreme positions in a person's world view, accumulation of past experience, and stringency of behavioural consequences.

These internalisation rules were set out by Kelly as corollaries, of which I deem some particularly relevant for this thesis:

*4 Dichotomy Corollary: A person's construction system is composed of a finite number of dichotomous constructs* (Kelly, 1955:59).

*7 Experience Corollary: A person's construction system varies as s/he successively construes the replication of events* (Kelly, 1955:72).

*10 Commonality Corollary: To the extent that one person employs a construction of experience that is similar to that employed by another, his/her processes are psychologically similar to those of another person. (Kelly, 1955:90).*

Thus postulating eleven corollaries in total, Kelly (1955) erects an edifice of individuality which at a time enables pragmatic commonality with other persons. Core to his work, the dichotomy corollary is both among the most cited and the most significant for research practicality:

*A person's construction system is composed of a finite number of dichotomous constructs (Kelly, 1955: 59).*

Only dichotomy according to Kelly is what assigns significance: if everything were (equally) warm, there would be no meaning in the attribute. Of those extant mindsets of bipolarity, C.G. Jung's (1990:45) acknowledged theory of *Prinzip der Gegensätze* (principle of opposites) mainly informed Kelly's psychological corollary accordingly. Like in the Chinese *Yin – Yang* dualism, also linguists and anthropologists confirm as being an integral constituent of our language and present in any culture (Ames, 2003; Chiu and Shu, 2008).

### **6.7.2. The repertory grid technique**

A clinical psychologist, Kelly instrumentalised his personal construct psychology for professional purposes. The assumption that every individual has his or her own mental world construct, *personal constructs* lay the foundation for the thus developed quasi-quantitative psychological diagnostic technique named *repertory grid* (Werz, 2006).

In Werz' (2006) claim, our thought visual representation is actually calculated by means of a mental vector analysis. Kelly (1955) developed a comparably simple normative diagnostic method to enable the spanning of according n-

dimensional spaces. Therein, cognitive dimensions are represented by relevant *elements* (such as people, activities, and objects) and matching *constructs* (qualities attributing meaning to these elements).

The elements are then compared with respects of the constructs. This is done in a complete permutation in groups of three. In each triple, the two most similar elements respective to a construct are determined and then contrasted to the third element. The normalisation of the thus obtained matrix and vector representation leads to a visual landscape of the person's inner picture.

This visibilisation can induce further discussion and individual insight. Notably, these claims all emphasise the sense-making qualities of the people researched, albeit trying to introduce some positivist steps of scrutiny.

Due to the standardisation potential arising from matrix normalisation, instrumental information technology support has been made possible. There are computer based repertory grid systems available for professional and academic use. In this thesis, I will use an online based grid calculation server of University of Calgary, named WebGrid 5 (University of Calgary, 2013).

By such a computer-based diagnosis and vector analysis, the interviewer is increasingly enabled to concentrate on the actual task of cognitive elicitation. However, the quality of such interviews remains invariably crucial for an expressive outcome of the method (Davis et al., 2006). In social science, a semi-directive interview may therefore be a valuable antecedent leading to an unprejudiced nomothetic determination of the grid elements and specific constructs relevant in a framed setting.

As ideographic sociological findings are more difficult to triangulate, the accordingly combined exploratory and quantitative scrutiny is particularly indicated for this thesis' methodology.

## 6.8. Limitations

### 6.8.1. Criticism to abduction

Abduction has since its conceptualisation been criticised by prominent scholars. In Wittgenstein's, Mead's, and Piaget's opinion it is too idealistic an approach. Perception, these philosophers argue, is necessarily linked to interpretation by human identity and cannot be procedurally isolated in Peirce's sense (Baerveldt et al., 2006). This concern is also addressing the abductive predisposition of the *prepared mind*, the *attitude*, drawing on conviction, and the intuitive component.

For the recursive, reflective approach in abduction, Checkland (1985) sees a conflict between the general research goals (Checkland & Holwell, 1998). The objectives of change, new knowledge, and legitimisation of measures may point to opposite directions as to empirical design and methodical execution. The common understanding of researchers and respondents with different focal intentions may thus be tarnished. This weakness is inherent in any longitudinal qualitative methodology; the tight contact to those researched may however distort the focus additionally in a cycle of refinement and verification.

This fostering *abductive mindset* as advocated by Peirce does not guarantee the validity of the conclusions drawn therefrom. Regardless how many possible percipui are deduced and detected inductively, repeating this three step over and over, there is no verification in the strict sense. The only attainable truth is an inter-subjectively construed and thus shared one. This common reality can, according to Peirce, only be established in the unrealistic case that all members of a community have achieved the same understanding concerning a problem resolution (Avison et al., 1999). This postulate even pertains to future generations: the process of verification cannot be concluded on principle (Peirce, 1985:229). The claim of infallibility



in scientific matters would in Peirce's view certainly sound blasphemous (Houser, 2006).

A more contemporary theory of abduction stressing cognitive psychological plausibility has been suggested by Johnson et al. (1994; Krems & Johnson, 1995). By conversation and self-characterisation, researchers can create awareness for the underlying personal stance for *Verstehen* and *causal hypothesis* generation. As researchers stay in their individual referential frame of which they are aware, the selection, narrowing down and verification mechanisms will be coherent. With this rigour, the subjectively *most promising* can be objectively underpinned and pragmatically pursued.

### **6.8.2. Methodologies not chosen for this thesis**

When initiating the research for this thesis, I had the trained natural scientist's typical inclination towards deductive methodologies. This preference was reinforced by my industrial respondent's focus on *hard*, measurable facts they deemed superior in scientific expressiveness.

After a thorough research in the extant industrial marketing and methodological literature, however, I actually refrained from abductive methods. The main reason is that the particular tasks of social research in the IMP tradition impede even the appropriate selection of measurands and make them a guessing task.

Gill and Johnson (2002) assert that most of the important phenomena cannot be quantified at all. Humans are, particularly in the interpretative paradigm, no scientific objects such as perceived by natural scientists. As a Chemist I saw this dilemma from the outset, acknowledging the human emotional and irrational influence on the scientific area to be scrutinised (Walker, 2005).

If I had assumed a behaviourist paradigm, I would have sought to *find out about behavioural patterns rather than the reasoning behind them* (Möhring,

2013).

### **6.8.3. Gender issues of this thesis**

The German technological domain is traditionally dominated by males, a fact which has been reinforced by considerably lower wages for women in engineering (Spiegel, 2012). The habitualisation in high technology organisations such as in company A is thus very masculine throughout. The few women are considered to be *tokens* in an industry coined by males (Kanter, 1977). If established in a male domain, women are however seamlessly accepted by their colleagues in Western cultures (Budig, 2002).

The three projects under consideration were almost entirely male-dominated and in most meetings, only men were present besides myself the token woman.

However, I had been thoroughly habitualised in the area of scrutiny in the course of over 10 years in the industry. As an educated Chemist and computer specialist, I was obviously assigned the role of a colleague and expert as a woman. During my natural scientific studies I had been a token as well. As a programmer and as a service manager, I had moreover assumed male subjects of conversation, such as football, cars, savoury food and motor sports.

New entrants to the three projects would be more uncomfortable initially. However, after the first joint lunches, they treated me like everyone else in the room. Moreover, I felt like my presence would cause less latent aggression than the sudden participation of a strange man.

As I knew the industry, I took into account to explore an almost purely male domain. The particular engineering habitat thus constituted a mere side condition of the research.

In Chapter 7, I will illustrate further difficulties of this thesis's actual research

process and the sources of potential bias as well as the countervailing measures.

## 6.9. Conclusion

In the current chapter, I have shown how the methodological agenda is shaped by abductive cycles in a pragmatist approach in accordance with the interpretative paradigm. This thesis' research starts from the *observation*, *sense-making* and *sense-giving* in the Lebenswelt to be explored, namely the *percept*, *perceptual judgement* and *percipuum*. I will thus derive a working hypothetical proposition for theoretical advancement.

Ethnography at home will constitute an element of particular importance in this thesis' empirical stage. I will draw on the psychology of personal constructs for additional insight into individual and collective cognition. Internal triangulation with respondents and external verification with semi-quantitative methods, particularly in the course of the second abductive loop, will thus complete this thesis' methodological agenda.

# Chapter 7

## 7. This thesis' research procedures

### 7.1. Introduction

In this chapter, I will introduce the industrial cases scrutinised in this thesis. I will illustrate the technological context in which the innovation projects in company A take place. I will then expand on the selection and set-up of the three cases and how I gained and maintained access. Graphically representing the network schemes, I will depict the according boundaries for analysis of immediate networks located in the wider *network horizon*.

Drawing on Van de Ven's (2002) concept of *Engaged Scholarship*, I will highlight the empirical proceedings, the advantages but also limitations and difficulties therein.

The scientific processing of the empirical data will be expounded. I will show by which dimensions derived from theory and literature review this thesis' coding matrix was developed. I will illustrate how the narrative materials are coded. This chapter will conclusively illustrate how analytical *micro sequences* in the formal shape of the scorecard set out in Chapter 1 are generated.

## 7.2. This thesis' three empirical cases

As set out in this thesis' introduction, my empirical work took place in an industry-leading multinational process and automation corporation, company A, namely in their corporate research centre in Southwest Germany. The cases considered are located in a wider network with three different but overlapping immediate networks. What unified them was the participation of the focal firm's, company A's, R&D department. The projects revolved around highly complex process- and product-accompanying repair, maintenance and availability management for which the research centre was to innovate visionary new services.

### 7.2.1. Technological background

Since the 1970s, rapid advances in information technology and telecommunication have induced the age of automation (Davenport and Short, 1990).

In particular, complex machinery in high technology industrial operations is now predominantly monitored with the help of hardware generated basic electronic signals. Especially the integration of *SNMP* (simple network management protocol) signals of mechanical and electronic assets enables comprehensive operational control (Gavalas et al., 2000).

Increasingly, goods are also made *intelligent* by the application of *RFID* tags (radio frequency identification; Zhu et al., 2012) and enterprise asset management systems (Kumar and Balraj, 2006). For critical assets, a bundling of *configuration items* (OGC, 2012) – *SNMP* monitored and *RFID* technology equipped parts and machines – is put into a logical mutual dependence and monitored by electronic agents assessing the impact of a signal or a disruption.

Middleware systems thus try to make optimum use of these data by capturing, storing, monitoring, and processing them in a consistent and resource efficient way (Zhu et al., 2012). Particularly *service impact management* (Karimi et al., 2001) thus optimises business and industrial processes.

The current efforts in information technology deal with horizontal integration. Companies have recognised that they need to reconcile their specific middleware modules to enable a new level of sophisticated use in a so-called *federation*. Before starting this thesis' research project, I had among others been working on such federation projects as a computer specialist (Backend Innovations Report, 2004). To date, establishing industry-wide interoperability still constitutes one of the challenges in technical advancement (Rai and Tang, 2010). In addition, there is a great desire to strengthen the robustness of processes by industrial artificial decision making techniques (Nemati et al., 2002; Power and Singh, 2007). Whereas it seems only a minor step from cross-middleware integration to artificial intelligence enhanced integration, the complexities of such a project grow exponentially (Karlsson et al., 2007).

One of the most notable characteristics of such a mutual integration project is what I call the iceberg phenomenon. To replace one manual or computer batch job by a seamless information processing integration, experts may require intensive analysis, programming, compilation, and testing (Karlsson et al., 2007). The outcome of this tedious change, however, may be just a slightly changed graphical user interfaces offering a new button or an additional line of useful content.

Salespeople and pre-sales consultants tend to further downplay the risk and imponderability of federation and cross-operationalisation (Murtuaro and Kujala, 2007). In such a buyer-seller constellation, mutual misunderstanding and dissatisfaction is bound to occur (Moore and Benbasat, 1991).

This observation I made personally in my prior projects in the information technology industry, among them a comprehensive television content management system (Portal der Wirtschaft, 2002), a major German

telematics project (Logistics IT, 2004) and governmental document management systems (Press Relations, 2002).

### **7.2.2. Selection of the projects for case study research**

When I started looking for an area of research in industrial marketing, I predominantly browsed the dissertation databases of the companies I knew from my previous employments. Albeit only declared a master dissertation project, the most suitable offer was with company A's nearby research and development division. This publicly announced topic would later become this dissertation's third case.

As I had known some of their scientists and managers, I called the responsible human resource department and learnt that my former customer Claus had posted the research offer. He called me immediately after and promised to make the area of scrutiny comprehensive enough for a PhD project.

At that time, his team had three major projects which had started almost simultaneously and would each take about three years. These ventures were considered highly relevant and strategic and would involve partners who were likely to include me as an observant in their project work as well. Claus ensured Company A would agree to grant me formal access and ensure ongoing response of their staff. As I had identified the withdrawal of access in the course of ongoing research as a major threat, this access in a stable environment constituted a great advantage.

Thus, the three cases had been determined by the interests and selection of company A. This was justified because the cases were nevertheless regular projects in their own right. They had been set up before I had signalled interest in doing research on them, and their course of action was not altered by my scrutiny. The opportunities of gaining intimate access into highly

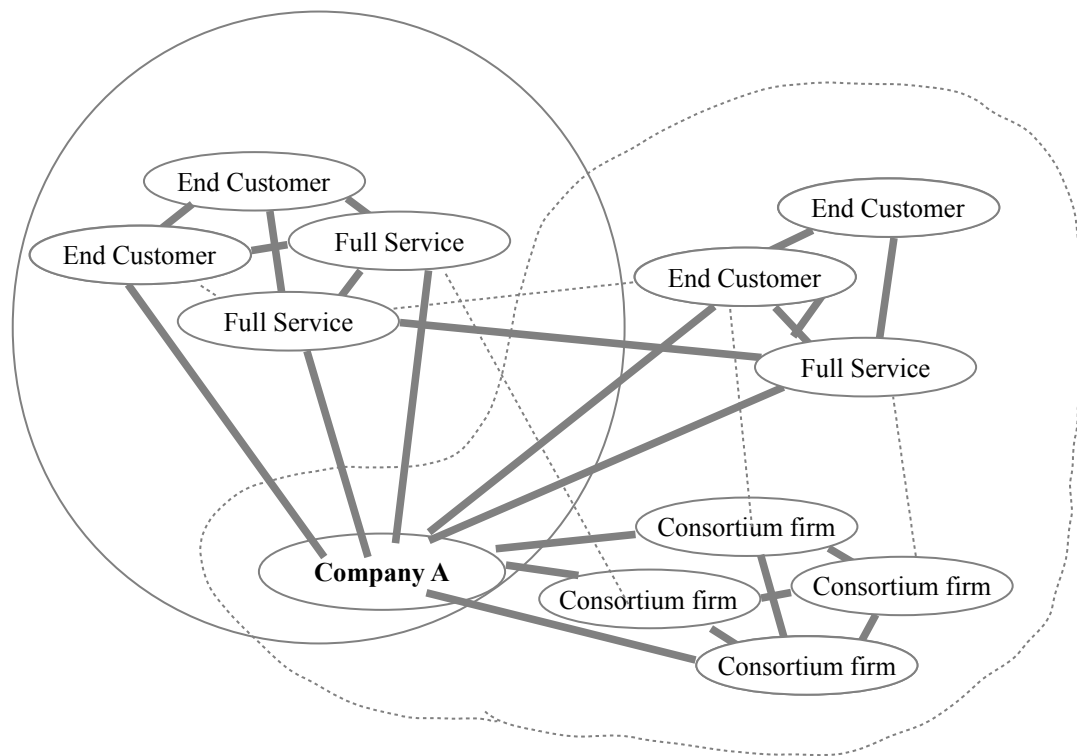


relevant situations by far outweighed the limited choice.

I was aware of this quasi-laboratory situation and sought to counter the sources of weaknesses inherent in this selective approach.

First, by my own work experience, I was able to put the empirical findings in relation with a wide set of industrial practices. Second, I sought reaffirmation by company A staff and their allies that the projects under scrutiny were typical for immediate innovation networks.

The three projects had been launched within company A's wider network to form three stable immediate networks for strategic innovation. Drawing on my representation of immediate networks (firm and dotted line). The boundaries of the respective strategic networks are indicated using in the wider network in Figure 2.3. The researched projects' constellation is thus depicted in Figure 7.1 as follows:



**Figure 7.1: The relatedness of Projects 1 / 2 (firm line delimiting the immediate *network*) with Project 3 (dotted line delimiting the immediate *network*).**

For simplicity reasons, I drew only one of the first two projects. They commanded quite similar constellations involving two different full service divisions; one in Europe and one world wide, in a vertical immediate network as shown in Figure 7.1. This place holder I put in relation with the third project which also involves full service but additional horizontal elements in the immediate network. For each of the projects' actors out of company A, the other two scrutinised in this dissertation constitute the *network horizon* (Holmen and Pedersen, 2003) of which they basically know.

The desired impact for company A would be to derive regularities for further innovation projects. Claus, his team and R&D superiors hoped that they would be able to draw on the new insight into strategic immediate networks. The scorecard introduced to them from the outset pointed into a direction they already deemed promising.

### 7.2.3. The projects

The multinational engineering company A's service division is a world-wide organisation, serving existing customers of automation and hydraulic products as well as industries operating on other capital intensive, complex and integrated equipment. The division offers the most comprehensive level of repair and maintenance, *full service* management. Accordingly, the whole business unit is called *full service division*.

Therein, entire customer plant operations such as huge paper plants, large scale chemical processing, and complex systems on oil platforms and high technology container ships are taken over by company A's staff. Seamless and non-disruptive functionality is maintained by on-site engineers, increasingly aided by means of the advanced information processing capabilities described in the previous section. Tailored information engineering takes into account the actual level of integration between middleware components, always complemented by the experience and skills of company A experts and technicians.

These perennial large-scale contracts have evolved as a significant and highly profitable business for company A with high potential for expansion and has therefore been strategically emphasised globally over the past decade.

Due to the attractiveness of granting full service, however, similar large multinational organisations seek to gain market share and possibly take over some of company A's expiring contracts before they can be renewed. Aggressive claims sometimes suggest these competitors command a superior technological base, especially in the hard to verify artificial intelligence domain. To sustain the company A's claim for specialist prevention and repair capabilities, the organisation therefore needs to evaluate those claims, enhancing or refuting them, and thus re-establish transparency in a turbid market environment. Moreover, the full service

division has to self-develop innovative tools with genuine added value keeping them ahead of competitors' skills and knowledge.

The three pioneering projects I was to examine in my thesis were revolving around this need for advanced integration and artificial intelligence in management of complex capital intensive equipment, goods and logistics. The cases were aiming at becoming similarly innovative and challenging, each meant for generating an innovation that would differentiate A from its competitors.

Carried out under the dominance of the company's research and development department, I was introduced to the respective scenarios and permitted to observe them in parallel over a period of almost three years.

The empirical strategy comprised of interviews, negotiations, conversations, artefacts and network pictures as units-of-observation. The three units-of-analysis – the overarching constructs to be scrutinised – were the interaction in the respective projects among teams and individuals therein. In addition to the socio-economic and technological dimensions, these analytical entities had thus an additional temporal quality.

An applied network research blueprint for the three cases is outlined in Table 8.a in the appendix. A synopsis of the projects' characteristics is outlined in Table 7.1:

**Table 7.1: Characteristics of this thesis' case studies**

	Case 1	Case 2	Case 3
Description	Proof-of-concept for reliability prediction of resource flow in complex industrial equipment in full service	Mobilisation of repair, maintenance and asset management for full service engineers	Technical enabling of high process variability and decision support for asset flow in full service
Project leader(s)	<b>Richard</b> (team member of Claus)	<b>Bernhard</b> (team member of Claus)	<b>Claus; Ludwig</b> (team member of Claus)
Involved business units/ companies	Full Service Global, Full Service Australia, Full Service team of a timber plant in Sweden	Full Service team Göttingen, Full Service Egypt	Full Service ( <i>Oil Platform Service Centre, OPSC</i> ), Companies B, D, E, Think Tanks C, G, University F
Degree of uncertainty of innovation	High	Medium	High
Detailed formal agreement process	Kickoff 2 Requirement documents	Kickoff 1 Requirement document	Formal specification Tendering process Kickoff Requirement document Formal consortium contracts <i>among equals</i>
Duration	2 years	2 years	3 years
Volume in company A	250.000,00 €	300.000,00 €	1.200.000,00 €
Formal goal(s)	Either: refutation of competitors' claims or: sellable reliability prediction tool	Sellable product	Proof of concept and pilot for a sellable product
Outcome	Scientific evaluation of technical potential and founded refutation of competitor claims	Sellable product	Punctual instances of proof-of-concept
Scientific outcome	2 publications	1 publication	4 publications

The medium-sized projects, of which I labelled my observations as *case 1* and *case 2*, each had a duration of a little more than two years. As also illustrated in Figure 7.1, these were mainly cross-divisional undertakings where end customers were buffered from the locale of innovation by their subcontracted full service intermediaries. As each business unit in company A still had their own administration, goals and often diverging terms and conditions, formal agreements were put in place between research and full service to initiate the collaboration. Although the cooperating scientists and staff from quite distant operational divisions were acting as quasi-strangers within the huge organisation, their joint projects were nevertheless characterised by a reasonable level of mutual commitment.

The project I was to accompany in case 3, taking three years, spanned across several units of different medium to large companies (one of them company A) and think tanks. The realm within the dotted line in Figure 7.1 illustrates the relationship with company A (representing the research centre), their full service and according end customers, and the consortium companies. The project was settled by a formal contract *among equals* meant to having quite similar, unifying, implications as an intra-organisational agreement as in cases 1 and 2.

The funding in each case was strategically granted by innovation funds which were overlooked by steering committees. The vision of the pioneering projects was to establish complex processes supported by artificial intelligence entailing a high degree of middleware federation. In company A, the potential outcome of the three presumed innovations was considered as a strategic differentiator for ensuring the corporate full service division's competitiveness.

For each of the project, a first technical and functional specification had been set out in cooperation with the scientific project initiators. Anticipating the indeterminate developments as far as possible, the project leader and a kick-off team collated a preliminary course of action and determined the duration over which the funding and cooperation would be allowed to stretch.

Whereas the three innovation ventures were fairly comparable in most points, only the financial compensation was arranged slightly differently. In the third project, public subsidy constituted an additional incentive. The participant academic institutions (mostly public think tanks) were to receive sponsorship for their entire staff for the project's duration. Industrial participants like company A were expected to contribute 60% of the cost themselves. 40% of the expenditures were compensated by public grants, this relief in funding was particularly appreciated as the continued employment of technical experts meant a temporary financial strain in the difficult year 2009.

Like the first two projects examined in this thesis, the consortium innovation was to utilise existing informational technology, tools, and mechanisms. For some of the more innovative business processes, new algorithms were to be developed. The aim of Project 3 was to enable service and operations agents without programming skills to be able to change and dynamically model their current business processes. The outcome would be called *complex events*, indicating real-time information triggered workflows even across organisational boundaries. Highly generic, this degree of freedom was meant to be applicable and multiply re-usable in any large-scale and medium-sized enterprise.

The practicability and further use of this dynamisation product was to be coupled to and tested on data, information, and RFID equipped product movements.

Claus, who was the team leader in the IT process research department, also took over the role of the project leader of the largest, third, project, towards which three additional persons of his team were to work for the whole three years' duration.

Like among all applied projects, there were considerable differences, most visibly of staffing, conciliation of goals, and work cultures involved across organisations or units. Nevertheless they share many vital traits like

technology, middleware federation, the business organisation targeted, and degree of uncertainty. These three cases can therefore be seen as non-random samples of firm-specific innovation collaboration scenarios.

### **7.3. Engaged scholarship**

Arranging the research process pragmatically and in abductive cycles as laid forth in the methodological chapter, my empirical proceedings led to mechanisms identified in Van de Ven's (2007; 1/e) description of *engaged Scholarship*. Towards the organisation and towards the research scenarios covered herein I chose a perspective described therein as *attached; inside*, pursuing the purpose to predominantly *describe; explain* (see also Chapter 6). This combination would most likely lead to *co-production of knowledge* (Van de Ven, 2007:27).

My descriptions and explanations from inside, it was to turn out, were perceived as highly desirable by my respondents in Claus' team and the participant organisations. Thus reciprocating value into the field, I was able to ensure maximum commitment.

This thesis' collaborative ways of doing social research naturally call for an emancipated position of me, (me as a scientist) in the organisation under scrutiny. I am to assume a participant view as well as sometimes actively immerse in power structures and processes (Van de Ven, 2007: 26f).

Sometimes, as shown above, I was subject to politically influenced behaviour or reservations from participants, for which I became sensitised. At a time, discourse and conflict also made me experience the setting much more intensely.

In research negotiation with company A, I tried to achieve the tightest possible and most intensive synergetic collaboration in the actual thematic of my work. Being a former technician and natural scientist among technicians and natural scientists, but also a trained management specialist, I developed



an advanced methodology to bridge the perceptual and communicative gap. Van de Ven's (2007:238) concept of *dependence* – the need to reconcile mutual stances in a research question – called for such iterative negotiation and dialogue in the research partners' proprietary terms.

As set out in Chapter 6, my research approach was coined by concepts I had chosen pragmatically so as to fill my abductive cycles. This approach is congruent with *engaged scholarship* as illustrated in Table 7.a in the appendix.

The first step in this approach of *engaged scholarship* is seeking dialogue with the field in which and for which the research is to be designed. In this thesis, this step had been largely anticipated by my perennial participant experience in various projects and processes in similar industrial environments. To company A, I had moreover been a key account manager with technical functions as well, thus familiar with the first two projects from their early planning stage. A concept of relevant questions, key performance measures, the language and habitus of the field and deep insight into the everyday operations and communication had thus formed in my head. Almost like in a naturally occurring grounded theory approach, I had developed a comprehensive internalised picture only an insider could acquire.

A former member of the practitioners' group for which the research would be in part designed, I was able to formulate an initial question in Van de Ven's sense (2007:74), agendas of scrutiny being no natural givens but prioritised by the presumed recipients. As social phenomena can only be assessed via an inter-subjective lens, which I shared already, I had a mature stance in my research negotiations.

The variation and extent of interaction necessary for this kind of collaborative research is further illustrated by Table 7.b to 7.d in the appendix showing my interaction for the projects. In the first two cases, I was able to draw on prior

familiarity with the projects to immerse into the scenarios very quickly. In the third project, stretching over three years, the participant observation even included many day-long workshop attendances up to flights across Germany for attending multi-day milestone meetings as shown in Table 7.d.

The balancing act of deep immersion, cyclic refinement and on-going observation as advocated in engaged scholarship caused several dilemmas or reservations as well. These were addressed by anticipation or counter measures as illustrated in Table 7.2:

**Table 7.2: Difficulties in the research process; countervailing measures**

<b>Difficulties</b>	<b>Countervailing measures</b>
Confidentiality of subject-specific and personal information	Non-disclosure agreement ( <i>NDA</i> ), mutual trust; anonymisation and abstraction of findings
Reservations of the observed persons	Explaining professional background; emphasising work experience in the field
Sociological and qualitative approach perceived as inferior by observed persons	Thorough introduction into the scientific base; <i>translation</i> into mathematical formulae; systematisation
Potential benefit unclear to respondents	Dedication of ancillary research objectives to operational and managerial requirements of respondents
Temporary conflict situations due to mutually perceived input/output disequilibrium	Mutual commitment and appreciation; constructive dispute taken into account
Closeness to scenario versus nuisance for the observed	Developing personal relationships; small talk, participating in lunch, accepting a <i>no</i>
Scarce temporal resources of respondents	Negotiation of access; thorough preparation of interviews; focus through methods
No access to internal information flows as an outsider to the email system	Establishing a regular pace for telephone calls; active query for upcoming activities
Spatial distance (40 km to research centre)	Personal flexibility; maintaining mobility

At the same time, it was my own track record in the field by which I had overcome the challenge of access that I recognised as a major weakness of my studies as well. Therefore, I had to carefully anticipate and reflect on

extant or arising pitfalls and take appropriate countervailing measures. The main sources of potential bias or lack of robustness of my findings I summarise in Table 7.3:

**Table 7.3: Weaknesses in research process; countervailing measures**

<b>Weaknesses</b>	<b>Countervailing measures</b>
Limited generalisability due to the narrow selection of cases	Awareness of the intra-firm character of the cross-case study. Formulating research questions using the term <i>in the researched setting</i> to point to the specific character.
Choice of cases determined by the interests and selection of company A	Awareness of the laboratory situation; external triangulation with own work experience; internal triangulation with respondents' judgement on the typicality of the cases
My prior role as an account manager for the organisation(s) researched	Thematic focus; kick-off meetings in new role
Own extant lens by previously held role	Methodological focus; reflection of research procedures
Temporary technical immersion due to own expertise valuable to the projects	Thorough recording of the stance assumed in a particular situation (see Table 6.1).
My participant research changing dynamics of setting	Habituation through regular participation; taking myself back; recording research related interaction; contrasting with outcome of other meetings
No immediate clarification of ambiguities in observation situation possible	Clarification in breaks or after meetings; negotiation of findings by scorecard;
Subjective bias in interpreting macro-events	Longitudinal observation (temporal triangulation); Triangulation with: post-hoc negotiation of results with respondents, e.g. by means of the scorecard
Subjective bias in interpreting specific situations	Robust method (transcripts, coding, micro-sequences); discussions in breaks
Subjective bias in interpreting socio-economic relationships	Obtaining and negotiating network pictures; combining observation of interaction with individual interviews; repertory grid tests
Potential distortion of results by industrial sponsorship	Completely self-funded research; maintaining and emphasising the role as an independent researcher

Table 7.3 illustrates how the previous work experience which accounted for the particularly good access could be seen as a source of potential weaknesses for the methodological approach.

My long-standing record in the industry bore considerably more advantages than disadvantages. It is quite likely that without the cooperation prologue there would have been no chance for gaining insight. Although the above detailed countervailing measures may look highly positivist, they seek to eliminate unnecessary interpretive steps in a generally interpretivist research approach. The lens under which socio-economic and socio-technological phenomena are scrutinised is still coined by the dialectics of sense-making and sense-giving of the researcher as well as the researched. As shown in Table 7.8, this does however not have to exclude methodical rigour.

#### **7.4. Analytical strategy**

As indicated in the previous sections, my involvement in the industrial cases was regular, frequent and intensive, yielding a plethora of observational materials. I composed highly detailed *inscripts* (hand-written or typed records) of my participant researcher's notes and comments. These records included my respective stance of the moment (passive or active, outside or attached). Equally, I paid attention to the *staging* of actors as they colluded both on the *front stage* and *back stage* (see Chapter 6).

Of the face-to-face interviews, verbatim *transcripts* were produced from the recordings. Respondents abroad I interviewed by telephone, resulting in conversations which were also recorded and transcribed, or questioned by means of small sequences of adaptive written questionnaires.

Some of the transcribed text passages were already telling a story of their own and therefore ready to be weaved into the empirical sections of this thesis (Pentland, 1999:712).

Where available, I included additional tertiary materials like requirements documents, status reports, meeting protocols and presentations into the empirical fundus. These findings altogether – several hundred pages in total – I coded into a meaningful matrix system for an appropriate and structured analysis.

#### **7.4.1. Development of a coding matrix**

Drawing on the IMP literature, their ARA model, and Ramos' (2008:111) coding dimensions in particular, I set up a coding dimension of network phenomena. Therein, the vertical axis derived from Ramos and Ford (2011) whose coding framework reflected politics, mutual power relations, and resources (Corsaro et al., 2012). The networking activities of confronting, the coercing roles and hierarchies and the choice to consolidate (passively withdraw) or create were taken into account (Ford et al., 2002). The interpretation in relational dependency were introduced as well (Slater, 2002; Srai and Gregory, 2008: 392; Meehan and Wright, 2012). Still drawing on Ramos (2008), I also included activities and the temporal qualities of events (Hakansson and Snehota, 1995; Halinen and Törnroos, 2005; Quintens and Matthyssens 2010; Ford, 2011).

The matrix was filled with generic pointer variables as in relational database management systems with consolidated levels (Meier, 2010). The other dimension I filled with my scorecard's elements as set out in Chapter 1. When I was two third into this thesis' empirical work, I had obtained enough transcribed narratives and observational inscripts for setting up and testing a tentative coding system. This test involved the browsing of every half sentence and categorising it into one or several of the codes.

I kept a logbook for being able to re-enact my final choice. The first entry reads as follows:

*10.1.12 Contrasted groups of network pictures dimensions (Ramos, 2008:111) with network related research in my case studies. Identified relevant groups, dimensions, and sub-dimension as an x-axis for the relational table. Arranged the scorecard dimensions as an y-axis and checked the resulting cells.*

*In abductive cycles, regrouped dimensions and verified that with the observation I have not too many of the cells would be empty. Tested first section against the table and found it relevant.*

Thus drawing on the preceding coding of Ramos in synopsis with my scorecard dimensions, the initial coding matrix is represented in Table 7.4:

<b>Table 7.4: Initial coding matrix</b>						
Potential Relations	Product/ Service	Goodwill	Monetary Selling Price	Non-Monetary S.P.	Tangible Value	Intangible Value
Focality/ Processes	xx0					
Actor Bonds	xxa	xxb	xxc	xxd	xxe	xxf
Activity Bonds	xxg	xxh	xxi	xxk	xxl	xxm
Resource Bonds	xxn	xxo	xxp	xxr	xxs	xxt
Focality/ Situation Specificity	xy0					
General Situation	xya	xyb	xyc	xyd	xye	xyf
Specific Situation	xyg	xyh	xyi	xyk	xyl	xym
Politics/ Actors' Features	xz0					
Resources	xza	xzb	xzc	xzd	xze	xzf
Problems	xzg	xzh	xzi	xzk	xzl	xzm
Aspirations	xzn	xzo	xzp	xzr	xzs	xzt
Politics/ Conflict or Collaboration	yy0					
Power/Conflict	yya	yyb	yyc	yyd	yye	yyf
Cooperation	yyg	yyh	yyi	yyk	yyl	yym
Temporality/ Time Span	yz0					
Past Events	yya	yyb	yyc	yyd	yye	yyf
Present Events	yyg	yyh	yyi	yyk	yyl	yym
Future Events	yyn	yyo	yyp	yyr	yyz	yyt
Temporality/ Stasis	yx0					
Evolving	yxa	yxb	yxg	yxd	yxe	yxf
Static	yxg	yxh	yxi	yxk	yxl	yxm
Priorities/ Conduct	zz0					
Active	zza	zzb	zzc	zzd	zze	zzf
Passive	zzg	zzh	zzi	zzk	zzl	zzm
Negative	zzn	zzo	zzp	zzr	zzs	zzt
Priorities/ Emphasis	zx0					
Important	zxa	zxb	zxc	zxd	zxe	zxf
Not Important	zxg	zxh	zxi	zxk	zxl	zxm

This coding system I tested on first samples, for assessing the practicability.

The result was as exemplified in the following snippet, a meeting inscript of

my participant ob:

***Inscript, talking to Claus***

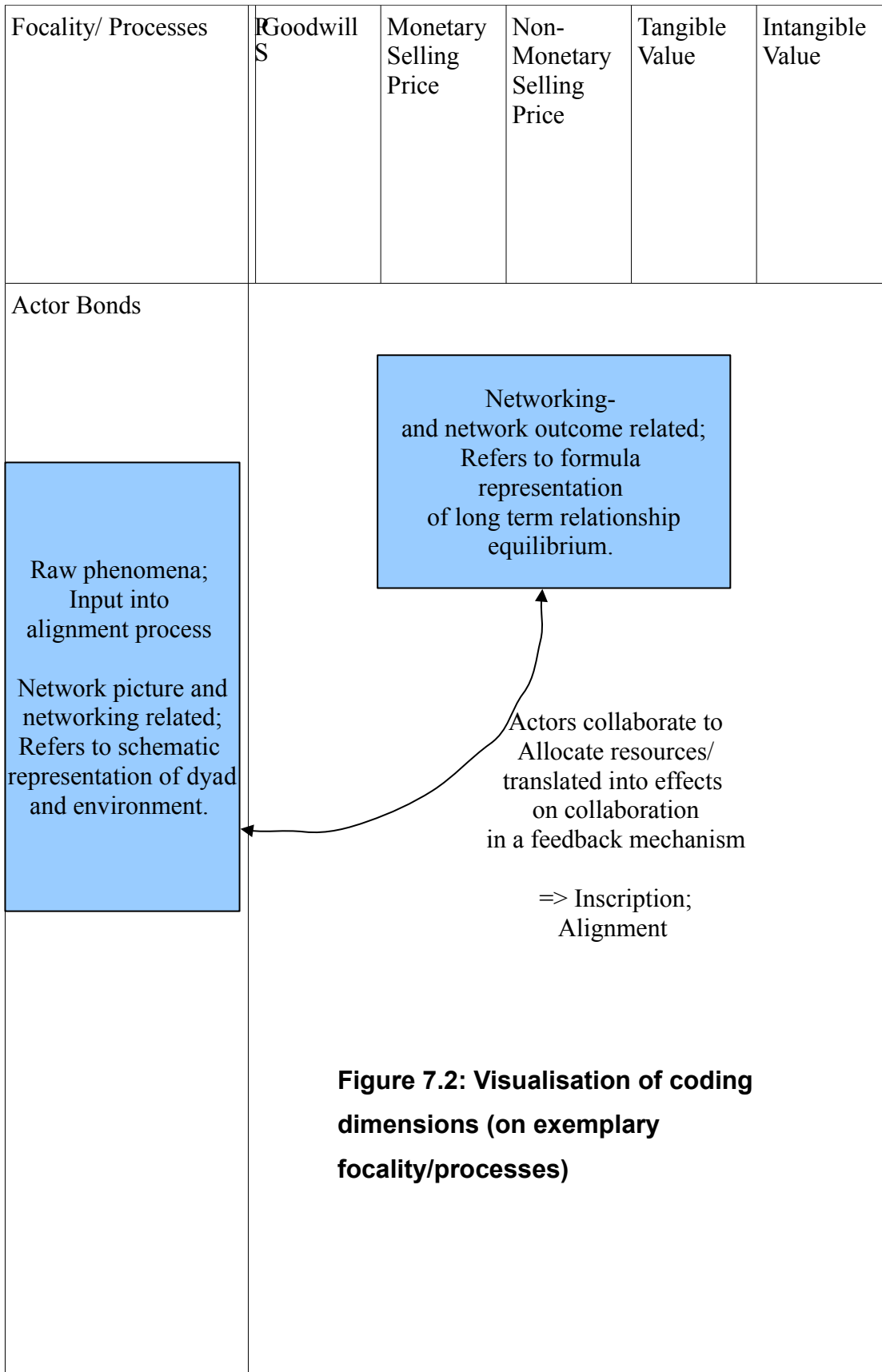
*He also criticizes that xza xzg xya xxa xxg there is no overall project leader of [Project 3] with disciplinary manubrium. yy0 yya Obviously the scene doesn't sanction a conduct like [the overall project's leader of company B]. yya yy0 yyd Claus will employ his only possibility for sanctioning zzo zztand ask the [strategic funding committee] yyc yyi xzc not to utilise [company A's] logo xzb xzf on the prototype. yzt xzk This is a drastic measure, but [company A] does not avow for these results zzp zzt and accordingly not „lend“ the [other consortium members] their good name xz0 yy0.*

I discussed the comprehensiveness of the coding possibilities with my dissertation supervisor and decided to go on with the coding on a larger scale. I noted in my methodical logbook:

*18.1.12 First smaller observation inscript coded. Found it easier with visualisation of the two axes of this coding table. The horizontal headings are scorecard-related, the vertical headings point to the taxonomy of the network with focus on collaboration and alignment processes.*

This regularity I visualised accordingly as shown in Figure 7.2:





Activity Bonds	
Resource Bonds	
Focality/ Situation Specificity	

Seeing that I could draw together numerous codes which turned out to occur in pairs, I went on simplifying the coding matrix. I recorded:

*27.1.2012 Narrowed down the cells by drawing together network characteristics that in the course of the first coding procedures have proved to be redundant or highly complementary.*

This simplification I symbolised in Table 7.5:

<b>Table 7.5: Simplification logic of the initial coding matrix</b>						
Potential Relations	Product/Service	Goodwill	Monetary Selling Price	Non-Monetary S.P.	Tangible Value	Intangible Value
Focality/Processes	xx0					
Actor Bonds	Xxa → yyg	Xxb → yyh	Xxc → yyi	Xxd → yyk	Xxe → yyj	Xxf → yym
Activity Bonds	Xxg → xza	Xxh → xzb	Xxi → xzc	Xxk → xzd	Xxl → xze	Xxm → xzf
Resource Bonds	Xxn → xza	Xxo → xzb	Xxp → xzc	Xxr → xzd	Xxs → xze	Xxt → xzf
Focality/Situation Specificity	xy0					
General Situation	Xya → yzg	Xyb → yzh	Xyc → yzi	Xyd → yzk	Xye → yzl	Xyf → yzm
Specific Situation	xyg	xyh	xyi	xyk	xyl	xym
Politics/Actors' Features	xz0					
Resources	xza	xzb	xzc	xzd	xze	xzf
Problems	xzg	xzh	xzi	xzk	xzl	xzm
Aspirations	xzn	xzo	xzp	xzr	xzs	xzt
Politics/Conflict or Collaboration	yy0					
Power/Conflict	yya	yyb	yyc	yyd	yye	yyf
Cooperation	yyg	yyh	yyi	yyk	yyj	yym
Temporality/Time Span	yz0					
Past Events	yza	yzb	yzc	yzd	yze	yzf
Present Events	yzg	yzh	yzi	yzk	yzl	yzm
Future Events	yzn	yzo	yzp	yzr	yzs	yzt
Temporality/Stasis	yx0					
Evolving	yxg	yxb	yxh	yxk	yxj	yxm
Static	yxg	yxb	yxh	yxk	yxj	yxm
Priorities/Conduct	zz0					
Active	Zza → xzn	Zzb → xzo	Zzc → xzp	Zzd → xzr	Zze → xzs	Zzf → xzt
Passive	zzg	zzh	zzi	zzk	zzl	zzm
Negative	Zzn → xzg	Zzo → xzh	Zzp → xzi	Zzr → xzk	Zzs → xzl	Zzt → xzm
Priorities/Emphasis	zx0					
Important	Zxa → xzn	Zxb → xzo	Zxc → xzp	Zxd → xzr	Zxe → xzs	Zxf → xzt
Not Important	zxc	zxh	zxi	zxc	zxl	zxm

This simplification process had been a sub-loop in the abductive cycle as depicted in Chapter 6, drawing on the meta-observation of my own procedures and reflections on surprising overlaps.

The outcome proved more practicable, particularly I became familiar with the most important codes very soon. This internalisation of the coding process accelerated its execution across the several hundred pages of material. resulted in the final coding matrix as introduced in the subsequent section.

#### **7.4.2. Coding**

This matrix system template employs my scorecard's dimensions as set out in Chapter 1 as the horizontal axis. Due to the uniformity of intentions and the debatable separation as set out in Chapter 3, products and services therein were drawn together as one element. *Products and services* thus represent the offered outcome and the intermediate deliverables in each of the researched projects.

As introduced above, the coding framework set out by Ramos and Ford (2011) served for filling the other dimension. These characteristics reflected politics, mutual power relations, and resources (Corsaro et al., 2012). Constantly challenging goals, roles, and hierarchies, aspirational sense-making and dependency are equally considered (Slater, 2002; Srai and Gregory, 2008: 392; Meehan and Wright, 2012). This direction of the coding matrix also includes activities and the temporal qualities of events (Hakansson and Snehota, 1995; Halinen and Törnroos, 2005; Quintens and Matthyssens 2010; Ford, 2011).

Using the internal datastore of the computer's operation system, I thus obtained a robust relational repository (Meier, 2010). Accordingly, I obtained a coding system as depicted in Table 7.6:

**Table 7.6: Coding matrix for narrative and empirical materials**

Potential Relations	Product/ service <i>Hard and soft</i> specification (outcome)	Goodwill Personal commitment/ collaborative contribution of supplier	Monetary selling price including all quantifiable input	Non-monetary selling price/ Active collaboration contribution of <i>customer</i>	Tangible value/ <i>Hard</i> specification (normative)	Intangible value <i>Soft</i> specification (normative)
<b>Politics/</b> Actors' Attributes	xz0					
Resources / Activities/ Capabilities	xza	xzb	xzc	xzd	xze	xzf
Problems /Negative Events	xzg	xzh	xzi	xzk	xzl	xzm
Aspirations/ Active Conduct/ Important	xzn	xzo	xzp	xzr	xzs	xzt
<b>Politics/</b> Conflict or Collaboration	yy0					
Power/ Conflict/ Inequality	yya	yyb	yyc	yyd	yye	yyf
Cooperation/ Equality/ Actor Bonds	yyg	yyh	yyi	yyk	yyl	yym
<b>Temporality/</b> Time Span	yz0					
Past Events	yya	yyb	yyc	yyd	yye	yyf
Present Events/ General Situation	yzg	yzh	yzi	yzk	yzl	yzm
Future Events	yzn	yzo	yzp	yzr	yzs	yzt

All narrative materials I scanned manually and inserted a trailing field code (or, where applicable, a multiple of them) into the matching syntactic

fragments as shown in the previous section. I identified the most frequent controversial codes and scrutinised the semantics of situations starting with them.

In particular, the field *xzc*, signalling a debate on outcome in relation with quantifiable input, proved as a common trigger of controversial or reflective debate. Moreover, I identified the question of cooperation and actor bonds with respect to non-material input like specification and customer information, *yyz*, as a further crystallisation point, as well as general or present goodwill of the supplier, *yzh*. Going backward from issues of collaboration like *yy0*, I learnt that many collaborative resolutions or activities arose from a conflict some instances earlier.

Instrumentally, I refrained from using a commercial solution for coding such as *Nvivo*. This is in particular because as a former database engineer and developer, I favour the DOM (*document object model*) trees in the *doctype* repositories of XML (*extended markup language*). Current solutions are relational databases mocking the XML structures by dynamic *joins*, straining the database index and slowing down the processing speed. As I had a quite simple model without BLOB (*binary large objects* such as films and documents) files and collaboration needs, my own generic solution proved to be more workable and robust.

### 7.4.3. Micro-sequences

Explaining socio-technological mechanisms by particularly rich personal accounts yield a beneficially multi-faceted and undistorted insight (Pentland, 1999:712). Indeed, some of the thus coded and categorised narratives contained clearly understandable quasi-closed sequences which I preferably sought to apply as empirical evidence in my case descriptions. However, some passages concealed their proper meaning by evasive formulation or semantic peculiarities. Moreover, I learnt that the predominantly German text, even if translated verbatim into English, would not always explain the intent specifically enough for scientific purposes.

So how are adaptation mechanisms *translated* from narratives into enacted reality work in this thesis' practice? From the understanding, the *Verstehen*, of the participants' respective sense-making I had thus gained in my participant observation, I transferred the according key semantics into the corresponding *pragmatics*, revealing their proper sense (Carlile, 2002).

For this I restated the sentences narrated by me the scientist into first person (plural or singular) statements of the protagonists, completed by the necessary underlying explanation of the situated context (Pentland, 1999:714; Van de Ven, 2007:224). This information I included as to the protagonists and antagonists *enacting* the micro-situation by their narratives into the deeper processes and underlying structures (Pentland, 1999:912).

Adhering to the temporal or near-temporal sequence of the activity, I neutrally remodelled the specific instance of collaborative discourse or an ex-post reflection (Bartel and Garud, 2009). Aiming at depicting *real-time coordination*, I established the nexus of singular events telling the transformational *story* of this methodical abstraction and interpretation process (Czarniawska, 2004:779; drawing on Boje, 1991).

One of the ordering principles in the micro-sequences is thus measured in chronological, logical, or *kairotic*, event-based time (Czarniawska, 2004). In arranging future situations from current givens with respect to former occurrences, a *timeline* like a Gantt Chart is introduced in the vertical dimension of the scorecard-like micro-analytical table. Designed to manage amorphous information, these mono-temporally ordered artefacts provide at least an inter-subjective interpretation (Yakura, 2002). Like in management consultancy, these act as a blueprint for further negotiation in my cyclic research process.

This renegotiation of this thesis' hermeneutics – reconciling my two-step interpretation with the respondents' understanding – helped particularly ensure the correct interpretations of my empirical findings.

The additionally identifiable non-temporal *patterns* in the narratives' *stories* I arranged alongside an additional dimension, again including the elements of the value provision scorecard as set out in the first chapter. I thus followed the granular categorisation already employed in the coding process (Yakura, 2002; see also this chapter's preceding section on coding).

As I had obtained network drawings from most of the projects' participants, I was able to visually reinforce the resulting stories and their according structures. In order to keep the methodical proceedings (particularly of putting rich speech into bold statements) robust and internally valid, I sought affirmation by the respondents themselves, revealing my *translation* whenever possible.

The ongoing renegotiations of hermeneutics constituted an important element in the quality assurance of the coding process.

The thus obtained pragmatic statements I ordered in temporal succession. This order resulted in a representation in scorecard-like micro-sequences showing the emergence of the issues discussed in a situation in situ. My thus



composed comprehensive collection of elementary social interactions or courses of thought served as a foundation for a deeper understanding where narratives were too dissipated for use. Taking problems as *turning points*, patterns within the scorecard made conflict resolution mechanisms (Christiansen, 1997). These coping activities I anticipated to be directed towards collaboration or technical debate, more obvious and generalisable. Equally important, the micro-sequences revealed additional systematics – the overarching order (Dewey, 1910; Joas, 1996) – I had not foreseen, like the previously concealed significance of financial matters in strategically funded projects.

Obtaining a coherent picture from these activities, I found that the network related coding dimensions had served as an intermediate means, a *catalyst*, for systematisation and verification of findings as to my initial scorecard's dimensions reflecting the business model, both on a micro and a more comprehensive level.

This procedure of pragmatist data analysis focused on interpretation can be systematised and reproduced along the following scheme as set out in Table 7.7:

**Table 7.7: This thesis' micro-analytical process for narrative data**

Analytical step	Methodical Sources	Instructions for reproduction
Verstehen of pragmatics in respondents' vague semantics	Weick, 1995; Carlile, 2002; Callon, 2007	Longitudinal observation, exercises in understanding through feedback; ethnography <i>at home</i>
Coding of narratives, inscripts and secondary materials	Srai and Gregory, 2008; Ramos and Ford, 2011; Ford, 2011	Using a matrix with the general business model on the one dimension and network attributes on the other
Ordering narrative sequences along chronological or kairotic monotemporal order of events or deliberations	Yakura, 2002; Czarniawska, 2004; Halinen and Törnroos, 2005; Quintens & Matthyssens, 2010; Lowe and Hwang, 2012	Ordering ex-post accounts into cause and effect; ordering mixed materials in accordance with their historical sequence (1 <sup>st</sup> micro-scorecard dimension)
Identifying quasi-closed productive micro level orchestrated activities	Bartel and Garud, 2009; Overdeest, 2011	Isolating snippets of the coded materials which tell a story of their own in 3-6 sentences
Elimination of own narrative voice	Goffman, 1995; Pentland, 1999:714; Van de Ven, 2007: 224	Transferring the text into a series of positive <i>I</i> statements of the protagonists like in a schematic <i>stage play</i>
Transferring semantics of micro activities into the <i>patterns</i> of classified pragmatics	Carlile, 2002; Yakura, 2002:968; Callon, 2007:332	Classifying the story's sequence into the 2 <sup>nd</sup> (value related) micro-scorecard dimension for reinforcement
Verifying the <i>story of real-time coordination</i>	Pentland, 1999; Czarniawska, 2004:779; Bartel and Garud, 2009:112;	Making sense and tying together these statements with respect to past, present and presumed future

<i>Optional:</i>		
<b>Analytical step</b>	<b>Methodical Sources</b>	<b>Instructions for reproduction</b>
Analysing micro sequences starting from or revolving around <i>problems</i>	Christiansen, 1997; Bartel and Garud, 2009	Collecting and contrasting sequences starting from or dealing with problems or conflict laden codes
Higher order detection; intelligent reconstruction of deeper mechanisms; second order narratives	Dewey, 1910; Joas, 1996; Pentland, 1999; Lowe and Hwang, 2012	Identifying scorecard positions triggering a particular <i>dramaturgy</i> , i.e. typically leading to problem solving, harmonisation or conflict resolution

The comprehensive materials obtained in my research were thus subject to rigorous methodical evaluation. In addition, I sought to gain my respondents' consensus with my verbalised perception of the macro-events which I had formed into scorecards as well. For this technique, I applied one stage or a whole project as an entity for a synoptic analysis. The according perspectival triangulation with respondents, mostly engineers and computer scientists by formation, I carried out in the abductive cycles' feedback stages. Where possible and indicated by the respondents' preferences, I translated the findings into mathematical formulae and their graphical representations and accepted respondents' artefacts as explanations as well.

#### **7.4.4. Repertory grid testing**

As the debate of the collaboration-related dimensions became more intricate, I was able to elicit appropriate constructs for semi-quantitative triangulation. Confronting Richard, Claus and Ludwig with the scorecard's dimensions repeatedly, they expressed their associations which I subsequently combined into a nomothetic perceptual edifice which were to undergo a testing along the personal construct psychology (Kelly, 1955) as set out in Chapter 6. Accordingly, I conducted affirmative repertory grid experiments with 20 of my industrial respondents. For brevity reasons, I introduced the term *co-creation* (Prahalad and Ramaswamy, 2004) which I explained to the participants as

the concept of *innovation oriented symmetric collaboration of supplier and customer*. The *elements* in the tests followed the value provision logic in my scorecard, including:

**Table 7.8: Elements for repertory grid testing**

<b>Element</b>	<b>Explanation</b>	<b>Example</b>	<b>Relevance for research questions</b>
Tangible product	Product of the <i>co-creation</i>	Packaged software, documentation, project plans	3; 4
Turn-key deliverable	Hypothetical product which would have been possible without the specific <i>co-creation</i>	Similar software etc. bought from an external manufacturer without prior collaboration	3; 5
Service	Applied knowledge and capabilities	Process services, development service, training	1; 2; 3
Co-creation	Combination of two or more parties' resources, skills and capabilities in mutual orientation, specifically for customer driven innovation	Integrated process development in corporate research for full service division which would have not been possible without input from the field	1; 4; 5
Goodwill	Positive attitude and behaviour exceeding the immediately necessary	Thinking ahead for a customer, engaging with positive spirits	1; 5; 6

These elements I combined with matching bipolar constructs as agreed upon with my respondents as follows:

**Table 7.9: Constructs for repertory grid testing**

Construct	Antagonist	Relevance for research questions
Is safe to implement	Is associated with risk	4; 5
Gives us personal perspective	Is frustrating as to our future in this company	1; 6
Fosters our empowerment	Weakens our empowerment	2; 4; 5
Gives us economic perspective	Is futile in terms of our economic growth	3; 4; 5

These elements and constructs resulted in a perspectival map for each respondent, and – equally important – provided impetus for further discussions. Although the attribution of relevance for this thesis’ research questions as indicated in Table 7.8 and 7.9 are not exclusive, it serves as a *litmus test* for the elements’ and constructs’ methodical completeness. Seeing a cognitive landscape helped materialising the scorecard dimensions particularly as to the debate on value added by innovation oriented symmetric collaboration of supplier and customer.

#### **7.4.5. Sources of methodical rigour**

The development of a meta-framework for the research methodology, from network- and innovation-related coding to core micro-sequences, constitutes an internally valid, reproducible and robust contribution to academic practice. The combination of participant observation with narratives, the collaboration scorecard and triangulation by ideographic semi-quantitative techniques strengthens my argument towards a *rigorous case study* (Gibbert et al., 2008:1467) as illustrated in Table 7.10:

**Table 7.10: Sources of rigour in this thesis' case studies**

<b>Source of rigour</b>	<b>Realisation</b>
<b>Construct validity</b>	
- Data triangulation	Combination of archival data, interview data, participant observation and direct observation; temporal triangulation across empirical stages
- Review of interpretation by respondents	Review of transcribed sequences ordered into scorecard by respondents; thus validating and refining my hermeneutics of their understanding
- Transparency of access conditions	Ordered application, negotiation and invitation processes; formal contract with non-disclosure agreement; transparency of (self-) funding
- Review and ex-post analysis of data gathering procedures	Inscription of all perception and conditions around empirical processes; rich inscription of participation, secondary data like presentations and photographs
<b>External validity</b>	
- Cross-case analysis	Nested case studies within one organisation; three different projects; three different customer organisations
- Explanation of case selection	Cases with greatest possible similarities (middleware integration for full service) taking place in parallel
- Contextual details	Technical implication, industrial context, business model, competitor situation all known in detail
<b>Reliability</b>	
- Case study protocols	Detailed dates and respondents, cycle flow charts, presentations
- Case study database	ODBC database on computer (Windows)
- Organisation's name given	Known and available on request

These criteria for rigour fulfilled by this thesis are complemented by the internal validity of the research framework as expounded in Chapter 6, the referral to extant theory as shown in Chapter 2 to 4 and the triangulation with neighbouring theories described herein (Gibbert et al., 2008).

Table 7.10 also illustrates the necessity of the abductive cycles set out in

Chapter 6. Particularly the review of interpretation by respondents informing the subsequent observation results in temporal triangulation of data. This negotiation process drawing on extant scientific insight also serves for gaining more trust and reputation in the further proceedings of my empirical work. In particular, Claus only allowed me to participate in the third project after my first loops in the other two cases, having judged on the rigour and relevance of my proceedings.

New contextual details contributing to external validity thus materialise alongside every subsequent loop of the research process. Only when a saturation of observed phenomena arises, further iterations of the abductive cycle become less meaningful, which was the case after nearly three years of observation.

The applied methods as laid forth in this chapter constitute the instrumental toolset for covering this thesis' research questions in the specific industrial business of company A and their industrial network. As I have stated six main questions for scrutiny, an additional dimension of construct validity within different scopes arises. The overall robustness of this thesis' research is reinforced by offering triangulation and data analysis explanation capabilities for every single statement of research task.

For completeness, Table 7.e in the appendix provides an exemplary synopsis of this appropriateness for network-related, value, and relational questions as a source of methodical rigour.

## 7.5. Conclusion

In this chapter, I expounded on the case selection and the proceedings for my thesis' field studies. First, I explained how technological developments in the information technology steering complex industrial equipment drive the need for integration and innovation.

I explained how by thorough selection of my thematic sponsor in accordance with Van de Ven's (2007: 212) advocacy for an *informed choice of sites* I was able to increase the chance for an active determination of the research scenario. This chapter further set out how I gained access to three equally important and strategic cases of radical innovation within one department in a corporate research centre.

I explained the objectives and outcomes of the projects, how I engaged people by and for my research agenda and convinced them to collaborate in developing and testing new ideas.

In the last section, I showed how the coding matrix was developed by testing a preliminary model and applied to find particularly controversial topics. Micro-sequences then convey the pragmatics of a semantically disguised argument. I highlighted the potential for semi-quantitative triangulation by cognitive techniques by means of elicited attributes put to inter-subjective discussion.

Thus employing the approach of engaged scholarship in this thesis' abductive cycles, I will set out my insight into the cases introduced in this chapter, pursuing the analytical meta-goal of a valid and reliable analysis of the observed phenomena.



# Chapter 8

## 8. Network-related findings

### 8.1. Introduction

In this chapter, I will illustrate the position and self-conception of the *actor* as a person or a group in the enacted environment. This chapter will demonstrate that, by guiding the way to appropriate resources, the network is operationalised as a meta-resource.

I will show that the commonly enacted web is not an objective and representationalist one, but governed by the individual cognition of actors and therefore highly subjective and self-centred in the landscape.

Moreover, in my claims, the actors command a network picture adjusted to the most useful abstraction rather than being simply myopic. I will illustrate how new technologies facilitate network processes and widen choices for collaboration.

Conclusively, I will introduce the notion of *scripting* in networks.

I had stated the research questions 1 and 2 as follows:

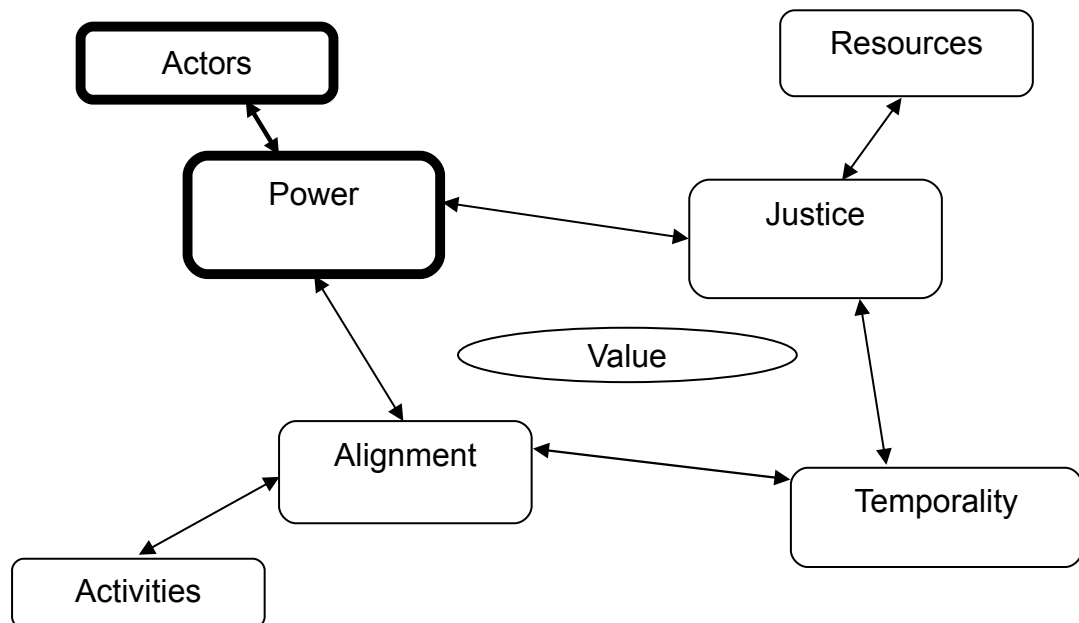
Research question 1:

**How do individuals as actors in the research setting draw on their immediate business-to-business network to achieve rich exchange and innovation?**

Research question 2:

**Which governing and control mechanisms can be observed in the research setting's rich exchanges and episodes of innovation?**

As an outcome of the literature review, in Figure 4.2, I had refined a research framework set out in this thesis' introduction. The partial, actor-related agenda thereof is visualised by the areas indicated in bold in Figure 8.1:



**Figure 8.1: Actor-related research agenda**

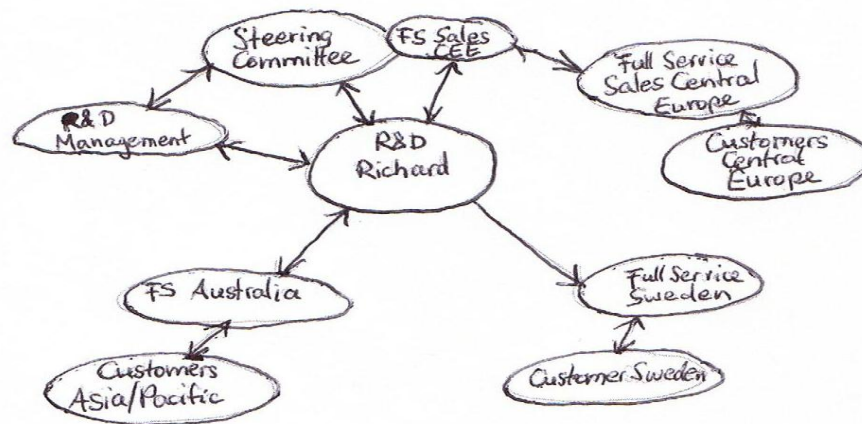
## 8.2. Actor landscapes

All three cases considered in my field studies required the collaboration of diverse business units and individuals across industries, regions, and types of organisations. As I came to learn from the outset from my respondents, in the participating individuals' minds, the business-to-business networks they operate in are spanned by actors linked by exchange and activities performed on resources.

So how are networks visualised and enacted by members of a project network? To find out, I asked the participants to draw their network perception. Giving them a blank A4 sheet, I made them sketch what came into their mind within 2 to 5 minutes only. My research was not looking for a perfect scenario, I informed them, but for their intuition.

I had assumed that at least in cases one and two, most respondents would see the respective project leaders and programmers as the core of the network, bundling the incoming and outgoing resources like arrays. This would be the view advocated in a management textbook or a project engineering manual.

However, every respondent saw themselves as the centre of the map, the pivotal internalised actor, drawing on a mix of other actors resources from first or second order counterparts. Thus, all of the sketches look like maps towards information, capabilities, and technologies. These constituents are administered by actors, drawn together into one cognitive complex. Depicting the path to resources, the internalised network thus acts as a meta-resource like a road map for driving. Such a centralised picture I obtained from Richard, the project leader and executing scientist in project number one:

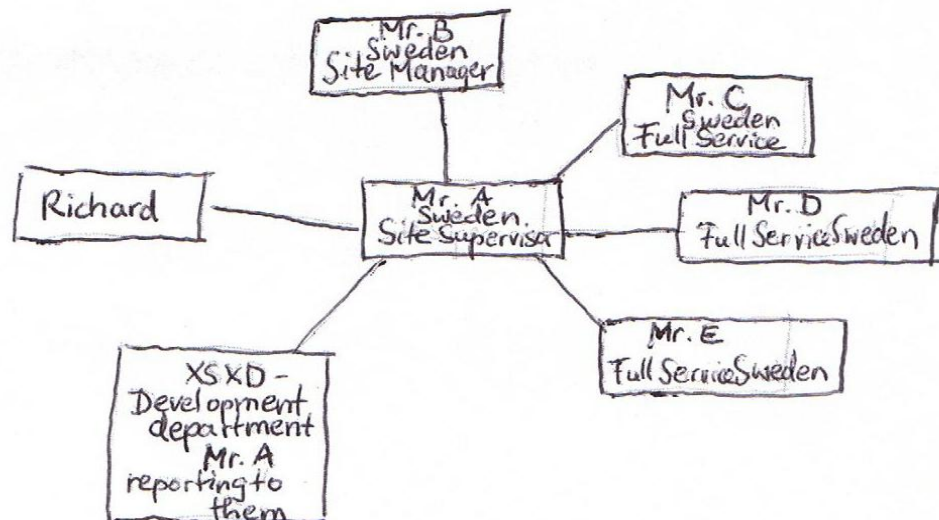


**Figure 8.2: Richard's perception, case 1** (real names replaced by denominations)

Richard's drawing was coincidentally congruent with what a project management textbook would have sketched. He saw himself as the key

person in a coordinating position, bundling all rays of activities and thinking of the second range, the customers affected in the background, like an external observer would perceive the constellation. Some arrows, he said as we talked about his drawing afterwards, were weaker, some stronger, and not every link active all the time. But the resources he allocated in this picture best revealed which paths he enacted for achieving the project finalisation.

When I asked the Swedish plant supervisor who had helped Richard in the project to draw his network, it came out completely different from Richard's. As can be seen from Figure 8.3, this view even integrated a new player (the disciplinary department he reported to) which had no primary function in the project:



**Figure 8.3: Perception of Swedish plant maintenance supervisor, case 1** (real names abbreviated or replaced by fictive ones)

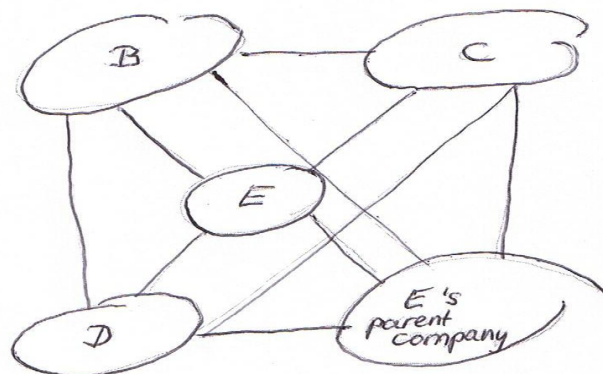
Even though I had asked for a merely project-related network picture, it was obvious that the Swedish site supervisor did not think beyond the person of Richard. Moreover, he drew a much more personal map, depicting the people – his counterparts in the project network – who had helped him fulfil Richard's requests for input and information. The naming of persons the

Swede confirmed to be a *pars pro toto* declaration; the names served as mental place holders to him, for all resources he drew upon.

This comparison in case 1 was a first indication that the purely theoretical view around the project site and manager was not shared by immediate participants. The second project's network was too small to actually reveal something in addition. Again, respondents saw themselves in the centre respectively drawing on cognitive bubbles of actors and resources.

Like I had assumed for all projects, I had thought that in the third, inter-firm, venture, company A would be perceived as the centre unanimously by all respondents. This anticipation I had developed due to the fact that Claus acted as a project leader, held all workshops in company A, and established the link to the test case within his organisation. After an eight hour workshop day, I asked the participants to provide a snapshot of their personal network simultaneously. Contrary to my expectation of that time, I obtained a divergence of responses which reinforced my impressions from the first project.

The first drawing was provided by company E's delegate, Mr. N (company names replaced by letters):



**Figure 8.4: Perception of Mr. N., Company E** (real names abbreviated or replaced by fictive ones)

This illustration again indicates that the person perceives himself in the centre of *his* project network, mainly drawing on resources from B, C, and D,

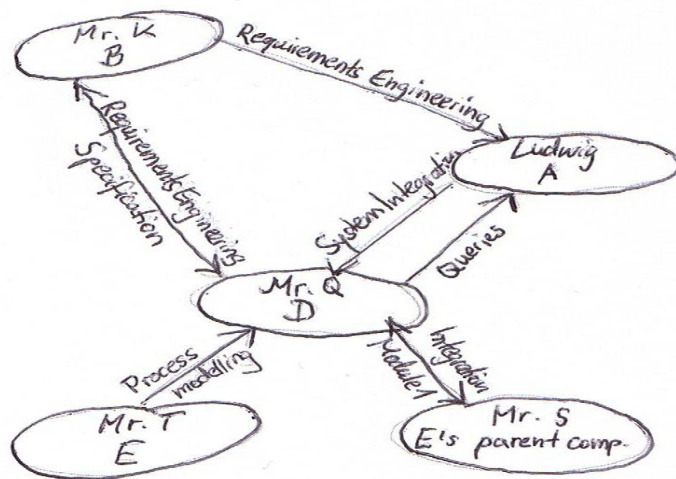
but also of his new parent company. Asking Mr. N about the *bubbles* immediately after he finished his drawing, he pointed on them saying

*These are the people I speak with. [...] No, this is no bypassing of me, it's just everyone speaks to everyone.*

It is extremely noteworthy that Mr. N drew companies but meant particular people he knew herein. Again, he had developed the insight that those were valuable resource providers for his purposes.

But Mr. N's view remained fragmented. Even though the full day workshop just finished had as usually taken place in company A, with project leaders Claus and Ludwig, he did not even mention them in the synopsis. Of course he would have added them for reason of politeness if I had pointed to this omission, but this would have distorted the investigation.

The next figure, drawn on the same day, shows the according network of company D's participant. With himself in the centre, he distinguished between company E and its parent, as he drew on different persons and resources thereof:

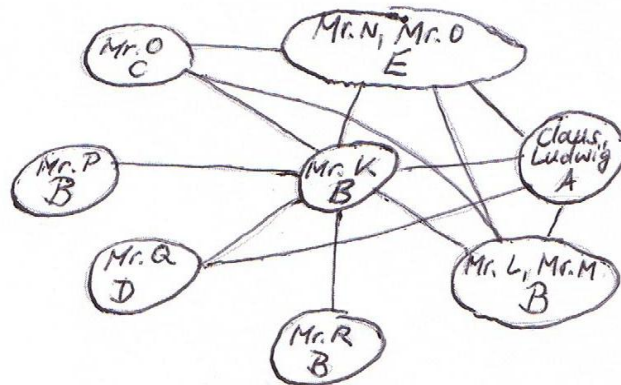


**Figure 8.5: Perception of Mr. Q, Company D** (names and companies replaced by letters)

Like in the preceding figure, the individually relevant members of the network are depicted, representing the resources obtained. Mr. Q. also listed the names of his individual addressees. This may be due to the fact that his company, D, was the smallest of all participating organisations, but at least it indicates his personal level of resolution.

The drawing in Figure 8.5 also specifies, alongside the arrows, the resources obtained; no one else included such information. This constitutes a distinction of connections which are more vital to his perceived individual network from more routine or informational ones. It also shows that Mr. Q made a very mature use of the internalised network as a meta-resource.

The delegate of company B, a very large organisation similar to A, included names into his network elements in a similar fashion. He chose the interaction lines deliberately, not all actors talking to every single other one in *his* environment. Much in the delegate's project perception revolved around his own company, other departments thereof assuming the same role and distance as external partners:



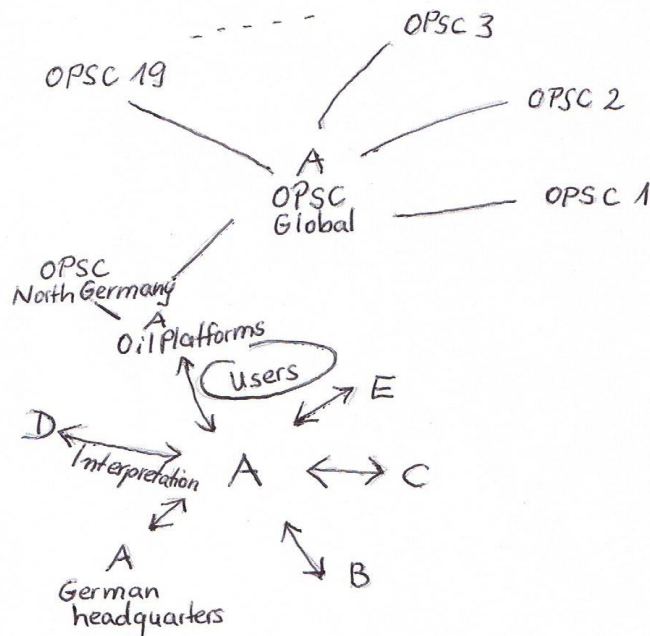
**Figure 8.6: Perception of Mr. K., Company B** (names and companies replaced by letters)

Like Mr. N of E depicting the parent company as a counterpart, Mr. K saw



prominent occurrences of resource providing actors within his own company, B. This clearly indicates that in networks, intra- and extra-corporate ties may bear quite similar characteristics and organisational boundaries blur.

Ludwig was the quickest in drawing his landscape, taking only two minutes to do so, even though he introduced the highest number of elements of all. As he stated afterwards, he had thought about the network constellation before. With his company A in the centre, Ludwig also saw a second focus within the target organisation, the oil platform service centre, which provided the business case and where the prototype was to be tested:



**Figure 8.7: Perception of Ludwig, Company A** (names and companies replaced by letters or descriptions)

Like the other respondents, Ludwig only included companies he perceived as vital for the venture's advancement. Moreover, he indicated that *users* from company A's oil platform full service division were predominantly devising information as a resource towards the project. Company D interpreted the requirements and in Ludwig thus assumed a unique role in the network. All input from the practical business scenario, he perceived as going through his

unit as a mediator and a isolator, from where he distributed them towards the other companies.

The notion of the *actor* which has been found problematic by proponents of the IMP groups (Ford, 2008: 110) has thus turned out to be manifold. All of the respondents had internalised their own resolution for what is a practicable, enacted actor. This dilemma is exemplified by the following synopsis in Table 8.1 on the above network pictures and the resolutions employed:

**Table 8.1: The respondents' concepts of actors**

<b>Figure</b>	<b>The respondent's internalised concept of the actor</b>
8.2	Groups and regions with the respondent as an individual in the centre
8.3	Individuals located in countries and performing a role
8.4	Companies
8.5	One person as a place holder per company
8.6	One or 2 persons in a unit belonging to different or same companies
8.7	Partner companies plus the own company's different divisions

The actors thus commanded a very differentiated, active and shaping self-concept, choosing to interact with selected collaboration partners and to draw on certain resources to reinforce the functional centrality. What may seem myopic at first sight thus constitutes a pragmatic and useful coping mechanism of emancipated specialists.

### **8.3. Collaboration in industrial networks**

Contemporary communication and togetherness is not merely restricted to face-to-face mode, written papers, and hearsay like in traditional communities, networks, and relationships any more. The three cases considered in this thesis all revolved around technologies and subject-specific information, instrumentally enabled by telecommunication and facilitated by virtual transactions of resources. This is exemplified in one of

the episodes of a consortium meeting in case 3:

*[Company E's] requirement specifications seem to overlap with [Company B's]. This had been found out by Ludwig and Mr. K in a 2 hours' bilateral phone call the day before. Mr. K talks about widgets ("window gadget" but also "Dingsbums" in German) for representations. It is 11:20h and this term is dropped for the first time. – Mr. N [of company E] retorts that this is a purely technical subject: "Work package 4 knows exactly what work package 6 is doing".*

This small example illustrates that actors are addressed by their technological part in the project network; *work package 4* depicting a group in company B, for example. Sociality in meetings was thus determined by the technicalities of collusion in many ways, as illustrated by the following small episode in a consortium meeting, again of Project 3:

*Mr. X of company B had sent an IT architecture [diagram] around, obviously on the 15<sup>th</sup> July 2010, which Mrs. I and Mr. K [both from company B] started searching hectically on their respective laptops but could not find, thus conveying an even more unprepared picture. Mr N. [of company E] reads his emails, briefly throws in "We could as well take module Z" (as a joke: module Z had, like E, been bought by E's powerful mother company lately – a power which Mr. N obviously disapproved). After having finished with his emails, Mr. N added that the essential question [of IT architecture] had to be dealt with carefully: "we simply have to formulate this clearly – to build a pure front end [with no thorough architecture behind] would cause trouble".*

This incident exemplifies how the desired innovation had to rely on information as the *currency* for (mostly intangible) input and outcome, floating bi-directionally along the networks' ties.

The seamless enactment which is nowadays possible through the advanced

communication technologies was described for case 2 by the German full service team leader:

*There were problems, but we were able to solve them by the rapid ways of communication. If there were additional requirements by my staff they became aware of after the pilot, they could state those and everything was done successively.*

The service team had been eager to provide the necessary information and this Bernhard perceived as key to his success. The possibility for quick dialogue with Bernhard over a distance of several hundred kilometres (mainly by telephone and email) facilitated the enactment of a distributed dyad in an innovation project.

In the third project, a sophisticated real-time, quasi-participant, virtual dialogue used to be maintained by Claus and Ludwig during the workshop meetings. Key personnel in the oil platform service division in Northern Germany had to respond to occasional subject-related issues raised during the consortium's discussion. Tightly involved in day-to-day operations, the full service specialists had to stay at their workplace. Therefore, the company's instant messaging platform was used for communication. According to my observation, the proceedings were fast and seamless, without great disruption potential:

*So they [Mr. K, Ludwig, and other participants] worked on a static excel list of events, related descriptions, fields required, subsequent actions, and overall [process steps technically called] "tasks". In parallel, Claus held a connection with the leading service call coordinator in [North Germany], instant messaging him despite his on-duty job, and clarifying uncertainties both Ludwig and Claus couldn't answer. [..]  
Further discussions on the excel table.  
Mr. Q: "LN will mean Lotus notes?"*

*Claus: "We have someone sitting in [North Germany] who answers our questions just in case."*

*Mr. Q: "This person will know everything readily and by heart, and we want to preserve this process knowledge."*

Commonly, all three cases drew on a mixture of physical presence and virtual collaboration throughout. In routine collaboration, enacting the network by technology and virtualisation was often no coincidence but an active choice.

I transcribed a lengthy debate in a workshop on a consecutive meeting for two consortium partners in case 3 and abstracted the contents into the intrinsic pragmatics (Carlile, 2002).

Coding, abstracting the pragmatic meanings of sentences, and categorising those actual meanings in a micro-sequence (a new method of this thesis described in Chapter 7) illustrates the gradual and voluntary transition from physical to virtual communication:

**Table 8.2: Micro-sequence on mode of collaboration, case 3**

<b>Product/ service</b>	<b>Goodwill</b>	<b>Monetary selling price</b>	<b>Non-monetary selling price</b>	<b>Tangible value</b>	<b>Intangible value</b>
Think tank C should meet with company A to talk about this			Company A should meet think tank C to talk about this		
Would C be prepared to drive to A's location?		(A is not driving to C's location)			
	Basically, we could do this by phone?				

The actively chosen *virtual* meeting by telephone thus resolves a dilemma and simplifies a more timely coordination in the collaborative web.

However, virtualisation also offers room for withdrawal behaviour. Particularly in case 3, I observed how even telephone conferences were postponed due to the less casual nature (no *dropping by* was possible). Also, coordination often failed because of the evasive behaviour of less motivated collaboration partners. As I noted in one of the workshops (on a Thursday):

*Mr. Q of D: Conference calls on Mondays, he can't always [make it possible], „I am away for the whole day anyhow, I can't change this either.”*

*Claus: “Monday is the start of the week. We can postpone to 4:00 p.m. or 4:30 p.m...”*

*Mr. Q of D: “We are on our way quite irregularly, perhaps over the mobile phone, albeit I cannot promise how often this will work”*

*Claus: “Mobile phone is counter-productive. You can't genuinely contribute.”*

*Mr. Q of D: „I have to drive by car sometimes, cannot join then. If need be start of the week, then on Tuesday.”*

*Claus: “OK, any preferences for Tuesday? Remember we have to intensify our collaboration anyway for getting the prototype all right. [...] So as to not standing there [in the consortium meeting with the sponsor] as [company A] and tell them 'there is it' but that we present ourselves jointly as one team.”*

Asking Claus a week later, he admitted that Mr. Q had failed to make it to the telephone conference altogether. As company D's contribution was one of the key resources in the project, that particular conference call had been called off completely. Claus stated that this hadn't been the first impediment of that kind. Moreover, he assumed that Mr. Q didn't work much on their joint project between the monthly meetings anyway, with an accordingly poor outcome.

But even in joint meetings, participants of the network would withdraw, this time in a quite overt manner. This I observed only in Project 3; albeit across most of its actors, except Ludwig and Claus who chaired the meetings.

*Even though the table was laid continuously, occupying the first third of the long table with cups and glasses, the later arriving participants had chosen seats in the back where there were no dishes, in order to establish space between them and to be able to place coat and bag on the intermediate chairs. One reason might also have been that they all took out their laptops and seemingly worked on other things than the meeting at some occasions; they did not want to let others see their screen.*

Even in highly formal annual plenary consortium conferences where the intermediate and final results were presented to the sponsors, I observed highly evasive behaviour in front of electronic communication devices. The physically obvious ties were not enacted in those particular situations. One of my recurring notes even in highly important meetings with the official government sponsors thus read the following:

*Some in the lecture theatre check their emails and type. [...] When the speaker pauses, only the typing noises would be heard.*

Notably, the sponsors and the persons presenting in that moment of course observed this behaviour; typing participants were sitting in one row with them. The ties in the network were demonstratively cut by disregard; to signal this, only the tapping of the computer keyboards was to be heard from time to time. Most of the mentally absent project participants spoke to the audience themselves at a point in the consortium meeting. But as soon as they were not presenting, they ignored others' contributions briskly.

These episodes illustrate how networks in times of virtual technologies offer a

higher choice for actively enacting a network. But unlike in a grown and mostly local community, physical remoteness and new technologies bear the risk of evasive behaviour and thus insufficiently maintained nexus in a collaborative web.

## **8.4. Power and scripting**

The mutual hierarchical gradients between single persons, teams or organisations in the networks under scrutiny were observable by examining the ontological perceptions of ties, the ways dissent was resolved, and unilateral scripting capabilities.

The central stance of every respondent in the network drawings (Figures 8.2 to 8.7) indicates that their collaborators' and own ranking is also subjective and enacted. Starting from the insight in the literature review, I paid particular attention to individual, often skill-related, power, and organisational dominance.

### **8.4.1. Individual power**

I found implicit and explicit power gradients in all the three cases. In case 1, for example, when I asked Richard about his relationship with the powerful European full service management, I became aware that he took their hierarchical position into account. In particular, he appreciated one of the highest sales ranks devoting his time towards the requirements clarification. The Dutch travelled from the Netherlands to the German research centre and talked to Richard on the first project for an entire day, including a joint dinner. In Richard's memory, the manager prioritised the subject-related meeting and showed a very matey attitude:

*Well, the [Dutch manager], whom I sometimes call our full service champion; I think I have a very good relationship with him. We basically haven't met quite often, primarily once for longer, for a whole day. We went out for dinner*



*in the evening and discovered that we have joint private – well that there are certain overlaps in our private lives [..]. He is quite important, in his position, and it was difficult, now here, I think without further ado won't he have been able to free his time, but he took it.*

Richard's counterpart, the Dutch manager, equally recalls the flat hierarchy he had in part established personally in the first project's network:

*That was the moment when I synchronised the ideas again. But that was a role that I took for the [particular] moment to ensure that we were looking for the same thing. But not in a hierarchical type of way: it was more functional.*

The most advanced insight into company A's hierarchy, and especially into Claus' team, I obtained during my day-long observation of their mundane work routine, outside consortium workshops or project meetings. After one of the field phases, having shadowed Ludwig for a whole day, I noted:

*As to work hierarchy, Claus being younger than both Ludwig and [his office neighbour] Nicolas, he is in a clearly supervising position, but also deals with marginalia like Nicolas' failure to log in[to the mail system]. Authority is enacted by awarding or refusing access to resources, and attention. Access to [Claus himself] he grants meeting-wise. There is a clear division between high academic achievement (Ludwig and Nicolas both with PhDs) and functional administrative hierarchy (Claus, younger and without PhD). "Pressure" exists [indirectly] due to tight supervision which Claus seems to take very seriously.*

*Notably, I never saw him supervise Richard who seems to be performing extremely well on his own. On the contrary, when mentioning a joint paper to be written one day, Claus asked me to spare Richard as much as possible: "He is already very busy [in an efficient way] and I don't want to strain him unduly."*

These examples show how within an organisation, highly skilled innovation engineers rather refute the idea of power or hierarchy. The need to see themselves in the centre of their respective network to make effective use of it indicates that specialists rather co-shape with more influential – more skilled, experienced, or otherwise senior – colleagues.

#### **8.4.2. Organisational power**

Organisational power was manifest in all three cases, given that quite diverse units were involved in each of them. Many discussions revolved around technicalities where there was no superior choice and thus no objective *sense-making* possible. Particularly in the third case, dissent was frequent because each of the companies had developed their own preferences and tried to enforce them onto the entire network whenever possible. One of those many discussions I abstracted in the micro-sequence in Table 8.3:

**Table 8.3: Micro-sequence on scripting, case 3**

Recorded discussion in a consortium workshop

Product/ service	Goodwill	Monetary selling price	Non-monetary selling price	Tangible value	Intangible value
Two graphical user interfaces existing in parallel					
Harmonisation of graphical user interfaces needed		Would it pay off to invest hard resources into this?	(OPSC coordinators will give their feedback)		What, if OPSC found two GUIs at a time problematic?
There is no case based reasoning implemented as of yet	A pity we haven't advanced in case based reasoning yet				
	(Everyone is listening and taking notes.)				
				It will shorten processes for OPSC more to invest in case based reasoning	It will make more sense to invest in case based reasoning
	It will make more sense to put our energy in case based reasoning				
Let's concentrate on case based reasoning!					

\*OPSC = Oil platform service centre of company A

In this episode, even though no names are indicated, it becomes clear that the advocates for the *large company's* (OPSC's) desired feature, among them Claus and Ludwig, can make the point. Scripting in favour of the functional requirements in full service I observed throughout all three cases. It confirms that the underlying power gradient serves as one governing principle in formally balanced relationships of network counterparts.

The third source of power set out by Meehan and Wright (2012), namely *relational power*, draws on justice and alignment. I will expound the observation on these two concepts in Chapter 9 and 10 respectively.

### 8.4.3. Exerting power: resolution of dissent

The often contradicting aspirations and technological opinions of the cases' collaborating parties made the resolution of disunity necessary. Where the superiority of one of the solutions in question was a mere subjective matter, it would be particularly difficult. However, in the three projects under scrutiny, I saw Claus the manager relying on the deeper insight and reconciliation of goals. He resorted to demonstration of his power only when urgently needed, which was particularly the case in some situations in case 3.

One example is Claus' soft insistence in a consortium workshop, very effectively drawing on a combination of expertise and relative power:

*Meanwhile Claus suggested that Mr. Q [of company D] use the time for seeing the scientist who is programming A's part of the application, to show him [Mr. Q] the [asset management system to be federated] predominantly, as this was to be integrated by company D. Mr. Q fiercely objected: in his eyes, this part of the federation had been jointly called off in the preceding meeting. Claus explained in different words and patiently again, leaving no doubt that there was no alternative to the integration, so Mr. Q reluctantly agreed to go and have a look.*

This convincing activity of Claus was naturally an easy one: functionally the project leader, he is also a decade older than Mr. Q. Moreover, company A commands around two hundred times the size of company D, and most likely buys services from D in other business areas. However, there was no formal power in the consortium; if Mr. Q had refused to comply with Claus' ideas, there would have been no agreed sanction to be imposed.

Therefore, in less clear constellations of mutual influence, the scripting attempt may result in dissension, at best appeased by resorting to technical discussion again, like in the following episode among the roughly equally sized companies A and B:

**Table 8.4: Micro-sequence on colliding scripting attempts, case 3**

<b>Product/ service</b>	<b>Goodwill</b>	<b>Monetary selling price</b>	<b>Non-monetary selling price</b>	<b>Tangible value</b>	<b>Intangible value</b>
Claus: the relevant module has not yet been delivered by company B		Claus: project has now taken two years' work in company A			
	B's scientist protests, not for them				
B's scientist explains IT architecture	B's scientist stands up, goes to screen				
B's proprietary engine is to be central element of the application					
	B's scientist asks for feedback; assumes it's negative				
			Ludwig: other priorities have been specified beforehand		
			A's scientist explains vividly	A's scientist emphasises importance of additional module to be programmed by B	

In power equilibrium, the configuration underlying Table 8.4, resolving a discordance is only possible through negotiation and mutual concessions. Highly controversial disagreements with no possibility for sanction may however have little potential for a symmetric concession. Such constellations I came to increasingly observe in the last year of Project 3, when agreements were predominantly negated by factual non-activity.

A very plastic situation in this regard I encountered when one party, think tank C, had failed to provide the desired pilot for OPSC. Nevertheless, they wanted to present in the upcoming consortium meeting and show a different pilot application. Mr. O of C also revealed that they would not be able to

create the pilot needed for full service until the end of the third year at all. As company A had worked towards the joint project with enormous resources, dedication, and informational input, Claus and Ludwig were highly disappointed:

**Table 8.5: Micro-sequence on scripting, dissent and resignation, case 3**

Product/ service	Goodwill/ bad will	Monetary selling price	Non-monetary selling price	Tangible value	Intangible value
		Claus: company A, full service and OPSC are devoting their resources for the pilot	Claus: company A, full service and OPSC are giving tailored input according to C's requests for the pilot		
Mr. O of C: we will show a different pilot	Mr. O: the pilot we already have from another project will do				
				Ludwig: the pilot cannot be used in OPSC operations or sold by A	Ludwig: the pilot is not relevant for A, full service, or OPSC
Mr. O: But the public project sponsor specified a generic approach	Mr. O: we only want to comply with public requirements, not with A's/ OPSC's				
			Claus, Ludwig: OK. - Then it's clear.		

This episode observed and coded by me shows the debate on the pilot to be shown at the consortium meeting. The discussion in effect reveals that think tank C had just been working for the presentations towards the public sponsors, not for company A and their full service divisions' requirements. Even though company A was much more powerful as a company and consortium leader, they had no formal influence whatsoever on a non-governmental think tank of global reputation. After this debate, which ended with Claus' and Ludwig's resignation, the meeting ended quite quickly, everyone pretending to head for important tasks later that afternoon.

When think tank C's scientists, programmers, and project representatives

had left, I discussed the incident with Claus and Ludwig:

*Now, only Claus, Ludwig, and I are in the meeting room. Claus is making an exhausted impression. He says: "I'm highly perplexed. They have the highest-carat collaboration partner and then they show the first thing that comes along from a prior project."*

*I argue that Claus' reaction had been rather composed a short while ago. He explains: "Yes, this is because I also have to keep people in line somehow, in order for just anything to result at all. This isn't like with my own staff, where I can say, 'but this has to proceed differently'."*

This episode indicates that without the potential formal power to be exerted and thus without sanctions to be possibly imposed, a collaboration can be sidestepped. In this regard, think tank C passively scripted the project configuration by withdrawal.

Unfortunately for Claus, I have not seen this dilemma of passive resistance resolved in the three years. Although he had formal power within company A, he was not able to impose sanctions on the equally-ranked consortium partners.

Such an actor of high standing capable of imposing a sanction on the defaulting parties emerged in project three only in the very last proverbial minute. In one of the last consortium meetings, the programme manager representing the strategic sponsor revealed that he could not grant publicity to the project in a world-leading trade fair as previously planned. I noted as a conclusion of that day:

*Thus, also a joint presentation of the project on a major stand at prestigious computer trade fair Cebit, was denied to the consortium. But it was equally clear that this would have to remain the only formal sanction that could be imposed on the participating organisations.*

## 8.5. Analysis of the network-related findings

My network related analysis of the three empirical cases observed in business-to-business networks confirm and extend the literature covered in Chapter 2.

### 8.5.1. Network representations

The drawings obtained illustrate that the respective view of network members is quite individualist. The question of inter-subjectively perceived hierarchy as raised by Sydow (2010) is slightly materialised by the explicit denomination of exchange characteristics – from relevant to marginal – in some of the network pictures. Negotiating the interpretation with my respondents revealed that their respective picture was internalised as a subjective map along the whole collaboration process in the project, of which they were constantly deriving orientation, weighing of own possibilities, and resources most easily drawn upon. But rather than being myopic, as anticipated in accordance with Holmen and Pedersen (2003), the view was a purely instrumentalist one. The *active* element – the person in the centre commanding *scripting* abilities of the immediate network – therein confirmed the emancipated position of highly skilled scientists and developers. The way actors recognise the pragmatic boundaries for their particular environment and the resources within seems to be effortless and appropriate. This impression materialised in many conversations, everyone talking about their own specific requirements and limitations. The mental manifestation of the network was thus verbally enacted.

As I obtained various collaborating individuals' perspectives on the extant project environment, I learnt that there is no inter-subjective *map* like in geography. Instead, every respondent had internalised a phenomenologically perceived landscape *as is* as advocated by Coleville and Pye (2010). The resolution of those subjectively construed networks differ accordingly. In the



samples obtained in this thesis' empirical work, the mental pictures' entities range from persons, departmental, and organisational actors to functional groups of collaborating parties. Whereas Coleville and Pye (2010) find the granularity of network representation related to geographical distance, I predominantly found a dependency of the technologically induced, subject-related, bonding necessities.

My studies have widely confirmed the recent findings of Leek and Mason (2010) that individual respondents had internalised contrasting or complementary pictures of an identical network. Even after a joint 8 hours' meeting, every participant judged different actors, bonds, and resources as relevant for the project and – often completely – cut out others. The empirical indication of interpretative bias and political coining of industrial actors' perception as found by Srai and Gregory (2008) was thus reinforced.

In addition, I have been able to confirm the pragmatic *framing* (Srai and Gregory, 2008) of every participant according to personal sense making and situated limitation. Like a scientist bordering the network for a temporarily stable construct to be observed (Finch and Geiger, 2010), the studies' respondents were able to bind the comprehensive picture for some period of time. Negotiating my interpretation with the creators after they had produced their drawings, I learnt that the representations depicted a widely stable mental situation. This ancillary thought stasis, the respondents claimed, would commonly last for several months; a finding confirming Slater's (2002) postulate for self-protection through stability.

Individual competencies and control constitute the overarching elements of network perception of all respondents in my empirical studies, as previously claimed by Coleville and Pye (2010). However, I attribute the level of resolution therein to the self-centredness in a network which the individual has in mind, whereas in Coleville and Pye's claim (2010), it expresses the degree of singularity of an actor. This internalised emancipated stance indicates that every professional examined had already experienced the personal potential to script the project environment. This scripting is

equivalent with the *coercion* (Ford et al., 2002) of the 6C model as opposed to *concession*. Moreover, the self-centredness reflects the anticipation to introduce new problems if needed, 6C's *confronting* rather than *conforming*.

The three cases all revolved around technology, subject-specific information, and its advanced use for virtualisation in production and service. Actors addressed each other by their technological part in the project network; *work package 4* depicting a group in company B, for example. Even though specifications were chosen almost arbitrarily according to the preferences and perceptions of the information specialist, they still unified a *group*, an instrumental unit of the network. The overlap is thus not perceived among actors of one characteristic, like formation or age, but within a functional sub-project. Thus, the teams developing the respective work packages are superseded in mutual cognition by the packages themselves. In a *pars pro toto* manner, the input and outcome are the place holders for the whole complex of actors, resources, exchange, and synchronisation of a task in the enacted and thus experienced web. Such a habitualised information flow has been postulated by Araujo et al. (2010), with bidirectional traits of the ties therein as set out by Finch and Geiger (2010).

Negotiating the perceptions on the individually drawn networks, I fortified the construction of the mental picture and individual sense-making described by the authors. My findings thus confirm the claim of Coleville and Pye (2010) that no network view, however imposed or agreed, is ever seen as objectively given.

### **8.5.2. The enacted network**

Contemporary communication and togetherness is not merely restricted to face-to-face mode, written papers, and hearsay like in traditional communities, networks, and relationships any more (Wittel, 2001). With the capabilities which instant electronic information transmission and telecommunication offer, even spatially dispersed collaboration networks may

command the same performativity and responsiveness as local clusters. This virtualisation by means of technology, *virtual togetherness* (Holmen and Pedersen, 2003), is dialectically coined and coining the capabilities and perception on networks (Srai and Gregory, 2008; Mouzas et al., 2008) and the innovative offerings developed therein (see Chapter 7).

This manifested in most of the exchange and shaping activities along the networks' connections. The projects were carried through in a highly dispersed environment respectively, at times unifying collaboration partners located across different continents. Equipment, computers, and installed software could not be translocated between sites in reasonable time or with acceptable cost. Thus, the project networks had to rely on the aid of information and telecommunication technologies to achieve an effective exchange. The *technological sociality* of the *enacted network* was instrumentally enabled by telecommunication and facilitated by virtual transactions of resources. Artefacts such as diagrams, concepts, and modules were sent around along the ties of the network virtually and served as tokens or artefacts feeding into subsequent, network enacting, discussions.

However, people may chose to not enact a network tie if they feel like withdrawing. This withdrawal from an extant relationship in an immediate network can be seen as an expression of *consolidation* as opposed to *creation* described in the 6C model (Ford et al., 2002). The virtual ties created with the help of and enabled by information and telecommunication technologies bore the same potential as real ones. At the same time, as shown in this example of Project 3, de-localised collaboration offered more room for evasive strategies and thus weakening the enacted network ties. I observed individual aspirations as set out by Ramos and Ford (2011) as the trigger of these often self-interested conduct. Analysing the staging behaviour using Goffman's dramaturgic approach (see Chapter 5, Section 5.4.4.), I learnt that the withdrawal from the enactment of ties was facilitated by the *back stages* of the separate offices.

But even on the *front stage*, when gathering in one room for project meetings, computer technology often mitigated the participants' level of presence. Attending physically, attendants would communicate with other networks' members or draft emails on the behalf of entirely distinct projects. The *actors* did not perform according to the *stage play* set out for such situations. Thus, the de-localisation by virtualisation caused the operational dilemma of choices described by Wittel (2001) and impeded the success of the third project in particular.

### **8.5.3. Individual power in networks**

As set out above, I found the discussion of mental network representations as described by Ramos and Ford (2011) a valuable instrument for identifying actors and resources available in the vicinity in rich business-to-business exchange environments. The *network* of actors I found to be manifested, experienced, and instrumentalised individually by each member. In a *snapshot* like the drawings in the above figures, the perception turns out to be subjective, self-centred around respondents or their organisation.

Heterogeneous arrangements of humans are all more or less characterised by hierarchy and power. This complex had been found particularly under-researched by Ramos (2008).

Usually, the higher standing member of a group commands more authority than those with a lower position. The empirical findings in all three cases however revealed that formal power and hierarchy had increasingly receded against less coercive ways of taking influence as already postulated by Rampersad et al. (2010), the 6C's *coercion* (Ford et al., 2002). At least in Western, technology dominated, networks expertise and skilled contribution bear the same significance for advancement as the size of a company and difference in personal ranks.

As everyone in the network had the possibility to intervene in any of the exchanges, the actors thus still commanded quite equivalent means for subject-related scripting and thus *coerce* (Ford et al., 2002).

Individual power has been set out by Meehan and Wright (2012) as derived from *knowledge*, *skills*, and personal *rank*. The most obvious potential for such a hierarchical superiority arises within an organisation. Typically, it is derived from education and work experience, level of remuneration, means available for working, years in the company, direct reports, and managerial qualification. In this thesis' case studies, there was ample explicit and implicit evidence that hierarchy and formal power were present within company A and perceived as such by my respondents.

Coleville and Pye (2010) claim that such actors commanding stronger scripting abilities are capable of imposing a particular network representation on their cooperating partners. I could not observe this capability: in all three cases, I found evidence for the claim of White et al. (2007) that the self-centredness within the landscape dominates and thus at least overrides the influence of the stronger project collaborator.

Possibly, the managers in the three cases had not emphasised the map shaping activities as described by Demes (1989), Steinbrenner (2001), and Coleville and Pye (2010). The *strategic network* seen as a superior form of dissemination of new technologies by Coleville and Pye (2010) I have observed to be envisaged in the first two cases where the corporate research centre clearly had the lead. Still, the enactment differed between individuals.

An alternative explanation for the self-centred mental network representations may however lie in the individual perception (Leek and Mason, 2010). In a kind of self-deceit, every actor assumes to be a main scriptor and accordingly take their own world view as the common one. This would assign a different meaning to Coleville and Pye's (2010) findings but

not refute their general thought.

Drawing on the model of social power by French and Raven (1959:69), I found only the *referent* (role model and prestige) and *expert* power enabled. These have been subsumed under the notion of *individual power* by Meehan and Wright (2012). This *individual power* is derived from *knowledge, skills,* and personal *rank*. The most obvious potential for such a hierarchical superiority arises within an organisation. Typically, it is derived from education and work experience, level of remuneration, means available for working, years in the company, direct reports, and managerial qualification. In this thesis' case studies, there was ample explicit and implicit evidence that hierarchy and formal power were present within company A and perceived as such by my respondents.

#### **8.5.4. Organisational power in networks**

From the outset of my research I deemed the ranking mechanisms in organisations and communities to be equally inherent in networks: between groups of actors or organisations. The most evident example is the gradient between a large *powerful* company and a smaller firm which has already been described by Meehan and Wright (2012).

This gradient becomes particularly sophisticated in an ambiguous constellation of actors, like among the team leader of a smaller company and the specialist of a large company. This enumeration already indicates how intricate and imponderable the implicit *calculation* of power and thus determination of position may become even in moderately sized networks. Moreover, hierarchy does not necessarily mean influence, which in contemporary Western cultures can be exerted top-down and bottom-up almost equally. Both the superior and the inferior actor in a network can withdraw – *consolidate* – or extend division of tasks between partners – *create* (Ford et al., 2002).

My underlying research thus confirms the existence of the *focal actor* described for markets by Storbacka and Nenonen (2011). An innovation network accordingly reflects all contemporary characteristics of a market as a *trading zone*, including influence – *coercion* - and enforcement – *confrontation* (Ford et al., 2002) - onto a dyadic node or a wider network.

As set out above, *organisational power* in economic contexts has been defined by Meehan and Wright (2012) as a superior stance drawing on size, industrial rank, technological maturity, and dependency relations with other companies. Whereas I observed this source of prevalence in all three cases, given that the participant organisations in cases 1 and 2 were large independent departments, it was most obvious in case 3.

The confirmation of authority as a source for networking dynamics also refines to the already existing methodology in social research. By observing the *6C managing in networks* phenomena (Ford et al., 2002) in the immediate industrial networks considered for this thesis, I was able to analyse the actors' positions. The mechanisms and interactions by which the actors renounced or exerted authority and coped with gradients in hierarchies turned out to reveal the most comprehensive picture of a network's condition. Thus, I argue for a stabilisation of the innovation research agenda by the scrutiny of *power* as set out in Figure 8.1.

My studies also revealed the tensions of the *coopetition* described in the network literature (Bengtsson and Knock, 2000; Hasse, 2003; Oliver, 2004; Schramm-Klein, 2005). At least, in the third project, actors collaborated in one area while their corporations being competitors in other domains. This may have accounted for some of evasive behaviour described above.

The systematics and relevance of power concepts I observed in the three cases' networks already devises an according methodical guide. The template I derived from Meehan and Wright (2012) into my own classification

can therefore also serve as a blueprint for future research. This template is visualised for this thesis' projects in Table 8.b in the appendix.

Their postulated sources of relational power, namely *justice* and *alignment*, I found particularly applicable across units and organisations. Thus, most organisational and individual sources of power I found to be relevant both in intra- and inter-organisational context.

However, the *relational power* was unique and potentially game changing across the corporate boundaries but within the immediate network in particular.

### **8.5.5. Resolution of dissension**

Like with the internalised network pictures, there was no objectively given degree of dissent and disequilibrium, but individual perception of such, which moreover differed across actors. The equal significance of ties drawn by my respondents clearly indicates that in networks, intra- and extra-corporate active links may bear quite similar characteristics and organisational boundaries may blur. This boundary-spanning alignment has recently been postulated by Spring and Araujo (2012) and will be analysed further in Chapter 9.

When there was technological discordance in inter-organisational collaboration, I observed the dominating power of the *buying* party (the official future beneficiary) throughout all three cases. Functional requirements superseded the divergent intention of the supplier by their compelling facticity. That this was the case in the consortium of Project 3 (with the formal customer OPSC) confirms that the underlying power gradient serves as one governing principle even in formally balanced relationships of network counterparts.

In power equilibrium, a divergence in project-related preferences can only be reconciled by mutual concessions and benevolence. Similar to scripting, such



an appeasement towards consensus has to draw on a long-term equilibrium of interests as will be laid forth in Chapter 10. Ideally, all partners recognise when it is their turn to give in for once to maintain this balance.

These forms of scripting I encountered across all three cases scrutinised for this thesis. Whereas in routine diversion of opinions, consensus was reached in various political constellations quite easily, strong dissent made the scripting in divergent opinions and power gradients more evident. Especially in equilibrium, two or more equally determined actors collided in strong dissent. Only avoidance strategies like resignation or a sudden turn by intervention *from above* lead outside the strong dilemmas my respondents encountered.

Highly controversial disagreements with no possibility for sanction may however have little potential for a symmetric concession. The empirical findings in the third case in particular indicate that without the potential formal power to be exerted and thus without sanctions to be possibly imposed, a collaboration can be sidestepped. In this regard, think tank C passively scripted the project configuration by withdrawal. This indicates that without the potential formal power to be exerted and thus without sanctions to be possibly imposed, a collaboration can be sidestepped. Analysing this situation from Goffman's (1955) staging approach set out in Chapter 5, I concluded that a higher authority, e.g. a member of the board, would have been helpful for intervention on a more political level.

This role has in Greek drama been labelled *deus ex machina* as a character first introduced towards the end of a play, commanding a surprising stance or toolset for dilemma resolution. In the third case, this *deus ex machina* could have been the director of company A's research centre. By introducing such a superior actor, the company could have re-established goodwill for cooperation or an inter-organisational gradient, a configuration in which further dominance in discordance would have become possible.

Sometimes however actors renounce on exerting their formal or informal power and prefer to treat everyone as equals. This behaviour and climate I found in intra- and inter-organisational constellations, especially among people with a Western, participant empowering, mindset and has recently been postulated by Rampersad et al. (2010). As counter-examples for the unilateral scripting as set out above I found the balanced dyads and wider systems as postulated in first (simplifying theoretical) approximation by Johnsen and Ford (2007) in the first and second case. There I particularly observed in flat hierarchies where balanced benefits accounted for a relaxed atmosphere of collaboration.

This way, through cases one and two I realised that a network can best step outside the frame with an offering in a perceived relative balance and harmony. The significant concept of relationship justice in industrial networks will accordingly be covered in depth in Chapter 10.

More typically, however, participants in this thesis' three cases tried or managed to take the role as the *focal actor* which has been set out as a pivotal player by Storbacka and Nenonen (2011). The role was assumed intermediately, or even throughout entire projects. This potential to influence I found to be a tempting quality for individuals as for groups, the latter particularly between discrete corporations.

Being able to alter the configuration – the shared norms and rules – and thus to *script* a project network I found to be accompanied by a series of positive effects. These benefits range from gain of reputation, less effort for persuasion and ultimately less own workload which in most cases seemed particularly desirable.

In extension of the *scripting* concept of Storbacka and Nenonen (2011), I found that both the nature of the situation – routine diversion of opinions or strong dissent – and the perceived overall relations of strength strongly

influence the scripting behaviour. Drawing on my observation in the three empirical cases, the following options as summarised in Table 8.6 arise in different constellations:

**Table 8.6: Scripting mechanisms and sources of power in routine and disunity (6C activities written in cursive letters)**

	<b>Routine diversion of opinions</b>	<b>Strong dissent</b>
<b>Perceived inter-organisational equilibrium</b>	Scripting by negotiation and technical discussion (active; <i>confront</i> ); <i>sitting out</i> (passive; <i>consolidate</i> ) <b>Source of power: individual</b>	Scripting through fight ( <i>confront and coerce</i> ); <b>Sources of power: relational and individual</b> Intervention of <i>deus ex machina</i> (active); withdrawal ( <i>consolidate</i> ); resignation (passive; <i>concede and consolidate</i> ); <b>Source of power: individual</b>
<b>Perceived inter-organisational gradient</b>	Scripting by insight ( <i>conform, concede</i> ); <b>Source of power: individual</b> Simple routine directive (active; <i>create</i> ) <b>Source of power: organisational</b>	Scripting by power and persuasion (active; <i>create</i> ); <b>Sources of power: organisational and relational</b> Evasive behaviour (passive; <i>consolidate</i> ) <b>Source of power: individual</b>

Beyond a division's boundaries, inter-organisationally, the justice- and alignment-related sources of influence are proprietary qualities an actor holds in a specific network. Therefore, the performance of actors may vary across networks in accordance with the ability to sustain justice and align therein. This may be one of the key explanations for the fact that the three projects considered for this thesis, all within Claus' management realm, performed so differently.

The third source of power set out by Meehan and Wright (2012), namely *relational power*, draws on justice and alignment. I will expound on these two concepts in Chapter 9 and 10 respectively.

### 8.5.6. Answering the research questions

I had stated the research questions 1 and 2 in Chapter 1. These questions can be answered in the light of the above findings as follows:

Research question 1:

**How do individuals as actors in the research setting draw on their immediate business-to-business network to achieve rich exchange and innovation?**

Answer: The people in the projects under scrutiny perceived themselves as central actors in their own, practical and subjective, network. They actively chose to enact the ties which they had experienced or anticipate to be most useful to them. This enactment could be both physical and virtual, and typically a combination of both. Over time, the subjective internalised representation of such a network would be changed by the refined or adjusted sense-making thereof. Actors of a focal dyad shared one similar concept of their tie, whereas the residual, respectively internalised and thus enacted, networks looked different.

Research question 2:

**Which governing and control mechanisms can be observed in the research setting's rich exchanges and episodes of innovation?**

Answer: The mechanisms I observed in the three cases are enactment, discordance resolution, and taking influence by scripting. All three were governed by the principles of power. This power typically drew on one or more qualities of organisational influence, individual expertise and stance, and relationship. There was a power equilibrium among some organisations, groups, or individual actors, and a gradient among others.

Dependent on the sources and gradients of power, the enactment was uni- or bilateral. Reconciliation of divergent opinions, and its positive counterpart, scripting, were enabled by organisational and individual power for directives and by relational and individual power for persuasion.

These answers also point to the residual research agenda for power. Relational sources thereof constitute new concepts to the industrial marketing management debate (Meehan and Wright, 2012). This chapter's findings strongly indicate that they may in fact advance the understanding of cross-network differences. I will thus cover the concept of *alignment* more deeply in Chapter 9 and discuss *justice* and *fairness* in Chapter 10.

## 8.6. Conclusion

In this chapter, I demonstrated the subjective and self-centred nature of individuals' internalised network pictures. I showed how actors and resources are perceived almost as congruent. There is no given, balanced network and no single, *objective*, one. This is illustrated by the empirical fact that companies, single persons, departments, firms symbolised by individuals, and individuals labelled by their firm, were in the cognition of project members all taken as potential *actors*. Rather than being myopic, collaborating actors thus visualise their own pragmatic, enacted, network.

This thesis' empirical findings set out above revealed how new information and telecommunication technologies enable and change the enactment of an industrial network's ties. Withdrawal, loss of control and evasive behaviour may be the negative consequence of such technology-enabled virtualisation in network cooperation.

Introducing the concept of scripting in a network, I scrutinised the sources of power and influence in intra- and inter-organisational sociality. Putting these findings into relationship with the 6C model, I highlighted the limitation of influence and reach particularly between companies. Pointing to alignment and justice as valid sources of inter-organisational power, I thus devised a research agenda leading over to the subsequent chapters.

# Chapter 9

## 9. Value- and innovation-related findings

### 9.1. Introduction

In this chapter, the complex of networking activities with respect to alignment and the development of joint capabilities will be explored.

I will exemplify the supplier perspective with regard to the invention to be marketed in a discussion of the cases considered. Using examples from the transcripts and interaction episodes, I will show how an alignment was attempted and possibly achieved. The consequences of misalignment are carried forward. Instrumentally drawing on the ARA model and the service-dominant approach, I will try to reconcile or contrast the extant knowledge on value and innovation with the empirical findings in my field studies. I will providing an outlook on cognitive mapping for the valency debate. Moreover, I will illustrate the use of the scorecard introduced in Chapter 1 for research and management on alignment and value.

Conclusively, I will review this chapter's findings with regard to the literature, thus answering the research questions stated in Chapter 1:

Research question 3:

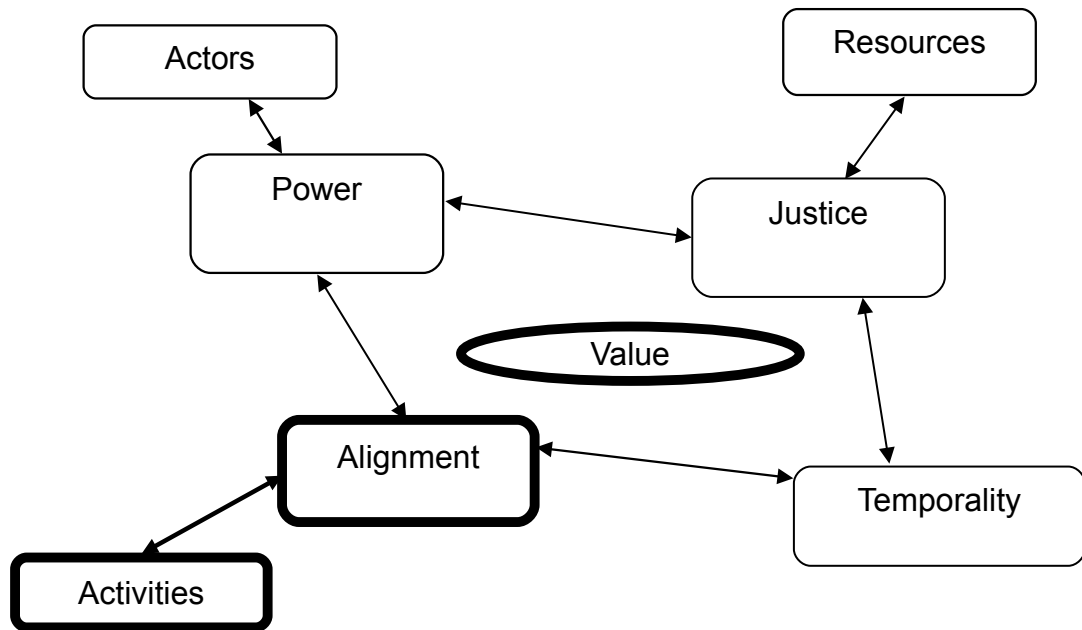
**Which entities are exchanged in the research setting's immediate network by means of collaboration and by which mechanisms are they generated?**

Research question 4:

**How do different actors in this research setting value the distinct approach of developing innovation in a customer-centric manner?**



This chapter's research agenda is indicated in bold in the conceptual framework set out in Figure 4.2, to result in figure 9.1:



**Figure 9.1: Activities-related research agenda**

## 9.2. The supplier perspective

The delivering organisations in the three cases (mostly represented by computer and process engineers) had to iterate the reconciliation of the deliverable with the operational desires and needs of their counterparts. After the initial goal finding stage, each project leader tried to develop his own ideas about the project and set out a preliminary work plan based on his personal experience and capabilities.

Richard, scientist and project leader in Case 1, for instance remembers that he couldn't make sense of the initial requirements which he wanted to address with the company's latest invention, a reliability modelling technology:

*Then I went through all the [documented customer information] which had already existed [for this project], and then, well, 'I worked out a plan what I*

*imagine as next steps [...] We had here this [newly developed] reliability modelling technique. [...] And then I introduced my ideas to [full service representatives and the steering committee]. First they said all right, then one month later they came back and indicated that we might have to talk over the requirements once again.*

Even mundane requirements of the customer had to be taken seriously in order to maintain the exchange relationship. For instance, I learnt that company A necessarily shared their customers' dichotomous distinction criteria on products and services. Whereas company A's research department's focus throughout the three projects was to stabilise the installed base by empowering the full service division, I heard Claus complain numerous times:

*Our customers don't have a budget for services. Only for products. So we 'make products' for them.*

Of course, the suppliers' perception on their input still revolved around the services surrounding the products the customers had already in use. The necessity to guess for such anticipation was taken into account pragmatically:

*Ludwig discusses the presentation to be held towards [the financial sponsor of Project 3]. They don't want to reveal what isn't working yet. Mrs. I of B says, "no one wants a finished product". Ludwig: "every time the industry gets a chequebook of 30 Million Euro out, they want a finished product." They agree on not being able to resolve this dilemma right now.*

This dialogue depicts how the ultimate denomination of a value provision is determined by negotiation of the buyer-seller dyad in accordance with the customer's already existing business, technologies employed, priorities and buying behaviour. Suitable deliverables may thus be products, services, or a

blend of both. Accordingly, I observed that the supplier's perspective was often demarcated by the technicalities of already existing tangible products and value-adding services around those. In particular, the high margin business of bringing an invention to the market took priority. The customer's perspective however revolved around the possibility for an improvement (in whatever regard) and additional insight or increased reliability; at best a combination of all three.

Bernhard, the project leader of Project 2, recalled such an operational improvement his development had brought about to the customer:

*By means of the project, we would optimise processes in such a way as to eliminate redundant tasks – media processes, data handling. Of course this simplifies some things considerably for the participants [in full service].*

Similarly, one year into the third project, Ludwig was as eager to implement the so-called expert monitor in the oil platform service centre. I recorded him telling me what he had learnt about the recipient unit in order to realise this goal:

*The [oil platform service] dispatchers' work is extremely complex, as they know the history of the installed base's vessels and can make suggestions for [total preventive maintenance] to match with the relief flights and availability of [company A's] technicians and equipment. However, schedules get changed on very short notice, so only this new technology is sufficiently flexible and volatile. Albeit our information technology can only be a guiding instrument for [the dispatchers'] human decision making, no automatism.*

Even though he was fond of his unit's invention the expert monitor, Ludwig knew that the actual *product* - its technical foundation and its genesis – would not really matter to the customer side. The great challenge was to map the new technology available (as he as a provider mainly perceived them) into a rather orthogonal construct of a value offering and innovation. But he

equally knew that knowledge for his teams and the end customers, the potential to simplify processes, increased reliability, and the supplier's overall credibility would be appreciated as project outcomes.

### **9.3. Alignment**

In the three projects under scrutiny, this transition – in the above graphic indicated by a question mark – started with human interaction from suppliers' and designated customers' sides. Initial meetings with full service managers and corporate research representatives set up the goals. Plenary and subpanel meetings negotiated the first common understandings upon which the respective project's requirement papers were elaborated. Economic computer scientists of teams I observed were chosen to act as project leaders and coordinate all the arising programming and analytical work.

#### **9.3.1. Alignment activities**

Claus, the overall responsible for the three cases, remembered a typical beginning of such collaboration, like for the first project:

*After we got green light to go on and engage with the full service subject, [a colleague] and I arranged the kick-off with a couple of Swedish specialists. [...] There were some more full service managers present. [...] In a three day workshop, we brainstormed – this is how it always works – and made a list with priorities and I went back and put together what we [the corporate research centre] thought they would like to have [...] yes, and of course what we thought would be feasible at all. [...] After the kick-off there was little movement in the issue, until finally Richard [the designated project leader] took over.*

*Cutting out*, the process of *découpage*, thus converted the initial complex and confusing scenario into a manageable entity of a common *project* understanding. The agreed priorities thus clearly entailed the servitisation towards value-in-use, however, as laid forth above, always in an ancillary classification into products and services.

In case 1, it showed that even though the full service sales division had developed a clear idea of what would be the desired outcome, Richard perceived the problem formulation by the kick-off group as rather vague. The requirements documents had been formulated without him, in a terminology bearing less significance for him. This is indicated by Richard's statement that as a computer scientist he had to overcome considerable *translation* problems in the mechanical engineering domain.

Richard had received support to overcome these initial difficulties and transfer the customer requirements into a common understanding. The Dutch full service manager who had participated in the project kick-off and was particularly enthusiastic for the venture, went to see the project leader for a face-to-face one day workshop in his laboratory in Germany.

To Richard, the fact that an important executive set priorities indicated that the alignment of the modes of thought was obviously considered as highly important for the further course of the project. Equally, the Dutch sales manager saw what they would harmonise in return, as a prerequisite for successful advancement:

*Something went wrong in the alignment of thinking so people were thinking in different directions. And then I took it upon myself to connect their thinking, to align that thinking again. Because I have been in the initial phase, there were tests before that, I've been there from almost the beginning, and I just kept coming back to that idea, that that's what we wanted to do [..]. Anything that we do to help stay committed is right.*

The small conversational sequence shows an accumulation of *thinking*, connected with *alignment* (used in the same, inter-organisational notion of

harmonisation in understandings as set out above) and *ideas*. This indicates that the movement of the supplier and the customer side towards each other in the project was enacted as a highly iterative process, like, in this statement, *coming back to the idea*. The whole reconciliation was aiming at bearing the same in mind; this in the Dutch manager's account was emphasised over and over again.

Such a convergence of thinking in a highly complex technical scenario was not simply achieved by one single expert. During the pilot development stage, valuable input was contributed by the global expert group in Australia. Richard held regular telephone conferences with engineers, one of whom he named a *champion with a predominantly global view*:

*Well I held telephone conferences with the Australians whenever I thought: this is a content-wise milestone, which I want to verify with them. [...] Then I prepared slides and showed them, o.k., I have identified this, and that was the result, and then they had questions and then I sent additional materials, according to these questions they had, and they gave me recommendations I would say, well they said this is rather, look in this direction, this we deem problematic, that we deem promising, and sometimes I asked very specific questions, well I got quite a lot of material on what had been done before, basically the status quo, which I then weaved into this process.*

In order to use his toolset, his resources and capabilities available for the project, Richard's alignment deliberations fluctuated between the provider perspective – the innovation embodied in a blend of products and services – useful application needed by the client. He described the first loop for turning the vague desires of the customer into something valuable as summarised in the micro-sequence in Table 9.1:

**Table 9.1: Micro-sequence of alignment, case 1; Respondent: Richard**

Product/ service	Goodwill	Monetary selling price	Non- monetary selling price	Tangible value	Intangible value
	It's always like this in innovation projects		Full service said <i>we have a vague problem</i>	Full service asked <i>what could be the solution</i>	Full service had an idea of improved operations
There was the project document	We had our own terminology, a little bit		There was their requirements specification		
We split up the requirements into technical components				We defined single work packages	
We selected the tools to be tested	We made suggestions of tools				Full service wanted to get a <i>look and feel</i> after the first steps

In the second project, I observed the analogical proceedings. Bernhard, the project leader, explained in one of the interviews how the requirements specifications of the customer, the full service division, had been converted into a prototype:

*Yes well we had presentations of our new mobilisation technology to the [full service] people and we had a prototype which was finished after the first year. Of course we had collected the requests globally as well. [..]*

*Well, of course there was positive but constructive feedback which opened our eyes again, concerning the requirements which had been specified, which had admittedly been realised but the participants [from full service] had well meant something else then.[..]*

*Based on the evaluation results we went on and created the two pilots for the test departments.*

This encounter revealed how several iterations of the *specification / tool*

*selection / look and feel* -loop were needed to achieve the harmonised mode of thought. This was particularly necessary as a new technology, the *invention*, was to be implemented for customer use for the first time. In the projects one and two, this mutual approximation of the technical and processual givens and requirements was very fortunate. Bernhard accordingly confirmed that the useful qualities were mutually negotiated:

*Yes, of course there was also positive feedback because the planning for the business units had become easier. They have a better overview now where their technicians are. The platform we introduced is now also integrated into other [middleware] systems. This means the service personnel have less work as well and the feedback was naturally also very positive. [...] The positive feedback came from the managers as well as from staff.*

These statements do not mention the new invention at all. Bernhard had translated the technological implication into the useful value for the customer. However, it was not always clear whether the customer would actually prefer an innovation over a more mundane value offering entailing only extant technologies.

Well these are both factors, first having to imagine in such a business unit, that there are rather problems becoming acute then, and second not always the innovation friendliness. With [the attitude] currently being a healthy mix of the two. On the one hand, you want to be more innovative, on the other hand you want to address problems and these were the two issues.

Bernhard's patience was thus tested in maintaining the supplier's balance required between the enthusiasm for innovation and a problem-solving mindset.

In case 3, with the more formal setting and an inter-organisational legal contract, I came to observe long hours of intentional alignment activities. As the consortium agreement placed every partner on an equal hierarchic rank, they were particularly coined by cautious reconciliation of processual



interests:

*Mr. K insisted to know everything about the work of the [OPSC full] service personnel. Of course they had talked a lot about “is” (actual) processes, rather than the to-be-modelled “to be” (target) processes. But they needed to know what the service person did, whether those went into the basement to get a document, where they got it from, and why at all.*

The efforts to thus agree on a joint agenda were quite manifold in this third project. To structure a lengthy negotiation on a joint view, my respondents applied moderating techniques such as brainstorming or laddering. As I noted in one of the consortium workshops about Claus referring to such a very intensive laddering step in the third case:

*[Claus] mentioned that Mr. K [who was to arrive later that day] had spent the past two days visiting here anyway, discussing with Ludwig and him, and composing today’s presentation about company Y’s specific [interface] requirements. Claus: ‘He could bring his own bed’, something he repeated later to introduce Mr. K when he finally appeared.*

However, the whole Project 3 remained widely misaligned for three years. One clear difference to the aligned projects 1 and 2 lay in the lack of person related continuity. New entrants had to be familiarised with the network's *découpage*, sense-making and technical conventions repeatedly. The consortium's effective advancement in decision making and collaboration was hindered by absences and fluctuation. After a day-long observation I recorded:

*As no one of the representatives of [think tank C contributing the artificial intelligence] and their responsible programmers were present in the meeting, there was a lack of knowledge causing recurring disagreements and provoked unqualified guessing. [..]*

*Mr. K tried to fundamentally question some of the requirements specified but was always fought back by Mr. N of E who said that everything was already known, and that this whole argument was due to the late entry of Mr. K.*

As illustrated by this small episode, the poorly orchestrated fluctuation of individual actors in the third project disrupted the consensual process repeatedly by questioning the so-far achieved social construction of technology. The above example on Mr. K's late entry illustrated the dilemmas which I saw the consortium face every single month over a three year period.

Another reason for the misalignment was that that the overall attitude was poorly dedicated. For instance, during crucial workshops of case 3, some participants overtly showed their uncooperative mindset:

*Even though the table was laid continuously, occupying the first third of the long table with cups and glasses, the later arriving participants had chosen seats in the back where there were no dishes, in order to establish space between them and to be able to place coats and bags on the interposed chairs. One reason might also have been that they all took out their laptops and [as I noticed when casually walking by behind them to leave and re-enter the room] worked on other things than the meeting at most occasions; they did not want to let others see their screen.*

This behaviour I encountered from the outset and notably also when the project was already considerably delayed. The misalignment was also perceived by the head of the steering committee, whom I noted criticising the consortium:

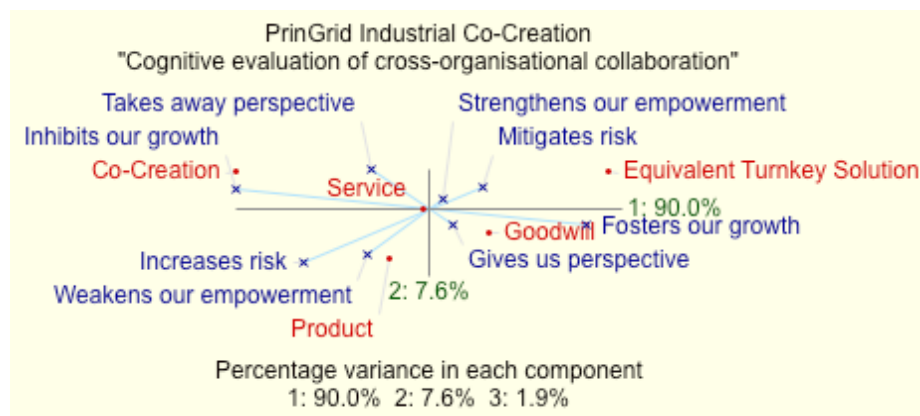
*The most acrimonious critique would however be made at the failure to coordinate: it had become clear that there was no common technological platform, almost no data interchange and integration, and the most diverse approaches for processes and industrial sectors. In his critique, the [head of*

*steering committee] used the little flattering expression “patchwork rug of projects”.*

The other two cases where coordination had been highly efficient over time looked much better. Both the projects one and two saw a continuously increasing common understanding. Each participant had contributed at their best, e.g. communicating their timely availability and trying to make it to meetings. Accordingly, the three quite similarly endowed and situated projects led to full, partial, and too little success respectively.

### 9.3.2. Perceived alignment effectiveness

This reasoning specific to the third project also manifests itself in the cognitive view obtained from the repertory grid testing as detailed in Chapter 7. Ludwig, together with Claus company A's responsible for the third project, deems an equivalent turnkey solution which would have been developed within A only potentially superior as illustrated in the repertory grid map in Figure 9.2:



**Figure 9.2: Repertory grid, Ludwig of company A, case 3**

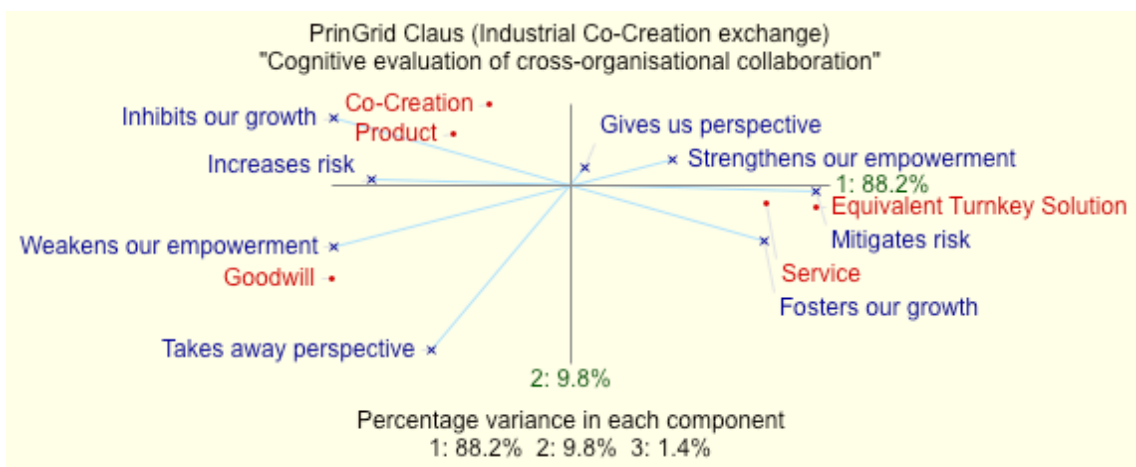
Thus, Ludwig saw expressive differences between a potential in-house and a

consortium's development. He thus considered the product and the collaboration from which it resulted as taking away perspective and augmenting risk for his group. The equal distribution of elements and constructs across the plot indicates that the diagnostic method bore significance for the project under scrutiny.

His line manager and at the same time co-manager in case 3, Claus, shared the superiority assumption for an internal development in company A which would have been carried through without a consortium.

Even more significantly than Ludwig, Claus deemed that company A's own goodwill had not contributed to *co-creation* (for explanation of the term's coining in this test, see Section 7.5.3 in Chapter 7) and the joint product as detrimental to his own organisational development.

This cross-organisational *misalignment* is also revealed in the diagnostic plot of Claus' responses shown in Figure 9.3:



**Figure 9.3: Repertory grid, Claus of company A, case 3**

Discussing these visualisation in Figure 9.2 and 9.3 after the diagnostic evaluation, Claus and Ludwig confirmed that this internalised judgement had to originate from the lack of coordination, resulting in the bespoke

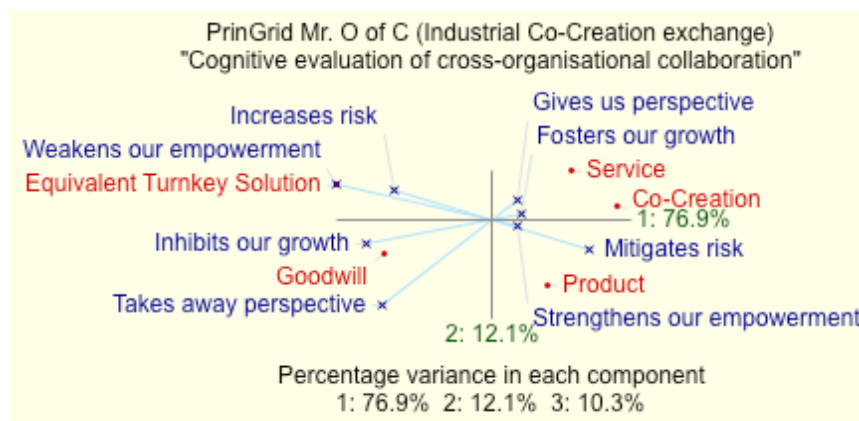
*misalignment efforts* which they had experienced during the project.

Rather than stabilising the innovation effort, the *co-creation* had weakened the consortium's capabilities due to active misalignment. For Claus and Ludwig, the network had thus not offered value but rather destroyed existing possibilities due to *misalignment*. They felt that if they had done the project independently, the result would have been superior. The unique expertise which some of the consortium's partner firms had nevertheless contributed didn't change the two respondents' weighting.

By contrast, one of their suppliers in the consortium, Mr. O from think tank C, managed to maintain an overall beneficial view on the consortium.

For him, the collaboration in Project 3 was superior to an equivalent turnkey project his organisation would have to incur on their own, thus making the innovation development a success for think tank C.

He perceived the *co-creation* as beneficial for growth, perspective, and risk mitigation as shown in Figure 9.4:



**Figure 9.4: Repertory grid, Mr. O of think tank C, case 3**

As he affirmed when discussing this grid visualisation, Mr. O predominantly saw the advantage of having the oil platform full service unit of company A as a dedicated use case providing value specification and confirmation.

The synopsis of the repertory grids reveals that cross-organisational alignment is perceived quite subjectively, albeit it may be similar across the actors of one unit. The perception is apparently dependent of the individual goals: as those differed in the third project, those whose objectives had not been reached perceived the collaboration as particularly misaligned.

#### **9.4. The customer perspective: value offering and innovation**

Even though the supplier and the dyadic collaboration teams had their own perception of achievements, the customer was to decide about the adaptation of the invention processed in the aligned realm. The level of *success* as my respondents used to term a combination of tangible and intangible value, in the three cases were perceived quite differently after their respective termination. Even though case 1 had not yielded a usable tool, the Dutch steering committee member and sales manager who had considerably engaged in giving practical input looked back in a positive mood:

*I think it was a successful research [project], even though the results were more or less negative.*

*But the fact that we now know: what is possible and what is not at this stage and the fact that we were having an open mind, to look at it from different angles, this makes me believe that people are trying to deal with this efficiently here. [...] it gave us insights we didn't have.*

*We used a lot of time and effort.*

The same sales manager's perception Project 1 can be further illustrated by

the micro-sequence on reasoning around innovation and value in Table 9.2:

**Table 9.2: Micro-sequence on innovation and information, case 1**  
**Respondent: Dutch full service sales manager and member of steering committee**

Product/ service	Goodwill	Monetary selling price	Non- monetary selling price	Tangible value	Intangible value
We tried to cope with as limited information as possible	We tried to make the best out of limited information			I'm not sure if that's what is innovative	
				We wanted to use it in sales but couldn't	We wanted to have interesting information
					So that's the innovative side of it.

So Richard's processing of information as input from competitors, IT suppliers, full service departments and experts was perceived as innovative and valuable by his *customer*, the Dutch. This was a striking finding as the project had delivered nothing but more, potentially interesting, information.

The project network in case 1 thus obviously fulfilled its function for new knowledge creation by bundling a variety of existing technical experience and capabilities.

The project investigated for case 2 turned out to be even more *successful* – innovative and moreover valuable in use – during its execution as well as in its outcome. As project leader Bernhard confirms:

*[It looks like we gained] a wide acceptance, as the whole [mobilisation suite] has been rolled out in the business units and service units and I would say*

*this is a rather vast landscape. So insofar, if this is making a good picture, well the project has just been finished. [...] Well technically and procedurally there is an acceptance, and well I think that it will be further developed company wide. [...] And then you hope that others take up the project and roll it out even further on.*

Moreover the German full service department's team leader who had participated in this co-development sees further *value* potential in the dyad. He summarised the meta-success achieved as follows:

*Well in total we needed 1.5 to 2 years for implementation. Because we are still in the improvement process today, the full potential has not yet been tapped.*

## **9.5. Discussion of the empirical findings**

For the analysis of the processes of alignment, I was particularly focusing on the way the technicalities of inventions were converted in the three projects. Each case comprised of a comparable innovative value proposition to be induced, developed, and brought to life by a rich negotiated exchange.

This collaboration over time materialised of an accumulation of synchronisation events, mainly palpable by the partners' mutual alignment (or misalignment) efforts.

This insight was particularly valuable for this thesis' methodical discussion, justifying the partial research agenda as set out in Figure 9.1. Scrutinising phenomena leading to closure and its reinforcement in dyads or a network may thus reveal the most considerable proportion of relevant synergetic exchange.

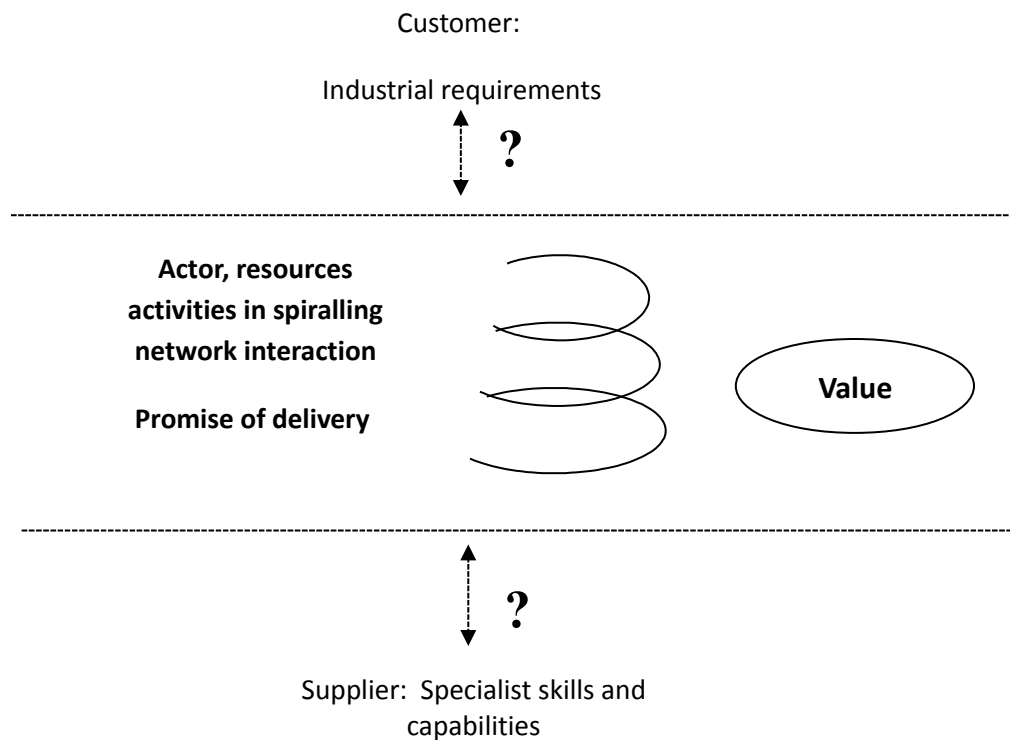
The collaborative phenomena of the projects analysed for this thesis are



synoptically shown in Table 9.a in the appendix, contrasting the two aligned cases with the misaligned third project coined by insufficient mutual reconciliation.

### 9.5.1. The supplier perspective

In Chapter 3 on the extant literature in product and service schools, I identified the concept of actors, resources and activities (ARA) as an administrable instrumental classification of constituents within a business-to-business network. Also drawing on Grönroos and Ravald (2011), I visualised the ARA model as depicted in Figure 9.5:



**Figure 9.5: Visualisation of the IMP network interaction model** (own representation)

As already indicated by the question marks put into the graph during the conceptual analysis of the literature chapter, the model leaves open the question of input (into the common realm) and output (towards the customer).

Starting from the product and service dominant schools laid forth in Chapter 3, I paid particular attention to the (often historically grown) input from the supplier's side and the (mostly complex) needs of the industrial customer.

In each of the cases, I found that the suppliers' perspectives in a network differed from the assumed or at least implied requirements of the customer. Therefore, I analysed them separately so as to reconcile them into existing theories.

The considerations in the supplying company were often coined by existing technologies relevant for the project and their own latest inventions. Of course they would also listen to the information provided by the customer and draw on the experience with buying centres and deciders, seeking to address these needs with their capabilities. The mobilisation of the presumed offering towards the agreed goal was however perceived as difficult from the supplier's stance. Where there was no commonly agreed single set of objectives, such as in case 3, I observed a comprehensive misalignment actively and unilaterally induced and sustained by the supplier parties.

Whereas in the beginning of this thesis' empirical work, my industrial respondents and I had strongly assumed that the product-service dichotomy would play a central role in the analysis, it proved that it drastically receded in significance. It was only for billing and taxation purposes that *tangibles* and *intangibles* were separated according to the requirements and in-house definitions of the customer organisation.

What decided about the perceived success of the innovation project was the ability of the supplier to align their specialised skills and capabilities with the recipient unit. This was mainly achieved by harmonising the mutual perceptions, creating a joint technological reality, and thus harmonising the goals so as towards a win-win perspective.

Spring and Araujo (2012) have recently been pointing to the under-discussed

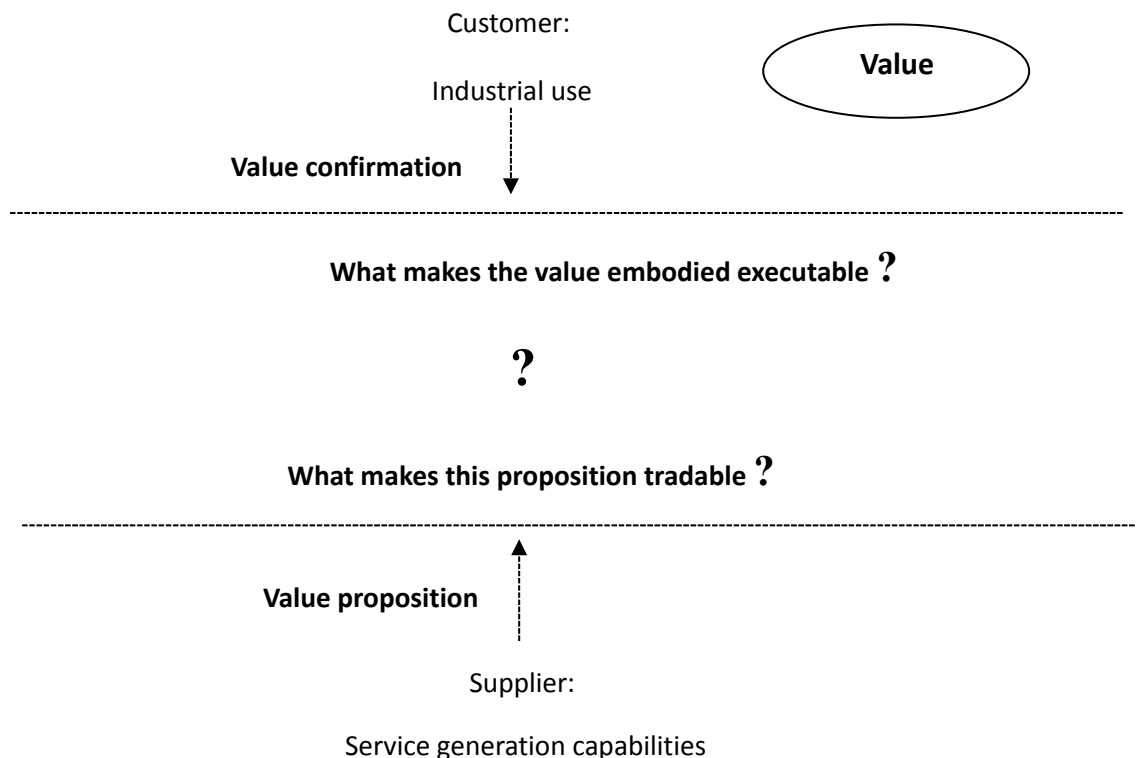
area of *misalignment* and to the need to observe the phenomena thereof (see also Corsaro and Snehota, 2011). This unilateral, potentially individual-related, negative and value-annihilating attitude in business-to-business innovation ventures has in the third case constituted the greatest hindrance for synergetic collaboration.

Thus, this thesis' findings that a supplier may have inclinations or even covert reasons to stay deliberately misaligned in a beneficial *ceteris paribus* project is a new contribution to the field.

### 9.5.2. Alignment

Following the IMP group's model, the value proposition in an industrial exchange is determined by the reconciliation of specialised capabilities with a customer's needs and expectations. The value confirmation transmits whether the operational benefit, desirable information and perspective, and controllability is seen to be realisable by the deliverables suggested.

In Chapter 3 on the extant literature on value and innovation, I contrasted the IMP group's model with the service-dominant approach. Mapping the value proposition generated by the supplier's side, the value confirmation from the customer, and value-in-use into Figure 9.5, the interstitial realm of collaboration partners remains questionable. Accordingly, I now visualise the network interaction mechanisms in service dominant logic as shown in Figure 9.6:



**Figure 9.6: Visualisation of service-dominant logic interaction model**  
(own representation)

As identified in Chapter 3, the service-dominant logic considers an almost complementary view relative to the IMP group's approach. The questions remaining open herein pertain to the reconciliation mechanisms between supplier and customer. What makes the value proposition put together by the supplier from a range of products, new technologies, and services tradable? How can the gap towards operational use and value for the customer – the servitisation as set out above – be closed?

The sequence indicates like comparable findings in the other cases that the potential value-in-use, *to be confirmed* as set out for instance in service dominant logic, was initially specified as a vague formulation of problems and demands by the customer. Converting the three-dimensional givens into a two-dimensional *flat inscription*, a joint socially constructed technology was established. The supplier went back to products and services and decided which ones were potentially suitable to be adjusted or refined such that they were likely to fulfil some of the needs. Again, the customer had to confirm whether the interpretation constituted a perceived value proposition. Thus, a configuration of a jointly perceived technical environment was established with the help of artefacts serving as technical objects among the project partners.

These worthwhile outcomes identified in all three cases I hypernymously substantiate as *value offering*. I saw that the boundary between *value offering* and *innovation* blurs both practically and in the actors' subjective perceptions. There is no dichotomy: the continuum goes from routine products and services to inventions on the supplier's side, from incremental alignment to alignment in the interstice, and from the value offering via the incremental innovation to the innovation perceived by the customer. Any collaborative co-development of existing resources and capabilities of an industrial high technology manufacturer towards tradeability may therefore be considered a micro-innovation already.

The two *missing* question marks in Figure 9.5 are therefore to be replaced with resources and capabilities such as inventions, incorporated in products and services, from the supplier side and the innovation and value offering on the customer end.

A synopsis of the alignment and misalignment phenomena observed in the three cases is shown in Table 9.a in the appendix.

Therefore, using the ARA model as a blueprint for unresolved questions in service schools, the activities and benefits of alignment can be identified as the missing link – the literal question mark – in the interstice in Figure 9.6. This *alignment* leads to operational improvement, information, and enhanced reliability on the opposite, customer, side of the common realm. The projects considered thus indicated that the mutual reliability gained by the alignment was perceived as important goals on the respective ends in a supplier-customer dyad. These constituents can thus be considered as common drivers for mutually adapting industrial exchange.

As shown by the narratives in the empirical section, partly by different technical *pragmatics*, partly by different emphasis on research on the supplier side and application on the other side, the cases 1 and 2 each produced a quite effective alignment. This was predominantly achieved by thorough discussions with technical and organisational mediators with a more comprehensive view.

However, in the third project, this balance of mutual adaptation and performance was distorted in two ways. Considering March's (1991) concept of exploration versus exploitation, two possible reasons may account for this. On the one hand, the alignment may have been considered as insufficient throughout the joint project and valuable exploitation potential was lost by endless learning. On the other, the approximation may have been evaded in favour of free riding. Regardless of the reason for this focus on non-exploration or excess exploitation, this third project revealed a considerable divergence of goals.

The pragmatic balance between exploration – further refining collaboration – and exploitation – stabilising a certain state and reaping the benefits thereof – was maintained in these first two cases (March, 1991).

The extant industrial marketing literature acknowledges that the customer has to specify but also delimit the expected benefit, the desirable traits and qualities in a dialogue with the supplier.

This inscription I have found particularly valuable in the first two cases, with the observable benefits of a better alignment as lately described by Spring and Araujo (2012). Such a socio-technological consensus through closing of norms and rules has, among others, been postulated by Prell (2009) and Storbacka and Nenonen (2011). These negotiating mechanisms enable an effective collaboration of formerly incommensurable industrial actors in the first place.

As it is inopportune to switch collaboration partners after having reached a harmonised state, alignment has also been found to constitute a source of influence in an industrial network, namely of relational power by Meehan and Wright (2012).

*Découpage*, flat inscription, social construction of technology and closure were achieved in what Bernhard in retrospective labelled a *mutual approximation*. In this spiralling or even cyclic process, intermediate *useful* agreements and flatly displayed artefacts like status documents were used as a negotiation platform for subsequent reconciliation steps in order to establish a closure. The greater the differences of organisational cultures, knowledge and business fields were, the more iterations of such a subject-related laddering seemed to be required. Such a socio-technological alignment drawing on linguistic harmonisation has been lately postulated by Spring and Araujo (2012). This reconciliation was highly effective in the first two cases.

The failure to really *talk* together in case 3 and thus enter a joint journey of mutual adaptation was the most striking difference compared with case 1 and

2. Any bilateral exchange towards aligned collaboration was impeded because the supplier parties in the consortium failed to present to company A and the oil platform service division tailored preferable attributes, specialised skills, and services to be offered (Slater, 2002).

Mainly due to divergent goals, the actors did not genuinely try to mutually balance and politically translate facts, artefacts and devices into *technical objects* (Barry and Slater, 2002). In their adherence to their companies' and think tanks' proprietary thinking, these suppliers failed to *inscribe* three-dimensional givens by projection to OPSC in a *deflated*, simplified, *flat inscription* (Latour, 1986). Therefore, even though the equality among partners was comparable across the projects, the lack of socio-technological *closure* led to *misalignment* in the third case.

The most obvious differences can therefore be seen in the cases' diverging effectiveness of collaboration, of perseverance in mutual learning, and of constructive feedback. Only with an arrangement of capabilities and expectations over time, however, the question mark symbolising value reconciliation as shown in Figure 9.6 can be explained. The pivotal difference between alignment and misalignment deciding over success or failure in *ceteris paribus* innovation projects is a new scientific contribution which has been recognised as overdue by Spring and Araujo (2012).

### **9.5.3. A new interaction model for dyadic industrial collaboration**

In Section 9.1, I have put the interaction-related research question of this thesis forward for analysis in this chapter as follows:

Research question 3:

**Which entities are exchanged in the research setting's immediate network by means of collaboration and by which mechanisms are they generated?**



With the help of the analysis in the three considered cases, I am addressing this question, extending the representations in Figure 9.5 and 9.6 by the concepts of alignment and value. I am creating an instrumental nexus between the business-to-business exchanges in the IMP group's thought and in the service dominant tradition. For this nexus, I introduce a rich surface upon which each partner mobilises their specific ingredients for collaboration. In analogy to semiconductor coatings in surface physics, those surfaces I call *abstraction layers* (Möhring, 1988). Acting as key interfaces towards co-development, these functional boundaries mobilise appropriate attributes, tangibles, resources, and information towards the common realm for an efficient alignment. Systematic coordination activities of value propositions and value confirmations, each facilitated by *flat inscription*, iteratively take place as the dyadic relationship evolves.

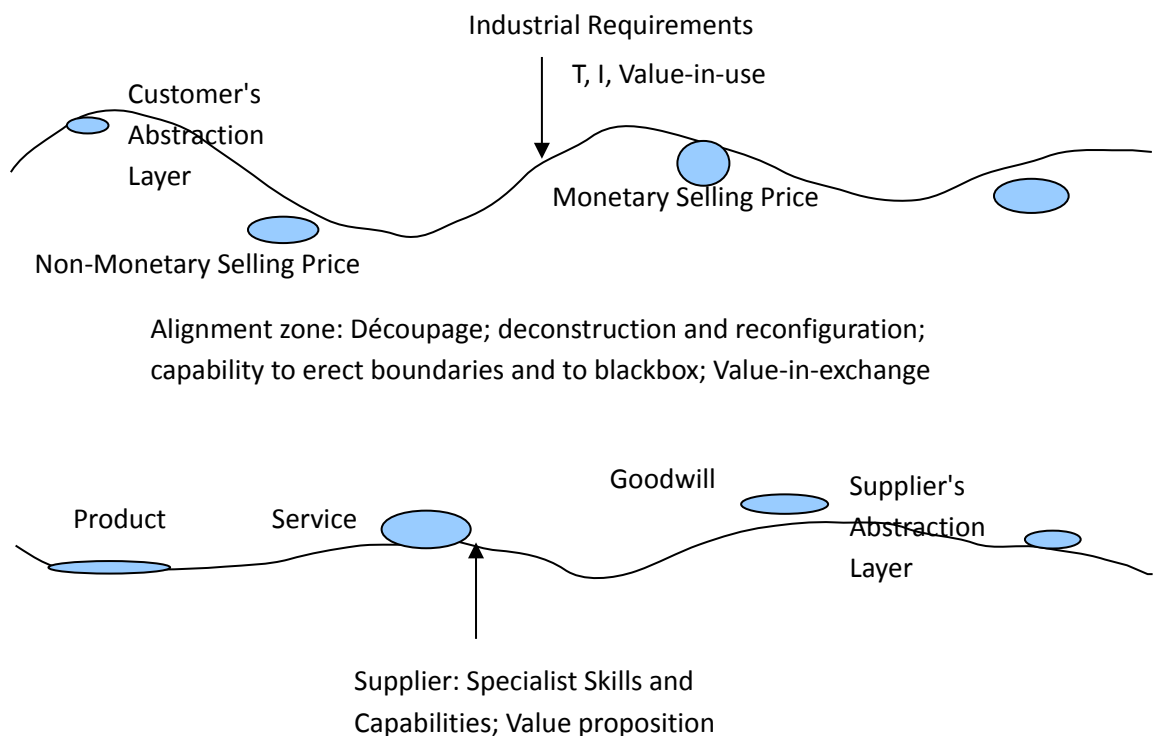
Additionally to the technical reconciliation mechanisms, the abstraction layer serves as a socio-cultural device. For the persons in each collaborating unit, such a layer serves as a *front stage* in Goffman's (1955) sense, allowing to display only the desired qualities and to perform selected activities towards the *audience*. In this common area, the parties need to cooperate effectively. They form new *ensembles* on the basis of those resources, capabilities, or operations made visible on the surfaces towards stabilisation and closure in the common realm.

By the rich mechanisms and functionalities of the abstraction layers, I see dyadic network nodes' locales for generation of intangible value as *alignment zones* situated between layers. In this interstice, relevant mutual information, capabilities, and resources are placed by the contributing parties to serve the creation of useful value.

These basic patterns scaffold the locales and provide the processual context for the *network value* (Ford, 2011; see also Chapter 9).

Thus, I represent the basic principle for enabling effective bilateral customer centric innovation in business-to-business dyadic *abstraction layers*

delimiting the *alignment zone*. The potential to harmonise in the reconciled interaction model is illustrated in Figure 9.7 represented by small *particles*:



**Figure 9.7: Abstraction layers in dyadic industrial collaboration**

In my claim as symbolised in Figure 9.7, in addition to the *customer side* of the collaboration the *path* also offers potential for value generation and synergetic benefit. The interstice accounting for the reconciliation effects for alignment and servitisation is located between two amorphous surfaces of the two dyadic partners.

Establishing and maintaining standards, simplifications, and common values around a specific project or an ongoing exchange situation is one of the core activities needed for effective customer-centric innovation. It is by this concept of alignment that the gap of the service dominant logic depicted above is filled. Without this effective alignment, the third case indicates, the two utilitarian systems of the provider and the customer would remain incommensurable.

These findings are in accordance with the extant literature stating that the industrial exchanges in networks open a new interstice combining special traits of the provider and detailed needs of the client for *value-creation* and *innovation* (Crowther and Donlan, 2011). Grönroos and Ravald (2011) devise a similar configuration between dyadic actors, including a rich, interactive, common realm.

The successful, often client-induced, establishment such a negotiated zone has been termed *alignment* and the more mundane processes therein *servitisation* in the relevant literature as well (Slater, 2002:110; Claycomb and Frankwick, 2010; Weerawardena and Mavondo, 2011; Spring and Araujo, 2012).

However, the literature does not yet include an active boundary capable of accommodating, displaying and moving desirable resources and attributes in direction of the interstice. These mechanisms have been recognised as particularly useful for the still under-researched alignment, e.g. by Spring and Araujo (2012). Therefore, this thesis' concept of the *abstraction layer* is a new academic contribution.

#### **9.5.4. Value and innovation**

In the first section of the current chapter, I have introduced the value-related research question which I will now address in the light of the above described empirical findings.

Research question 4:

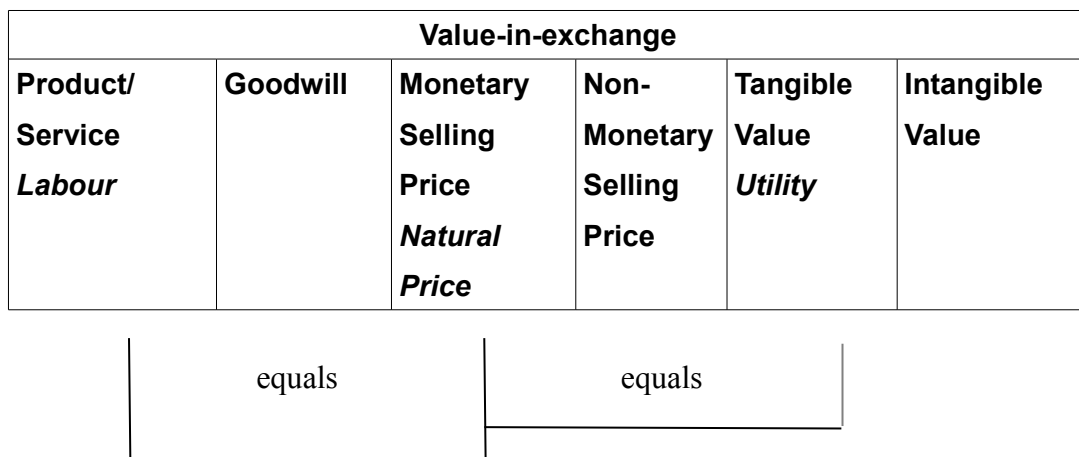
**How do different actors in this research setting value the distinct approach of developing innovation in a customer-centric manner?**

Contrasting the extant literature focusing on *value* with the observed projects,

I came to realise a further gap in the current scholarly discussion.

In the industrial cases considered, the term *value* was consistently replaced by *success*, often denoting an implicit value-in-exchange. I attributed this fact to the peculiarity in German, that *Wert* (value) implies a predominantly pecuniary facet, whereas *Erfolg* (success) is coined as *attaining a benefit*. Accordingly, in a German-dominated business environment, these two terms are employed almost synonymously, even in English conversations.

In sum, the projects scrutinised for this thesis were first of all intended to trade in products and services for a monetary selling price to result in a tangible value calculable in pecuniary terms. Visualised by my initial value provision scorecard's dimensions, this *value-in-exchange* (in the notion of *Tauschwert* of K. Marx (Kapital I, MEW 23, 60) is sought to be in equilibrium as illustrated in Figure 9.8:



**Figure 9.8: Mapping of value-in-exchange into scorecard elements**

or, as an equation for singular instances of product (P), service (S), monetary selling price (M) and tangible value (T):

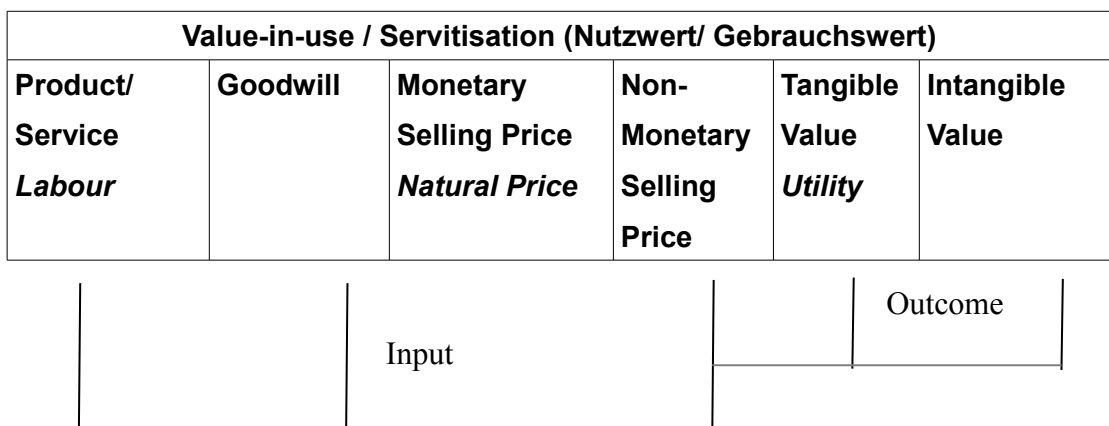
$$\mathbf{P+S = M}$$

$$M = T$$

Figure 9.8 and its mathematical representation illustrate how the equivalents of products and labour are exchanged for monetary compensation. This bold transaction does however not indicate the *use*, the actual usability upon which the *useful value* is contingent, of the objects (P+S) passed on to the customer.

As shown earlier in this chapter, the value proposition has to be confirmed by the client as to its actual purposefulness. Therefore, the supplier's goodwill and the relational input of the customer in the alignment process ensure that the servitised offering results in the overall, tangible and intangible, value.

This is schematically represented in Figure 9.9:



**Figure 9.9: Mapping of value-in-use in scorecard elements**

Figure 9.9 can also be expressed as an equation:

$$P+S + G + N = T + I$$

(where G= goodwill of supplier, N= non-monetary selling price like specification etc., I= intangible value for the customer)

A value-in-exchange can thus be seen as a mechanistic swapping of resources, whereas the value-in-use requires a deliberate mutual understanding through dialogue and alignment. As value-in-exchange and value-in-use both occur (albeit to a different extent) in a collaborative dyadic industrial exchange, the question is how the former is transformed into the latter and by which differential the conversion is achieved.

The difference turning a mundane trade into a rich supplier-customer relationship I call, in accordance with Ford (2011) *relationship value*, the intrinsic value of a given dyad or of a polyvalent network:

**Value-in-use – value-in-exchange = intrinsic network value**

As the both types of values are formulated as equilibria, the equations above can be extended as follows:

Value-in-use:  $(P+S) + G + N = T + I$

Value-in-exchange:  $(P+S) = M$

hence  $[(P+S) + G + N] - (P+S) = (T + I) - M$

$$G + N + M = T + I$$

and, as tangible value ideally equals monetary price:

$$T = M \quad (\text{side condition for equilibrium})$$

then  $G + N = I$  **Intrinsic network value equilibrium**

The intrinsic network value, which I see as equivalent with the *relationship value*, can thus be visualised as in Figure 9.10:

Intrinsic Network Value; Relationship Value (Ford, 2011)					
<b>Product/ Service Labour</b>	<b>Goodwill</b>	<b>Monetary Selling Price Natural Price</b>	<b>Non- Monetary Selling Price</b>	<b>Tangible Value Utility</b>	<b>Intangible Value</b>
Input			Outcome		

**Figure 9.10: Mapping of intrinsic network value in scorecard elements**

Thus, a similar thinking, identification of the same goals and seamless collaboration indicate that industrial relationships bear a self-sufficient value. The alignment reached by supplier goodwill and non-material customer input as explained in the preceding section can therefore be seen in my theory as a value and, in applied terms, a *success*.

The great alignment efforts in all the cases depicted actually indicated a clear value per se. As the main goals throughout this thesis' observation I identified the attempt to turn the episodic network effectiveness into an intangible value with reaffirming and comfort qualities. This value was confirmed as one of the most desirable by my respondents (even in the third project in which it had not been attained) in post-hoc explanations and negotiations of my findings.

The third project, which had been an illustrative showcase for *misalignment*, indeed provided a good counter-example. Whereas there had been extensive *value-in-exchange*, the poor mutual dedication resulted in an impracticality of its innovation. So the consortium development was figuratively buried after its official expiry date. There were singular press releases of secondary importance showing some of the proverbial *rug's* patches pilloried by the sponsors, but the steering committee overlooking the sponsored public funds did not issue a conclusive statement. The consortium collaboration had apparently yielded a quasi-*worthless* outcome.

For underlining the expressiveness of the alignment/ misalignment findings in the three cases, the indicative success and thus *value* characteristics are highlighted in the synopsis of Table 9.b in this thesis' appendix.

What does this notion of multi-faceted *value* and thus *success* imply for the business-to-business collaboration debate? The three projects' proceedings and the according outcome indicate that the value-in-use is to be seen as one valid variety of an innovation cooperation project. As a fall back option, and equally as a completion of the more obvious success, a network's relationship value has to be monitored and, if necessary, facilitated by management. In dyads' co-creation realms, an existing state and well-established processes of *alignment* can be considered a discrete positive quality. The functional dyadic realm of the alignment zone with efficient abstraction layers as depicted in Figure 9.7 can therefore be seen as a key driver for continuance intentions in an industrial relationship.

In accordance with my above findings, the intrinsic *network value* or relationship value has lately been postulated for aligned exchange (Ford, 2011). This kind of value has been set out as a complement the *value-in-use* which had influenced business-to-business marketing science of the past decade (Vargo and Lusch, 2004). This value debate has lately re-introduced the thought about *value-in-exchange* serving as a necessary antecedent for all useful qualities (Storbacka and Nenonen, 2011:242).

The contribution of this thesis to the value-related academic scrutiny is two-fold. It includes both the allocation in Figure 9.7 and the itemisation in Figure 9.10 of the debate by elements of industrial exchange. My set of formulae is coherent and provides the link from value-in-exchange and network value with value-in-use, contributing to the research agenda set out by Ford only recently (2011).



### 9.5.5. Relationship scorecard for managerial use

Alignment and intrinsic network value have thus been concretised and more deeply described by the above analytical findings.

The high relevance of value exchange and alignment episodes for innovation management was equally recognised by my industrial respondents in company A and their major consortium companies.

For a long-term assessment of their collaboration projects and a verification of the mutual alignment therein, I developed a refined *relationship scorecard*. Emerging from my occupational work in from the years 2000 to 2005 (Software AG, 2000-2005), I refined it as a scientific control device across observational loops of my empirical work. Drawing on a more theoretical background, this synopsis provided a macro-sequence of the empirical cases' collaborative epochs.

The first two exchange episodes of the successfully aligned first project I recorded into the scorecard as shown in Table 9.3:

**Table 9.3: Relationship scorecard for value co-creation, case 1**

Product	Service	Goodwill	Monetary Selling Price	Non-Monetary Selling Price	Tangible Value	Intangible Value
	Kickoff meeting Feasibility assessment	Interest	Strategic funding	Problem formulation Initial technical input		
Project Plan	Telcos Expertise	Willingness to overcome terminology problems	Contribution time of singular specialists	Input by specialists	Documentation Work time of scientist	Sales perspective Facilitation perspective

This scorecard completed my diagnostic tool set by enabling the reconciliation of perception in long-term developments. Ordering logical sequences of collaboration episodes, one important event or stage at a time, this thesis' respondents came to reflect on the joint history with their counterparts. Thus, an internal triangulation of my scientific conclusions was achieved.

Illustrating how a pragmatically developed professional instrument can become a valuable tool for scientific scrutiny, this scorecard symbolises the closeness of aims between industrial marketing management and research.

In return, scholarly practice in business-to-business diagnosis bears significance for the field. Acknowledging the need for managerial guidance and facilitation, the course of alignment and thus the development and sustainment of a network's or a dyad's intrinsic capabilities have to be monitored. In his new position facing blue chip industrial customers in high-end applied full service innovation projects as a director, which he assumed after the empirical phase for this thesis had ended, Claus drew on the scorecard and the jointly developed expertise to monitor every stage of the high-risk and highly visible ventures.

Such a (mostly qualitative) scorecard is carried together easily and can serve as a control instrument for strategic venture management. Where available, it may also be filled with hard data, like monetary selling price, economies by an innovation, and full time equivalents. In both the qualitative and semi-quantitative form, the systematic synopsis helps identify patterns of alignment and potential drawbacks in collaboration history. Contrasting subjectively drawn scorecards from each side of the dyad, potentially with supplemental repertory grid analyses, may additionally help obtain a more comprehensive scenario for managerial assessment.

## 9.6. Conclusion

*Economic actors have become virtuous in deconstructing and reconfiguring things, in giving any combinations of social factors a form that is stable enough to allow transaction, at least for a limited period (Slater, 2002).*

In this chapter, I laid forth how the potential to turn an invention into a genuine innovation draws on a supplier's familiarity with a client organisation's operational and strategic needs. Combined with the knowledge about already existing technologies in the target firm, the provider will seek to mobilise the most adequate insignia of capabilities onto a *surface* in a common *alignment zone*.

These two respective boundaries where attributes and elements relevant for the collaboration are displayed I observed to perform as *abstraction layers*.

The question of *value* generated in a collaborative project I found equivalent with the notion of *success*. The balanced exchange of specialist, material and monetary equivalents – value-in-exchange – was an important measurand for my industrial respondents and thus thoroughly considered. This *exchange value* provides the – necessary – antecedent for the conversion of the output into *value-in-use*.

By detailing the collaborative traits necessary for developing both value-in-exchange and value-in-use, I found that their differential can be seen as the *intrinsic network value* or *relationship value* as postulated by Ford (2011). In my model, the provider's goodwill combines with the *non-monetary selling price* such as operational insight and the customer's know-how thereof to result in an intangible dimension of the outcome. This equilibrium contributes to the current scholarly discussion as it isolates concretely the relational benefits postulated for an aligned network.

# Chapter 10

# 10. Justice- and temporality-related findings

## 10.1. Introduction

The aim of this chapter is to address the identified research gap in considering the juridical contract and the network temporality in *high potential* innovation. Drawing on findings from this thesis' empirical work, I will argue for relational fairness governance over time. From a certain level of harmonisation, the formal contract becomes factually irrelevant in favour of the *relational contract*.

Thus, I conclude, the development of objectives needs to accommodate the technical ambiguity with an increasing social embeddedness in rich business-to-business collaboration settings.

The justice- and temporality-related research questions have been stated in Chapter 1 as follows:

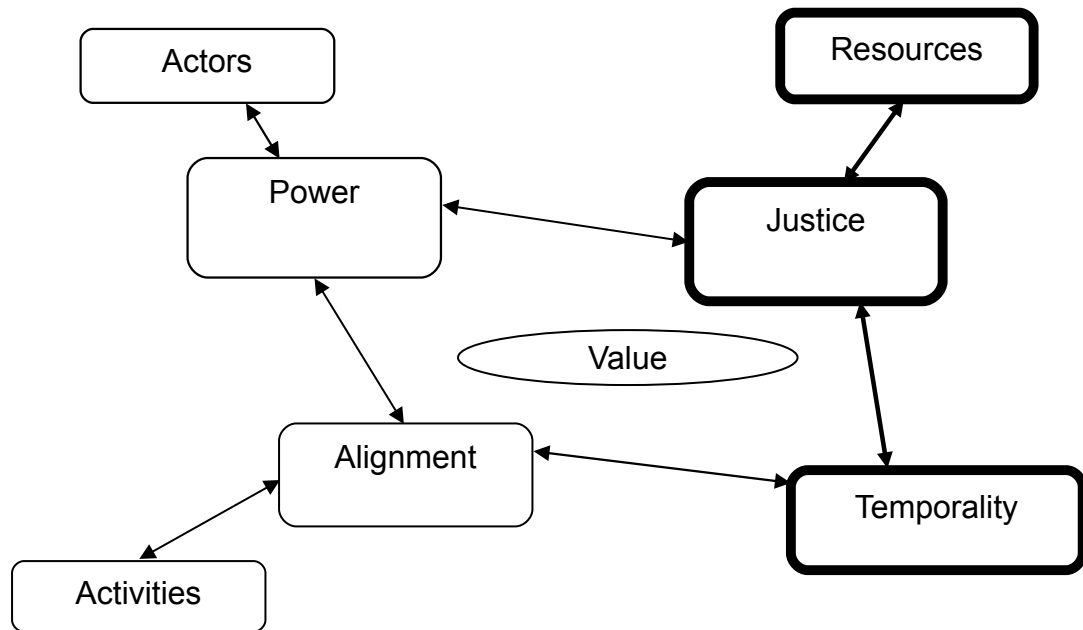
Research question 5:

**In the research setting's immediate industrial network, what are the governing principles and mechanisms for balancing customer input, supplier input, and value?**

Research question 6:

**How do immediate networks in the research setting accumulate an own *memory* of joint experience of the actors therein over time? How do actors draw on this memory to influence the performance in a particular innovation project?**

I reflect this chapter's agenda by the expressions in bold in my conceptual representation introduced in Figure 4.2 as shown in Figure 10.1:



**Figure 10.1: Justice and temporality in this thesis' research agenda**

## 10.2. Justice

Each of the three innovation ventures scrutinised for this thesis had a duration of 2-3 years, aiming at a long-term implication for industrial use. Even though formal contracts regulated the collaboration, the imponderabilities were manifold and bore a high potential for failure accordingly. Moreover, the wider network was not known to any particular actor and there was the ubiquitous threat of exploitation.

### 10.2.1. Distributive justice and justice heuristics

As set out in the literature review in Chapter 4, actors decide on investing resources and dedication towards the benefit of a network based on past experience, current needs, and future expectations of distributive justice. In the three cases, my respondents were well aware of the respective material and relational input. Their narratives and my participant observation showed

how detailed they anticipated, balanced and remembered their share in the projects' endeavours.

Whereas initially I had set out the abductive hypothesis that the global funding of the modelling project would make monetary selling price considerations obsolete, I found the *hard resource* discussion (outlays, work time equivalents) highly significant. The first project's leader and scientist, Richard, for example, was well aware that investing money in particular to an innovation project could be a double-edged sword:

*Well, I believe that money has the following effect: if I invest much money, I am prepared to also make a higher personal commitment accordingly. But conversely, I have a much stronger expectation as well. Which of the two is dominating depends partly on the situation, partly of course on the chances for success. Well, I know from experience [in my projects] that people who invest much money anyhow want that everything is right accordingly. I mean, this positive commitment is enhanced by the money but the beneficial effect is much more relativised as well.*

This reasoning shows exemplarily that the project members carefully took quantifiable contributions of the customer, like money, outlays and work time into account when balancing an exchange. These heuristics determined whether a respondent chose to collaborate or withdraw. Negotiating this finding with some of my respondents, I learnt that entering the resources into the financial accounting system converted them into their monetary equivalents automatically. As every activity, travel expense and software purchase was recorded and deliberately allocated to a project, the administration per se created awareness for the money value of such input.

In the third project, the allocation of resources and duties for contribution were steadily debated; due to its seemingly high relevance often in a controversial manner. The funding regulations were quite intricate, every

consortium organisation bearing a part of the cost themselves but equally obtaining government grants. Therefore, the current and anticipated benefits consisted of a mixture of public means and the potential project outcomes. Thus, I came to observe many situations like the following, for which I abstracted the pragmatics into the micro-sequence shown in Table 10.1:

**Table 10.1: Micro-sequence on contribution and benefit, case 3**

Product/ service	Goodwill	Monetary selling price	Non- monetary selling price	Tangible value	Intangible value
Mr. K: (My) Company B is providing user interface					
		Ludwig: (Your company) B is receiving compensation for several hundred man months		Ludwig: what will we get from B?	
Ludwig: aren't B providing a comprehensive integration?					
Mr. K: no, just a visualisation					
	Mr. N of E: I remember B to be much more active			Mr. N of E: I thought B was providing the middleware integration	
Mr. K: no, we will provide no additional value added. We will simply display and not process.				Mr. K: changes in prices or periods of OPSC will not be visible in our interface	



The conflict shown in Table 10.1 revealed that there was no common inter-subjective perception of equilibrium as to company B's compensation and their project duties. This dilemma persisted for much of the collaborative period in the third case.

It became evident that in the project's contracts, there had been no actionable formal agreement on long-term goals and key performance criteria for success. This led to a phenomenologically arbitrary, short-paced, allocation of resources and to ongoing manifestations of overall dissatisfaction.

This way, the calculative basis for an equal distribution of outcome seemed impossible to determine, which made it difficult for the actors to decide whether it was worth to collaborate at all. As I noted in one of the final public presentations:

*It also became clear that "success" was defined quite differently among the presenting parties. Some would enumerate the doctoral theses generated out of the project, others counted how many of their existing technologies they had managed to have patented, and still others planned to sell a piece of technology to the industry if everything went right. As there was no overall key performance indicator defined for [case 3], these goals all seemed equally legitimate.*

In contrast, a balance in exchange was actually enabled through initial mutual orientation by cooperating parties in the first case. Project leader Richard told about the clear position of the target organisation of the development, company A's full service division:

*Yes, the idea came from them [full service], but they would certainly not have launched this idea if they hadn't anticipated that they would get a massive [financial] support [in exchange] there.*

Richard acknowledged that the collaborating divisions had thus received a promised material advantage by the strategic unit. The following small statement reveals that the steering committee was in the powerful position of adjusting distribution where needed:

*In my project the problem was not so distinct, and I think this was really down to the fact that they [the steering committee] had well said from their influential position: “We would approve if you participated in this pilot, and we would be prepared to cover certain costs if necessary”.*

In return, the steering committee can draw on the thus established justice for the power to *script* the context (see also Chapter 8). Richard pointed to the validity of such an automatism for any new project plans:

*I think they see the short term [benefit]. It is like this: well, they may think, from the net present value calculations we provided them that the investment pays off quickly. But then again it is a very venturous project. It is by no means guaranteed that it will actually work, well there are quite divergent assumptions we made initially. And if one of those [assumptions] doesn't apply, then you won't be able to use the result at all.*

This view was shared by the Australian specialist had who contributed field expertise to the first project. Asking him how much a full service department (and, indirectly, a typical end customer) would be prepared to invest for such a venturous innovation project, he answered:

*I see two questions here however – 1. how much would they pay to evaluate different maintenance programs, and 2. how much would they pay to perform a study on their productive environment using a program that works? I would suggest not much (5-10k Euros? [a tenth of the actual project volume, ann.]) for 1. and they would then be unhappy if the result was that we don't*

*recommend off-the-shelf programs [..].*

This response showed how justice heuristics influence the intentions to place an order (in this case, for an evaluation). Equally, they decide about the willingness to enter a joint innovation venture.

These rather individual, socially informed, coinings of business project decisions were confirmed by many other respondents in the considered cases. When asking the official head of the public sponsoring programme for Project 3 about his perception why companies participated in a venturous and basic innovation for which they even had to cover 60% of the cost themselves, he admitted that he could not really look behind the scenes. As I noted after a personal conversation:

*[The head of the public sponsoring programme] emphasises, no company has to participate; the motives are manifold. It is for instance, to signal importance and size, but also to be effective for good publicity and gains in knowhow. And then, of course, money.*

As depicted by the mental conversion of (even intra-organisational) work units into financial equivalents, the calculations of accountable positions widely influence the justice perception and thus also willingness to enter and contribute towards future projects. Therefore, a relief from the financial burden will naturally shift the justice heuristics towards favouring joining a project. The deliberations portrayed for the first two projects, albeit both with positive outcome, show how the promise for an uncertain benefit in a vague future may deteriorate the justice heuristics decisively. By granting generous means and thus reducing the perceived input balance, this risk is however favourably mitigated and the actors decide to collaborate.

### 10.2.2. Procedures and information sharing

As pointed out in this chapter's introduction, procedural justice can be seen as another facet of perceived fairness in a social context like in an industrial network. This kind of equilibrium consists of processual justice – transparency of processes, voice, attention and dignity – and of informational justice with no knowledge and specification being hidden from others. As a part of the whole complex of fairness, the procedural notion of justice is at a time to be granted by the incumbents of resources and influence but also feeds back into power.

The project partners observed for this thesis were assumed to apportion their resources like money, work time and expertise symmetrically towards a jointly specified goal. In addition, in the empirical work, I found the way in which this balance was achieved to be equally important. Paying attention to this *long term balance* postulated as *equilibrium* in my initial hypotheses, I observed in the cases a certain or even strong moderating effect of procedural justice on the overall commitment and alignment intentions.

In the first project, to name an example, the great positive interest his work obtained and the courteousness he received throughout the organisation constituted an encouraging incentive for the main developer Richard:

*I had the feeling that they were really interested in the intermediate results and in my activities. Therefore, yes, well, it was a very positive attitude. If you had ideas and they didn't like it, they also had a positive attitude and told me so.*

In the same project, the fact that they were *being heard* was a comparable pleasure for the Swedish maintenance engineers in full service. Richard recalled in one of this thesis' empirical interviews:

*Well I think what they liked was this excitement, anyhow, well you see these people work in one branch where they were outsourced from the timber plant, basically, this is a very rural area. I mean, they don't have much diversion, I would dare to say. And I equally believe that they had simply fun doing this, that someone comes and tries something new, and they can tell what they are up to. And then you simply see whether you can make something out of [the plant's productive data].*

In the second project, the climate of collaboration and alignment was also perceived as highly positive by the full service team leader in particular. He had a long standing positive work record in the company and felt very secure in his job no matter what stir his desire for transparency might cause. He expressed why he was highly content with his personal empowerment during the whole innovation cycle:

*We had somebody in form of my person, where there quickly was a one-to-one relationship to address such a subject. Everyone had a full grasp on their organisation, as an example I had direct access to ERP [enterprise resource planning] customising, you had little way, 'Mister L' [his last name] had direct access to ERP information within the group, so you were able to communicate on a technical level directly and solve problems quickly. This way you accomplished things quickly, which in particular I consider a success.*

The team leader emphasised that he always had a dedicated and one-to-one addressee for providing the needed information and solving the arising problems. (A full ERP account can in such a large organisation be seen as particularly appraising and manifestation of confidence; in German corporations such a comprehensive access it is commonly restricted to heads of finance and top system administrators.) The beneficial effect of procedural circumspection was thus exemplified by the full service manager's positive experience of feeling empowered by his key user status. Being

granted dignity, voice, entitlement and exclusive information by him was thus subjectively experienced as a strong source of power as well.

In Project 3, there was less perceived procedural justice. I observed that the effectiveness of the knowledge related synergies was repeatedly doubted by some or all of the consortium parties, indicating that the actors felt left behind in the information sharing processes. This was illustrated in the types of conflicts I came to observe quite frequently: did the knowledge, data, and specifications provided fulfil the needs for the presumed alignment? My notes taken on a day-long workshop in this third project summarised the dilemma:

*Sometimes the [information related] 'input' debate would assume excited or even emotional traits. [Company A] would feel they had provided overly rich and thorough data, whereas one or more of the project contributors claimed there had basically nothing (or at least nothing usable) been delivered so far altogether. Thus, once in a while, Claus induced an ordered brainstorming for a reconciliation of the expectations and the obviously diverging aims.*

Phenomenologically, a great amount of data, specifications, sequences, documents and communication had been exchanged on behalf of the third project's modules. Company A accordingly claimed that they had exhaustively provided their share of information. In their view, all of the OPSC input to think of, plus the additional expertise and organisation specific interpretation, had been granted to the consortium partners. However, the other companies were always able to depict further gaps, or more commonly complained that the data provided by the full service department had conveyed no reasonable general view. In these situations, I observed the dynamics by which the neglect of information sharing which had often materialised in a quite subjective perception led to subliminal or overt conflict.

The collaboration episodes shown in Section 10.2 exemplarily emphasise the need for not only *distributive* justice but also for careful circumspection as to

processes, granting a *voice*, courteous behaviour and information sharing over time.

### 10.3. Temporality

As just laid forth, the accumulated actors' attitude was observable by the outcome relative to the effort and resource input invested in the respective projects. However, on an individual level, I could not observe the single persons' attitudes towards the projects network and their goals. I thus had to scrutinise the phenomena around circumspection and anticipation. In this regard, the observation of the short-paced activities of the considered innovation processes with respect to longer-term planning turned out to offer a strong indirect nexus during my empirical work.

In the third case, for example, a large proportion of my recordings and secondary materials revolved around the coordination for the next week, day, or hours. A typical invitation for a meeting would be for the very next day and contain detailed planning:

*Hello Mr. [Claus' last name],*

*in preparation for our workshop tomorrow, Wednesday the 15<sup>th</sup> of December, I am sending you the agenda we are proposing.*

*10:00 – 12:00*

*- Walkthrough of the evaluation topics*

*- Selection resp. prioritisation of evaluation topics potentially relevant for [company A]*

*Ca. 12:00 – 13:00 Lunch break*

*13:00 – 16:00*

- *Adaptation of the present design of experiments to the evaluation topics selected*
- *Determination of further proceeding*

*You are welcome to send me requests for change.*

*Kind regards,*

*[first name, last name].*

As exemplified by this small agenda, the proceedings in the actual meetings in the third case were coined by short- to medium-term deliberations. Even though the whole project still had one and a half years to go, and considerably behind schedule already, my subsequent recordings for the meeting thus announced read like the following:

*Ludwig had arrived relatively late; only Mr [Q of D] and me had come to the meeting on time before 10:00 o'clock; my impression for the other participants was that of routine and lack of enthusiasm. Moreover, nine days were left before Christmas and obviously everyone was thinking of the upcoming holidays. [..]*

*From [company E]'s part, next actions would only be taken after the 14<sup>th</sup> of February [the following year], an important date to them, because before they had many other issues [not related to Project 3]. [..]*

*Finally, [Mr. N of E] came forward to show the project timeline on his computer through the beamer. He talked for some 10 minutes explaining the project related [company E] schedule (\*pod file) for [the upcoming 6 months]. From 14<sup>th</sup> of February, a modular demonstrator should be available to [company A] as a milestone (work package). On 30<sup>th</sup> of June there would then be the next milestone, named M30.*

This small situation illustrates how short-sightedness impeded alignment in



the particular project. How disappointed the sponsor would accordingly become, I noted during one of the final consortium meetings:

*This “customer” feedback could include quite harsh statements. One of those addressed the lagging behind the three-year schedule, indicating a further extension would be needed. This rebuke always included financials, pointing to the millions of Euros spent on the innovation project by their strategic money.*

This feedback indicates that time as a resource had in the steering committee's view not been allocated effectively, and that the sponsors felt that they had not received their fair returns of the resource. As the financial means allocated were naturally proportionate to the time spent – being invested mainly in human work effort – the financial fairness runs in parallel with the injustice connected with time fairness. Thus, temporality played a role both as a dimension of the discussion and a source of distributive justice. A long-term balance would therefore have been an indicator for fairness and alignment consciousness. The negative consequence, formal sanctions, were actually imposed in the finalisation accordingly.

As a contrast, in the second project's second half, the reasoning of Bernhard, the project leader, sounded incomparably more long-term oriented:

*Yes, well we employ this specific Gate 7 concept, meaning, one and a half years after handing over the final product [i.e. three years from now] we will ask them again, 'how much did you benefit from this project'. And I know this from my previous project; they will approach me anyway when they have questions. So I don't have to keep them in view; they will give me a shout anyway.*

The obvious time horizon in Project 2, and accordingly in the first case, was thus much longer than in the third one, indicating *thinking ahead* and

anticipation.

As recognised in my temporality research agenda, business-to-business innovation collaboration can bear both long-term and short-term implications. As all three projects had a duration of 2-3 years, I had expected them to be equally coined as to their pace of activities and adaptability. However, I found the longest, third, project short-term oriented relatively to the other two ones. Much emphasis was put on mundane coordination for the next days or weeks only, rather than developing a vision or a long-term perspective. Conversely, in the first two projects, the thinking was long-term oriented almost throughout.

So time efficiency, horizon, and time allocation bear both a temporal (more immaterial) but equally a financial (work time equivalent) quality. As seen from the comparison of the three project, industrial and project time has thus to be managed as efficiently as other *hard* resources.

Putting my findings on the relational contract behaviour in relation with the pace, I underpinned my claim empirically that predominantly the long-term activities reinforce both alignment and justice and thus indicate the degree of network citizenship in a project. Some of the manifestations for my postulate are listed in Table 10.a in the appendix.

Contrasting the findings in the three cases indicates that the better performing projects (1 and 2) commanded a much clearer long-term orientation. This attitude was moreover constructively directed towards the joint goals and creation of new value-adding knowledge.

My findings thus suggest that the degree of the actors' fairness and alignment consciousness can be assessed by means of the analysis of pace and temporal horizons in a collaboration project.

## 10.4. Contractual phases

Complex industrial exchanges require good preparation and thorough documentation of goals and framework conditions. The three cases were therefore initiated by a comprehensive evaluation of basic possibilities, goals, and financial parameters in accordance with industry best practice and legal requirements. Ford and Mouzas (2012) have recently pointed out that in the induction phases of a rich socio-economic exchange, a juridical contract will govern the equal distribution of benefit and burden and the allocation of chances. Therefore, the legalistic frame serves as a governing device particularly in the start of an innovation project (Wang et al., 2011).

### 10.4.1. The formal contract

The projects under scrutiny were initiated by a formal contract respectively. During this stage the presumed project partners met on various occasions to define and elaborate specific technical and process issues to be covered by the collaboration. The technical base and key performance criteria were agreed upon and put together in a requirements document. The result of the negotiations, containing the essential factual cornerstones, was presented to the sponsor who would cover the strategic funding.

A typical project contract, signed after this preparatory phase, would command the following elements as contained in Project 2:

#### *Contract*

*between [Company A] Corporate Research and  
[Company A] Full Service Division Germany*

- *Profile of [Company A] Corporate Research*
- *Current status of [Company A] Full Service*
  - *Processes and organisation*

- *Infrastructure*
- *Quantities*
- *Components and licenses*
- *Interfaces*
- *Potential for optimisation*
- *Requirements*
  - *Business process reengineering*
  - *Functionalities*
  - *IT implementation*
  - *Supported infrastructure*
  - *Required infrastructure*
- *Project rules*
  - *Requirements engineering*
  - *Prioritisation*
  - *Reporting*
  - *Milestones and finalisation*
  - *Requests for changes*
  - *Quality assurance*
- *Remuneration*
- *Cost-benefit calculation*
- *Risk*

*Date, Location*

*Signatures*

- *Terms & Conditions*
- *Initial meeting minutes*
- *Technical appendix*

After this intensive negotiation phase, contracts signed for each of the projects primarily for workload and cost allocation among participant departments as well as, in the third case, corporations. Due to the cross-unit or inter-organisational nature of the exchanges, formal non-disclosure

agreements were included. The specific juridical frame, a thorough documentation with approval and accounting processes and signatures of the persons in charge was particularly needed to attribute expenses for reporting and taxation purposes in each of the cases considered.

To increase the initial exactness, all three scenarios incorporated the requirements documents into the *contract* as fixed constituents. Moreover, they all foresaw regular reports of a certain format, project milestones with review points, and work packages. The juridical parts thus contained the money and other means invested, timeframe, content (referring to the requirements documentation), and responsible persons.

The entire initial negotiation and contracting processes of company A are described by Claus as follows:

*We had a project proposal respectively, which was basically converted into a project plan 1:1. Then we appended the contractual frame. We iterated over these documents; then these were completely fixed throughout the project.*

In this initiation phase, the project proposals with the signed agreements thus served as a vital orientation for all parties. In the words of Claus,

*The contracts are always just an avowal that some parties intend to carry out something.*

Moreover, the fixed confidentiality agreements provided the prerequisite frame for exchanging knowledge and specifications. Claus conceded:

*You can hope that the project takes off in the right direction, with the help of the initial paperwork. But usually, the contract has no other meaning than that.*

Until the collaborating units and individuals got to know each other more closely, the stage of adherence to the contract remained as an orientation as to the set-off direction and an ancillary common goal. Due to the innovative coining of the projects, however, technological developments had been little predictable. Therefore, after a short period of collaboration, the regulating effect of the formal agreements weakened and the relational contract which will be described in the subsequent section set in.

I observed how the exact contractual specification of modules, programming and process modelling languages to be employed, and of the interfaces to be programmed, receded against a more general quest for features and performance captured in the initial requirements documentation. For Bernhard, the project leader in the second case, it was thus clear by the regulations of the juridical contract which were the initial expectations of his contractees. His own, pragmatic, translation of the contract into business objectives he formulated as follows:

*[The project goals are for the customer] to work more profitably, to increase turnover, it is like this in every business unit. [...] Well, this is a project with which you can optimise processes, that is simply the reason.*

Further along the project history, even the functional demand had changed by deeper insight of both the suppliers and the customers. This was a stage when only the established formalisms of the juridical contract were still adhered to: the frequency and extent of reports, institutional conference calls, common documentation databases and standards, and accounting procedures.

Of course, the project partners had remained the same. Within this formal envelope, the subject-related contents had however considerably changed in the projects under scrutiny. Where needed, project leaders had adapted to the changes in the required skills and changed their staffing; new and

unforeseen technologies were introduced and the functional goals adjusted to the dictate of feasibility.

If the relational contract stage was not reached, the juridical stage could well persist throughout the whole project. In a meeting of the second year into the third case, for example, the participants would still resort to initial agreements:

*Mr. Q says, the contract foresaw clearly distinct objects for the pilot in this regard..*

Moreover, the lack of preciseness of the juridical contract had been misused for evasive behaviour of some of the companies. As one of my former colleagues from E's parent company confided to me towards the end of the collaboration, the day before an important demonstration to the sponsors:

*Only two companies genuinely worked on this project. [..]*

Company A was equally convinced that the rudimentary pilot was the poor result of a half-hearted collaboration. As I noted after a meeting with Claus when we talked about the project finalisation:

*[Claus] says he will officially prohibit the [consortium] to put the [company A] label on most of the modules. This is the only sanction he has; a drawback for the partners who need the authority of [company A]'s approval for their work.*

Thus, even in the end of the third case, the relationship had lapsed into a state of anomy. As a long-term perspective had not been achieved due to the incompatibility of goals, actors predominantly partly withdrew, partly resigned. A dispute in court basing on the formal contract which would have been a possible consequence could fortunately be avoided.

#### 10.4.2. The relational contract

As the respective pilots were programmed and ready for demonstration and test runs, the prior degree of alignment as described in Chapter 9 became visible.

In the first project, for example, Richard carried through a comprehensive test of the pilot suite at a large plant which the company's service division managed. The fact that it brought useful insight had to be attributed to the operational persons, according to the statement of Richard the project leader:

*Without the pilot team, I clearly have to say, it is all worthless. I mean you developed something and you have to verify and implement improvements based on the pilot's insight. If they had been reluctant or not been keen on it, you would have had to forget it.*

In case 2, an Egyptian on-site technician had to devote considerable extra, partly uncompensated, effort in the project to make the pilot run:

*As [our business] is a customer support around the clock, during the start-up I had to be involved personally to solve some technical issues, over the night, during holidays and on weekends.*

Similarly, the on-site full service manager in Northern Germany heading the pilot group described his attitude as dedicated. His statement's pragmatics I summarise as a micro-sequence in Table 10.2:



**Table 10.2: Micro-sequence of the full service manager's role perception, case 2**

Product/ service	Goodwill	Monetary selling price	Non-monetary selling price	Tangible value	Intangible value
			Service manager: I had this project <i>job</i>		
		The time I put in the project I didn't have for reaching my revenue targets	Committing this time was a burden		
			But committing this time was no disadvantage in my job. Pilot contribution is always more work, because you jump on a train which is already running		
			I made a lot of work for other groups in the company implicitly		
		I have a very secure job anyway.		I clearly saw that it was what we needed here	
				I still benefit from my pilot input	I enjoyed doing the pilot job

Thus dedicating his own enthusiasm towards the project, the full service manager deliberately invested much of his and his team's resources into the alignment process.

Asking the project's leader Bernhard to draw a mutually *relational* development curve of his commitment over time towards the end of the 2nd project, he chose not to sketch himself but rather described such a graph as follows:

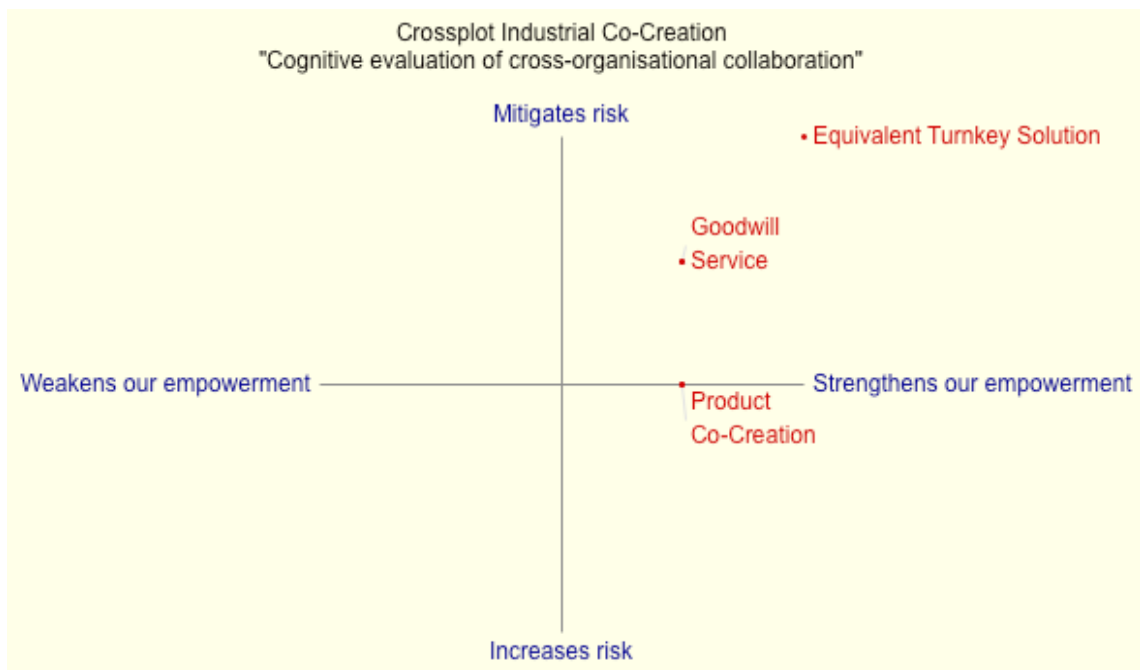
*Well the commitment does not necessarily start at zero. Well I'm saying here, we had a steep ascent in the beginning, after half a year we had a high, and partly it went down for a while. This was due to the more mundane tasks to be done intermediately, which made it go rather downward. Currently, I would say, it is basically quite high.*

Thus, the Egyptian, Northern German, and project leading collaboration partners had together with their respective teams symmetrically developed and maintained mutual dedication towards the second project. Their collective *contract* comprised of a set of common goals to be pursued both with the suitable activities and a mutually oriented attitude.

The antithesis of conscientious dedication I encountered in the third project. For the pursuit of their particular goals, every participating party had apparently tried to implement their own already existing technologies whether appropriate or not. Moreover, most contributors brought in as many re-usable application modules already developed in prior projects as possible, a strategy which enabled the allocation of minimum resources. Thus, many of the collaborating actors seemed to record their work time quasi twice, however focusing on one or more projects running in parallel to Project 3. This fact was often easily testable by browsing public tender specifications in internet portals. Individual project members published the results of work other than on the technologies and processes in question. Sometimes consortium members would declare even overtly they were working on different projects during the week and would therefore not be available for the regular conference calls.

Therefore, for much of Project 3, a conscientious contribution of actors towards a joint goal was not discernible. Accordingly, the consortium's collaboration left the strategic sponsors and the OPSC full service centre as *customers* widely dissatisfied.

The perception I had recorded and abstracted from my observational narratives and stories I put to a further cognitive test with the repertory grid technique (see Chapter 7). The evaluation of the questionnaires revealed that company A was disappointed with the lack of considerateness and reciprocity in case 3. Ludwig, besides Claus the project leader, was not astonished when I showed him the cross-plot visualisation in Figure 10.2 calculated from his own responses to the cognitive questionnaire:

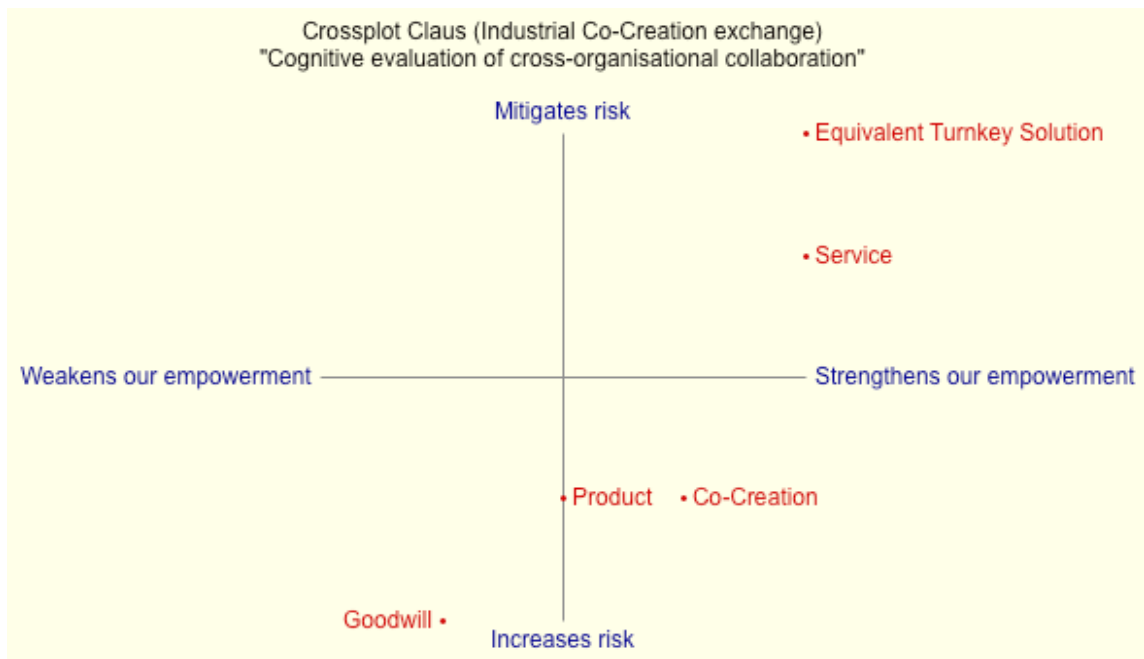


**Figure 10.2: Repertory Grid cross plot, respondent: Ludwig, case 3**

Ludwig confirmed that, above all, with an equivalent turnkey solution developed in-house, he would have felt much less at risk and considerably more empowered than with the *co-creation* collaboration in the consortium.

His superior and at a time co-manager of the third project, Claus, shared the superiority assumption for an own development. Even more significantly than Ludwig, the research team leader deemed company A's own goodwill invested in the collaboration as annihilated by the lack of relational

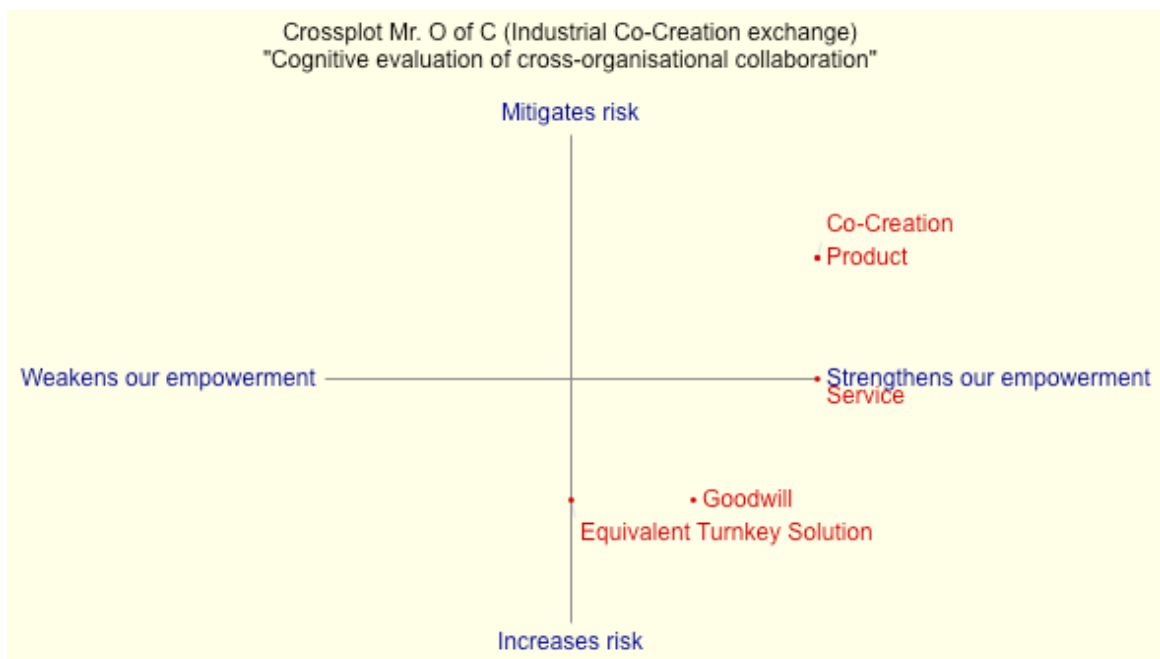
reciprocity, breaching company A's positive attitude and thus weakening their empowerment as illustrated in Figure 10.3:



**Figure 10.3: Repertory Grid cross plot, respondent: Claus, case 3**

Discussing this particular view obtained from the cognitive test, Claus and Ludwig confirmed that this implicit perception had to originate from the other participants' lack of coordination, information, and alignment efforts they had both experienced in the course of the collaboration.

Mr. O of C, the delegate of one of company A's suppliers in the third case, also saw a dilemma in his group's benevolent attitude. However, as illustrated in Figure 10.4, he deemed the joint outcome as superior to an equivalent turnkey project his organisation would have to incur on their own:



**Figure 10.4: Repertory Grid cross plot, Mr. O of C, case 3**

Mr. O seemed to mainly perceive the advantage of having company A's full service division as a dedicated provider for value specification and confirmation; something think tank C would have never had in a project on their own. However, the respondent also considered that the service his organisation brought about to the project was risk neutral at best. At the same time, he feared that his own goodwill invested into the project would have been exploited and thus perceived it as a risk enhancing factor. This may have been a reason why he and his colleagues of think tank C lastly failed to produce a prototype for the oil platform division and showed something existing instead.

In synopsis, these findings in the observed cases provide a strong indication that a formal contract can only induce a synergistic exchange. As the joint history proceeds, a positive attitude of the organisational groupings in such long-standing project relationships fosters good and beneficial collaboration, whereas the lack of goodwill may impede or even annihilate the joint effort.

## 10.5. Analysis

This chapter has so far shown how distributive justice co-determines the readiness of business actors to enter a rich industrial collaboration.

Moreover, I illustrated how procedural fairness moderates the subsequent contentment in a network. Recognising the importance of justice and a long-term balance, the ways in which it is effectively established and maintained is of particular significance for the mutual alignment process.

The questions set out for this chapter's research are therefore answered in the following way:

Research question 5:

**In the research setting's immediate industrial network, what are the governing principles and mechanisms for balancing customer input, supplier input, and value?**

Industrial network actors command intricate justice heuristics derived from experience in past similar situations and anticipation. They expect long-term distributive justice in which they particularly calculate time resources in their monetary equivalents. A transient disequilibrium is taken into account.

Procedural justice, namely courteous treatment, *voice*, and information sharing, is a particularly valued quality strongly linked to the intrinsic network value. Where present, it may compensate even strong distributive disequilibria. Where absent, it may put collaboration coined by distribution of resources at risk and the network's capabilities will be low.

Research question 6:

**How do immediate networks in the research setting accumulate an own *memory* of joint experience of the actors therein over time? How do actors draw on this memory to influence the performance in a particular innovation project?**

Accumulating information, memories and feelings of relationship *phases* or *epochs*, every actor in a network makes sense of the joint past and derives expectation for the joint future. The more valuable an individual judges such a relationship's future potential, the higher will be the readiness for collaboration. If this value exceeds a certain level of hygiene expectation over time, the degree of altruism and conscientiousness displayed by the actor will rise. Over time, the mutual relationship can thus transcend from a functional, contract governed, to a relational, commitment governed collaboration agreement, the *relational contract*.

Håkansson and Snehota (1995) set out a research agenda towards relationship building as the key driver for an overall positive organisational development. The temporal record of business-to-business interaction is particularly valuable to such scrutiny for several reasons. Firstly, networks and alignment develop over the time by which an industrial relationship proceeds (see Chapter 2 and 3). Secondly, a judgement on mutual fairness and the resulting continuance intentions can only evolve along a common collaboration record. Thirdly, trust and distributive balancing capabilities among partners have actually been recognised to be positively correlated with the age of a specific network (Anderson and Weitz, 1989).

So justice and time have been found to dialectically establish a beneficial network constellation. As laid forth in Chapter 4, a justice-related research agenda has already been set out by Gu and Wang (2011), Ford (2011) and Zaefarian et al. (2012). Moreover, I recognised time as a relevant quality for business-to-business research (Quintens and Matthyssens, 2010; Ford, 2011; Lowe and Hwang, 2012). Lately, Corsaro and Snehota (2012) acknowledged the varying balance of value over time, introducing a cognitive mapping of industrial relationship phases as set out in detail in Chapter 4.

As depicted in the introduction, the three cases of complex industrial innovation co-creation commanded the formal mechanisms for mobilising

specialist skills, knowledge, and capabilities into a joint domain for alignment and harmonisation of goals to take place. The projects were carried through in similar socio-technological environments, particularly unified by the relief from immediate financial pressure through strategic funding from a 3<sup>rd</sup> party steering committee.

Despite the paradigmatic similarities, I found significant deviations in the execution, outcome, and the, respectively perceived, *success* of the innovation ventures. Reconciling these findings with the justice concepts identified in the literature review, the empirical cases yielded a comprehensive indicative overall picture of their respective relevance in business-to-business research as set out in Table 10.3:



**Table 10.3: Justice-related concepts in the underlying case studies**

(see literature review in Chapter 4)

<b>Justice (General)</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>
<b>Justice Heuristics</b>	Due to prior experience of overall distributive and procedural justice in the environment, the participants' own genuine contribution was encouraged	Contribution did not have to be completely altruistic, as a tailor-made solution seemed feasible from an early stage of the project	Even though the distributive justice could have been influenced favourably by strategic funding, divergent goals made a commensurable justice heuristics impossible
<b>Relational Contract</b>	It was clear from the outset that goals were aligned and no one would take advantage of others' temporal weaknesses	Bilateral goals and a wider comprehensive mission effectively fostered goodwill behaviour	Absence of joint goal and the "free rider" problem hindered the relational contract
<b>Veil of Ignorance</b>	Even though all contributors towards the project leader could not see beyond their respective dyad, they could be sure of a stable ethos and thus a resulting long-term equilibrium in overall justice	The contributors towards the project leader could see part of the wider success and assumed stable network conditions outwith	The veil of ignorance was ubiquitous, as also dyadic collaborations' dynamics and agendas were not transparent. There was no prior experience with the network either as it was newly formed
<b>Justice (Types)</b>			
<b>Distributive Justice</b>	The missing value-in-use and thus unfavourable distributive justice was partly compensated by strategic funding, and high intangible value	Strategic funding and high value-in-use together with high intangible value achieved rendered the distributive justice highly favourable for all participants	Even though there was equal distribution of means and risk among parties, the lack of coordination and absence of sanctions led to fundamental imbalance
<b>Procedural Justice</b>	All participants confirmed that optimal interaction from all ranks led to insight and the desired information	All participants received information, training and empowerment they needed to feel as equitable project collaboration partners	Dignity and courtesy, transparent processes, voice to everyone, flow of information – according to feedback, all of this was missing

The synopsis in the Table 10.3 shows that network citizenship behaviour as postulated from the outset of this paper was only enabled in the projects of cases 1 and 2. Therefore, I suggest a separate justice-related research agenda as depicted in the introduction, taking into account the people-related

elements in business-to-business industrial exchanges for innovation and value creation.

In the beginning, the processes and to collaborative ties observed in this thesis' empirical research process commanded a high degree of structuring. The juridical contractual elements served as a necessary framework for agreeing on a common goal, proceeding and dimension of the project. Without anticipating details which were to change most likely during the implementation, the written contracts listed the status quo ante, the environment to be considered, some of the presumed core requirements, and certain formal collaboration standards. Therefore, from the outset, the contractual frame constituted the source enabling the first *value-in-exchange* comprising of products and services in return for a monetary selling price. The primary goal was thus to maintain a distributive and procedural justice by introducing formal rules, performance criteria and sanctions.

Whereas industrial collaboration relationships and individual responsibilities are typically governed by formal contracts ensuring equilibrium, there are also attitudinal factors determining organisational and personal fairness. These determinants identified in the industrial case studies I classify in Table 10.4 as follows:

**Table 10.4: Formalisms and constructs contributing to justice**

<b>Constructs</b>	<b>Formal</b>	<b>Attitudinal</b>
Organisational	Adherence to formal contracts, laws, rules and norms <u>Example:</u> delivery of prototype according to requirement specification (cases 1 and 2)  <b>Enforced distributive and procedural justice</b>	<b>Relational contract</b> <u>Example:</u> no detraction of resources from projects 1 and 2 by company A, even though there was no control  <b>Voluntary distributive and procedural justice</b>
Individual	Adherence to work contract, formal tasks, laws and rules <u>Examples:</u> fully working towards the current task (e.g. Richard, Project 1); not revealing technological secrets to outsiders (Project 3)  <b>In-role performance</b>	<b>Network citizenship behaviour</b> <u>Examples:</u> trying to understand and work towards the goals. Taking into account vulnerability by revealing special knowledge (all three projects)  <b>Conscientious, altruism</b>

As categorised in this tabular synopsis, it is by formal constructs and in particular by legalistic contracts that collaborations generally seek to guarantee and make actionable a minimum level of (at least distributive) justice. However, official settlements will not necessarily ensure that an exchange becomes beneficial or even synergetic; there are ways to easily by-pass an active contribution without making this evasive behaviour evident. Such mechanisms of withdrawal or free riding I observed particularly in the third project, which had fulfilled all formal criteria officially but continuously failed to harmonise goals and ongoing collaboration.

My findings confirm the recognised need for a greater emphasis on the juridical contract as a governing device in industrial innovation networks (Mouzas and Ford, 2012b). Whereas however the body of literature does not make a precise distinction between the process of contract generation and

the fixed, signed, contract as a mediating constituent, I discovered a great difference between the two.

Blois and Ivens (2007:561), for example, consider Macneil's terms of *implementation* and *effectuation of consent* as contractually regulated activities and attribute *harmonisation of goals* and *mutuality* to the relational contract. The goals and consent among collaborating actors to be adhered the authors attribute to an abstract *planning* (ibid:557) as a punctual instance, emphasising the outcome, a written articulation of alignment goals (Corsaro and Snehota, 2012).

However, I found extensive contract negotiation phases, taking as long up to half the time of the presumed subsequent project duration. Drawing only from past experience deemed to be applicable on the new situation, the partners mobilised their most expert staff to harmonise goals and procedural mechanisms for the implementation as far as it could be anticipated. In this pre-contractual stage, events in the negotiating actors' previous projects made them take precautions they deemed appropriate in particular; in the innovation cases under scrutiny this caution pertained to a fair allocation both of monetary and workforce related burdens and benefits. This symmetry was emphasised in all three projects, as the anticipated need for continuous refinement with the customer and uncertainties were most likely to strain the subsequent contractual exchanges. In particular, even attributes of the relational contract as set out by Blois and Ivens (2007:556f), such as reciprocity, role integrity, and flexibility, were built-in and enforced by an initial legalistic safeguarding of exchange mechanisms.

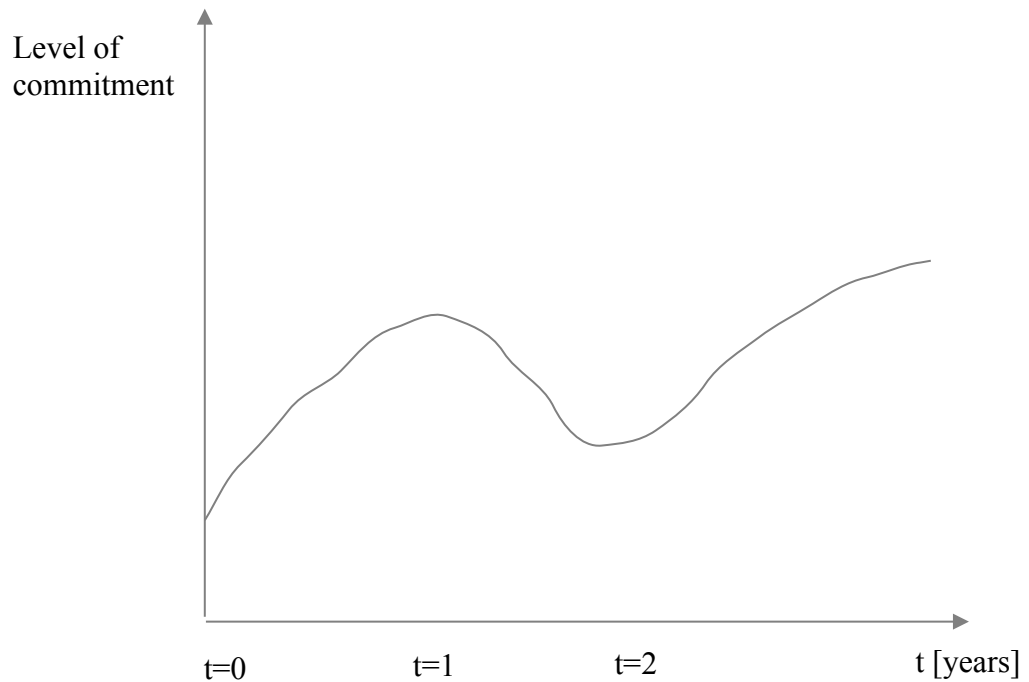
Therefore, the presumed initial mutuality (Blois and Ivens, 2007) is also tied into the contract by this reconciliation of viewpoints and confidentiality agreement, the outcome of this intensive process – the juridical contract – thus constituting an important ingredient for project initialisation.

After the signature, I found the contract to assume the legally enforced stasis, which is approximated in the literature (see Blois and Ivens, 2007; Corsaro and Snehota, 2012; Mouzas and Ford, 2012a). It is predominantly at this point that I observed the collaboration-specific relational contract to set in.

However, this attitudinal trait among business project members is not rigid either; the relational contract negotiation phase does not have an imposed end such as a signature. It is particularly by means of the flexibility and the mutual preservation in the relational contract (Blois and Ivens, 2007:558) that industrial innovation partners incur a development over time. The overarching norms in the social matrix remain flexible, thus at a time constituting a process and a meta-resource pointing to the allocation of resources as such and the desired behaviour in the relational exchange.

Gradually, the relational contract even takes over the *umbrella* function as advocated for the juridical contract by Mouzas and Ford (2012b) and smooth out the oscillations in the relationship life cycle scrutinised by Corsaro and Snehota (2012). Its greatest benefit we saw in the enablement of pragmatic renegotiations of the initial common goals – albeit legally tied into the project – in harmony without a potential for lengthy disruptions or litigation. In this duality the relational contract thus persists besides the juridical contract, which we saw to recede as quickly as unforeseen technical developments superseded its initial contents and thus the mutually agreed common goals of the innovation projects.

How the initial, highly regulated, formal business relationship may incur a metamorphosis into a relationship governed exchange can be illustrated by means of the actors' subjective perception. Mapping the verbal description of the second project's leader, Bernhard, into a *relationship path picture* (Corsaro and Snehota, 2012), the commitment value or *relationship value* (Ford, 2011) in his project changed over time as visualised in Figure 10.5:



**Figure 10.5: Relationship path picture; Project 2**

Negotiated drawing after verbalisation of Bernhard

Whereas according to Bernhard there were clear phases in the project – initiation, intensification, lower-level routine, commitment – neither him nor the other respondents found it useful to explicitly label the epochs in the above graph as indicated with headings. Instead, they agreed that the more balanced and fair the collaboration was perceived over time, the higher their commitment and the lower the relative influence of the formal contract would become. In routine stages as near  $t=2$  years in Figure 10.5, the commitment would thus not fall beyond a certain point; a basic commitment was still sustained. Whereas Bernhard had a continuous curve in mind, one of his customer perceived half year periods of more or less involvement required, albeit basically sharing the overall image in Figure 10.5.

My observation of a respectively perceived collaboration history confirms that the justice heuristics consider the accrued fairness balance. Starting from a dedication facilitated by the protection of the juridical contract, time allows for developing a relational contract as the exchange is perpetuated. The temporal axis for such an ex-post sense-making therein is by no means

strictly chronologic. Even if the events have just passed or the respondent is immersed in the exchange, the *kairotic*, subjectively extended or clinched and mentally re-ordered, time will prevail in cognition (Czarniawska, 2004). This temporal experience may however be triangulated with objective materials like milestones, correspondence, work reports and timetables.

So which conditions will make the regulating force of the initial paperwork more or less unimportant? In the cases scrutinised, I have seen the relationship and innovativeness change over time. As the collaborating parties align towards a common goal and the first mutual benefit manifests itself, the relationship value is altered too. Ideally this value increases and, above a specific threshold, supersedes the formal contract. The respective states in such a joint value curve depict one instance of my value exchange equation each. Thus, as I laid forth in Chapter 9, the instances in a relationship value can be expressed by the formula

$$I - N = G \quad \text{Intrinsic network value equilibrium}$$

or ideally, to reflect the positive synergy:

$$I - N - G \geq 0 \quad \text{Intrinsic network synergy}$$

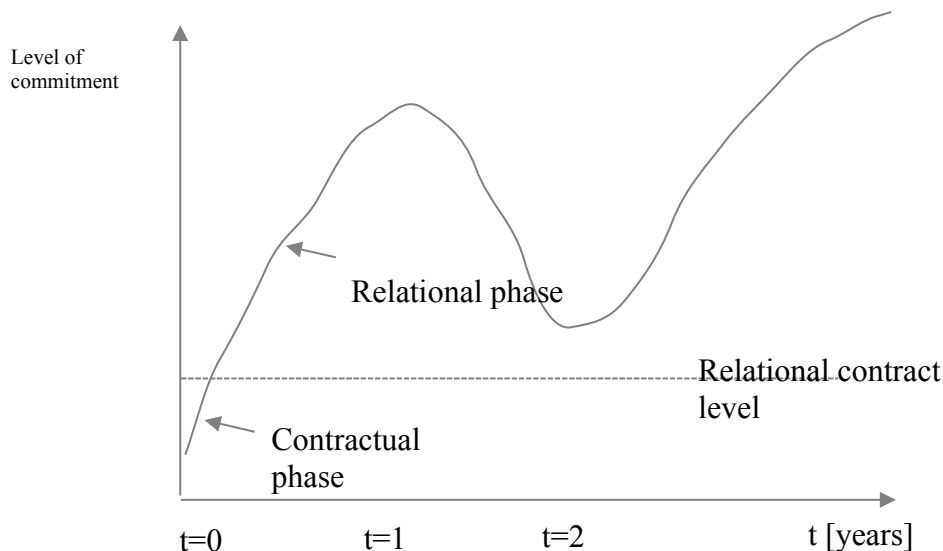
For a beneficial balance, the goodwill and immaterial value I postulate to be positive. Moreover, as the equilibrium is sought to be stabilised as a relational contract over time, the formula is assumed, in the first approximation, to be valid for each t:

$$I(t) - N(t) = G(t) \geq 0 \quad \text{Relational contract}$$

The relational contract is thus a longitudinal derivation of my formula for the intrinsic network value which has been more commonly postulated by Ford (2011) in extension to the IMP agenda. Applying this formula to the graphical

representation of a relationship's value history as shown above, it becomes clear that a critical level of the relational contract has to be reached for replacing mechanistic directions. In Project 2, after a short period, the relational contract level had been reached and perpetuated throughout accordingly.

The network value level of the relational contract needed for stabilisation and continuance intentions can thus be inserted in the graph intuitively:



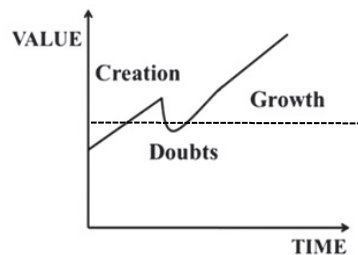
**Figure 10.6: Contractual and relational phase, Project 2**

How a project can remain in contractual phases over the entire collaboration is illustrated by analysing the third case. Throughout the observation, formalisms dominated the discussion. These findings indicate that an intrinsic network value staying below the relational contract level will impede the development of synergies and provoke the adherence to formalisms. Long-term orientation is thus a sign of the relational contract leading to network specific value – the prerequisite for turning value-in-exchange into value-in-use.

My findings start from other researchers' theory and may therefore serve as complements to the discussion on the temporal development of business-to-business collaboration. Mapping the relationship value identified in my



empirical analysis into the paths depicted by Corsaro and Snehota (2012), the application of the relational contract level as a *divide* between contractual and mutually oriented phases can be generalised to inform the theoretical discussion. The line I visualise therein as a horizontal straight, whereas typical relationships may also have other curves for the required relational contract level over time. Such a critical limit would be entered by the actors in addition to their value history as depicted in Figure 10.7:



**Figure 10.7: Relational contract level** (dotted lines; own representation) **in relationship path picture by Corsaro and Snehota (2012:279)**

Depending on the initial attitude, the initial epoch may even be a relational one, like in Figure 10.7. By granting credit of trust and by additional goodwill, an actor's starting point is therefore typically slightly positive. In terms of the formula

$$I(0) - N(0) = G(0) \geq 0 \quad \text{Initial level of relational contract} = \text{credit of trust}$$

My empirical analyses indicate that particularly the initial phases will have a neutral or positive coining, although a coercive nature of the project would yield a negative attitude from the start. The transition towards the relational phases is then characterised by an increasing alignment and the pursuit of a common goal, leading to the beneficial performance level aspired.

On the one hand, it is thus important to foster social togetherness for embeddedness and mutual control. On the other, lowering of the general relational contract level by appropriate managerial incentives may be a strategic task. With the resulting long-term orientation, conscientiousness

and consideration of just resource allocation over time, the relational contract will help to repeat and finally perpetuate an industrial exchange.

## 10.6. Conclusion

In this chapter, I covered important justice- and temporality-related research questions for industrial networks. Using appropriate examples of the three project cases covered, I depicted how distributive justice, a fair allocation of all benefit and burden, is experienced. In a socio-economic exchange situation, justice heuristics drawing on past experience and actual givens, together with an expected future development, determine the individual readiness for collaboration.

By showing examples of the empirical findings, I explained how actors in the cases anticipated a balanced or exploiting constellation. In a turbid environment, the veil of ignorance entailed the danger of exploitation. Even in perceived or anticipated relationship equilibrium, the highly venturous nature of the innovation project involved the risk of transitional misalignment and a dubious future benefit. I therefore demonstrated how the relational contract is a prerequisite for a beneficial perspective. With this attitudinal asset, the more successful cases demonstrated, short term compensation is clearly not required; the horizon of the established network may be quite resilient in this regard.

This chapter contributes to research practice in the business-to-business debate as well. As a methodical extension of the current scholarly practice, this chapter illustrates how the manifestation of *resources* as set out in the IMP group's ARA model can be isolated by scrutinising the phenomena of distributive justice. Moreover, I devise a toolset to assess the degree of the relational contract by observing long-term versus short-paced activities.

# Chapter 11

# 11. Contribution of this thesis

## 11.1. Introduction

In this final chapter, I will present the conclusions of the thesis, drawn from the underlying research, and provide a synopsis of my contribution to academia and practice.

I will present the *subject-related* insights gained in the three longitudinal case studies:

- As a *first subject-related contribution*, I will set out my own incremental extension of the extant IMP thought originating from the overlay of the ARA model with service logic (Grönroos and Ravald, 2011).
- As a *second subject-related contribution*, I will highlight the visualisation of the interstice in such a rich exchange in an immediate innovation network. This concept depicts the actors' joint alignment zone and its delimiting abstraction layers and thus visualises networking activities and outcomes.
- As a *third subject-related contribution*, this thesis evaluates the differences of value-in-use and value-in-exchange. This research thus first considers an itemised *intrinsic network value* (Ford, 2011) by its newly postulated constituents and devises the relational value of strategic innovation collaboration per se.
- As a *fourth subject-related contribution*, I additionally set out the founded claim for a network memory as already postulated by the IMP tradition (Ford, 2008). Drawing on the concept of the network life cycle, I will show how accrued joint experience enables a high-level distinction of more or less committed phases in processes of developing innovations in industrial services.

I will thus set out the contribution of my findings to the current research and

debate in business-to-business marketing.

In addition, I will illustrate this thesis' contribution to *managerial* insight and practice:

- By the development and methodical utilisation of a mathematical representation for the research constituents, the interdisciplinary dualism of natural and social sciences in the industrial innovation domain becomes transparent.
- The scorecard has already evolved as a valuable instrument for innovation performance evaluation.
- Network value constitutes a substantive managerial target and set out a guide for controlling its constituents. I will explain how this thesis' findings on power, justice, alignment, and contract may lead to a refined sensitisation in the network management debate.

Finally, I will point to further potential for innovation- and collaboration-related business-to-business research and the limitations of this thesis. I will conclude with a reflection of self and a statement on the personal learning outcomes.

## **11.2. Empirical findings**

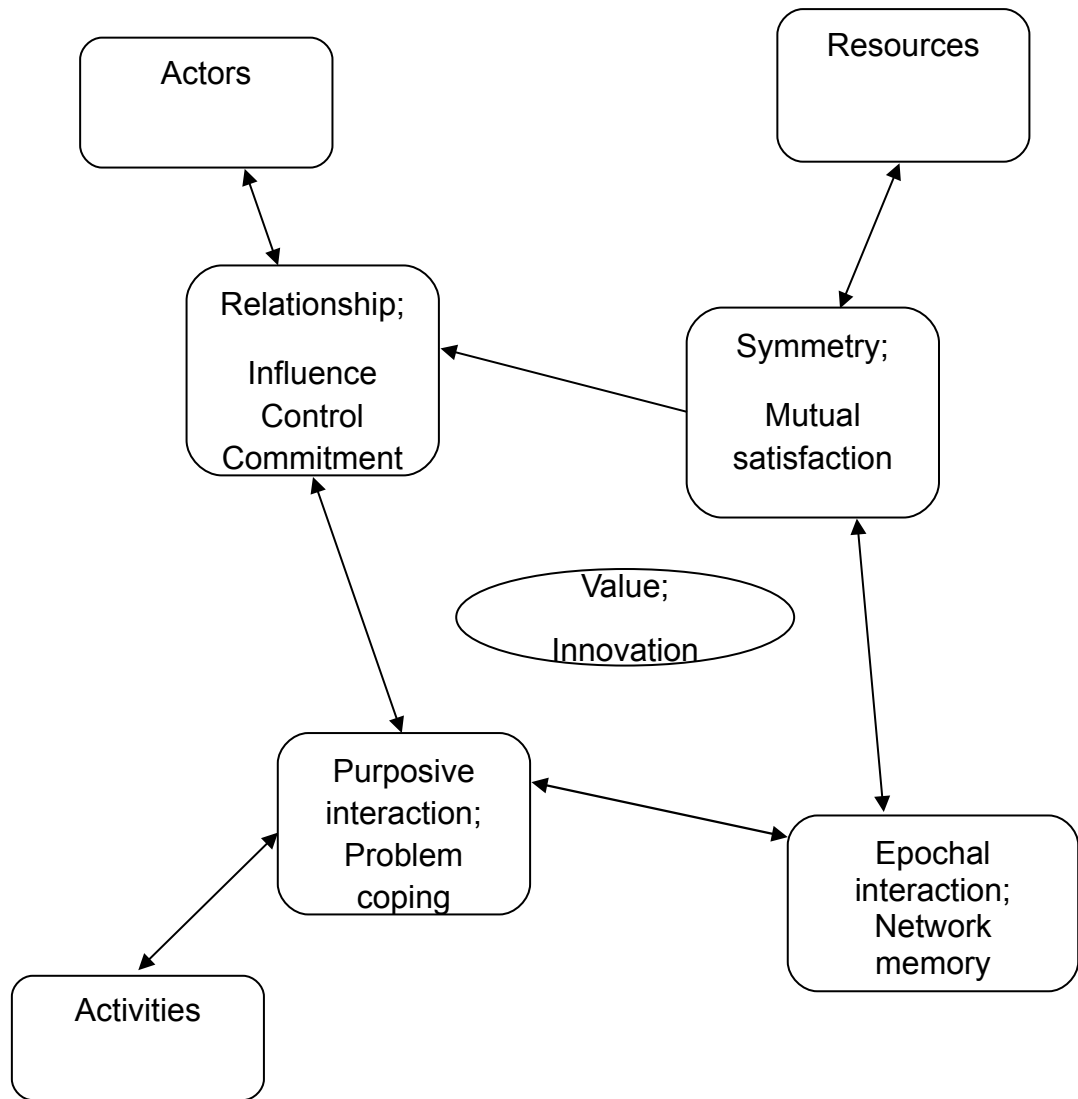
### **11.2.1 Incremental extension of IMP's ARA model**

**How do individuals as actors in the research setting draw on their immediate business-to-business network to achieve rich exchange and innovation?**

***Which governing and control mechanisms can be observed in the research setting's rich exchanges and episodes of innovation?***

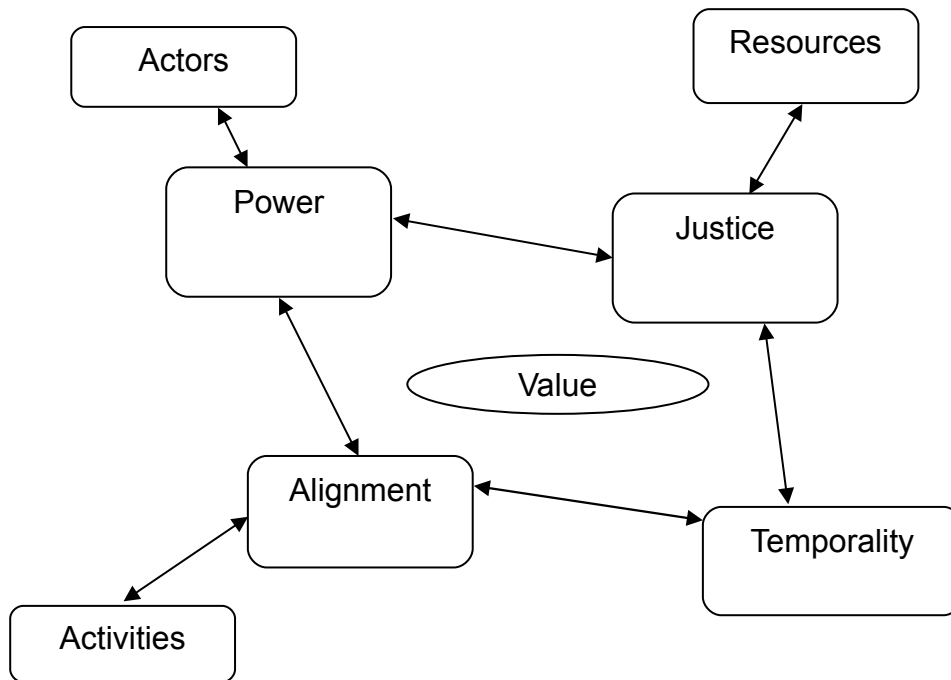
This thesis' analytical work set out the above research questions (number 1 and 2 answered in Chapter 8) for furthering scholarly knowledge on sense-making in networks and the enactment of benefits therein. The IMP group's model of actors, resources and activities (Håkansson and Snehota, 1995) devises a particularly useful guide to phenomena of rich industrial network collaboration.

The *first subject-related contribution* was to further elaborate the framework set out in this thesis first chapter. Drawing on Ford (2008; Ford and Mouzas, 2010) as well as Möller (Möller and Halinen, 1999; Möller and Svahn, 2003), it first started as a conceptual outline as depicted in Figure 11.1:



**Figure 11.1: Initial conceptual framework for this thesis' empirical work**

Based on the literature review, this concept was further adjusted by employing the key themes power, temporality, alignment and justice which had been acknowledged as particularly relevant in industrial marketing. The framework changed accordingly, as shown in Figure 11.2:



**Figure 11.2: Conceptual framework modified as a result of the literature review**

Drawing on these changes from the literature review, I further explored the regularities and the directionality of effects in this framework. This thesis' empirical work gave a situated indication of the following additional regularities:

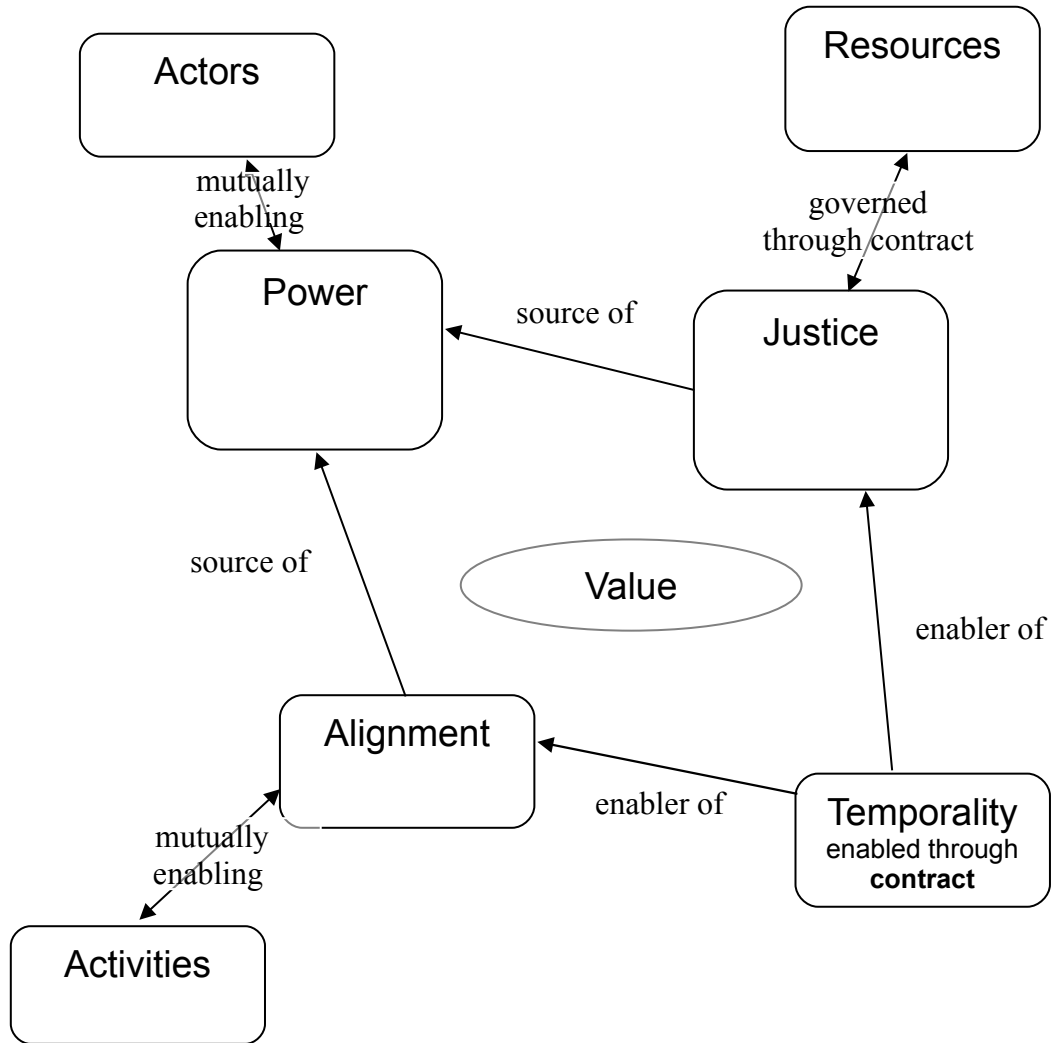
- I empirically identified justice and alignment (or the lack thereof) as main sources of power in a socio-economic relationship. Power is thus predominantly enhanced by these qualities (symbolised by the single-headed arrows).
- Justice is cumulatively experienced and thus enabled over time; its standards are introduced by the juridical (and later kept by the relational) contract.
- Alignment is a temporal process also drawing from the initially ordering device of the contract.
- The involvement of actors is enabled and dialectically enabling power dynamics. This mutual reinforcement or mitigation is symbolised by the double-headed arrow.
- Activities in an immediate network contribute to alignment and are in



turn facilitated by alignment.

- Justice regulates the allocation of input and output of resources. This regulation is enabled by the common standard of the contract.

Hence, the initial conceptual model can now be completed to result in a model with regularities among its constituents as in Figure 11.3:



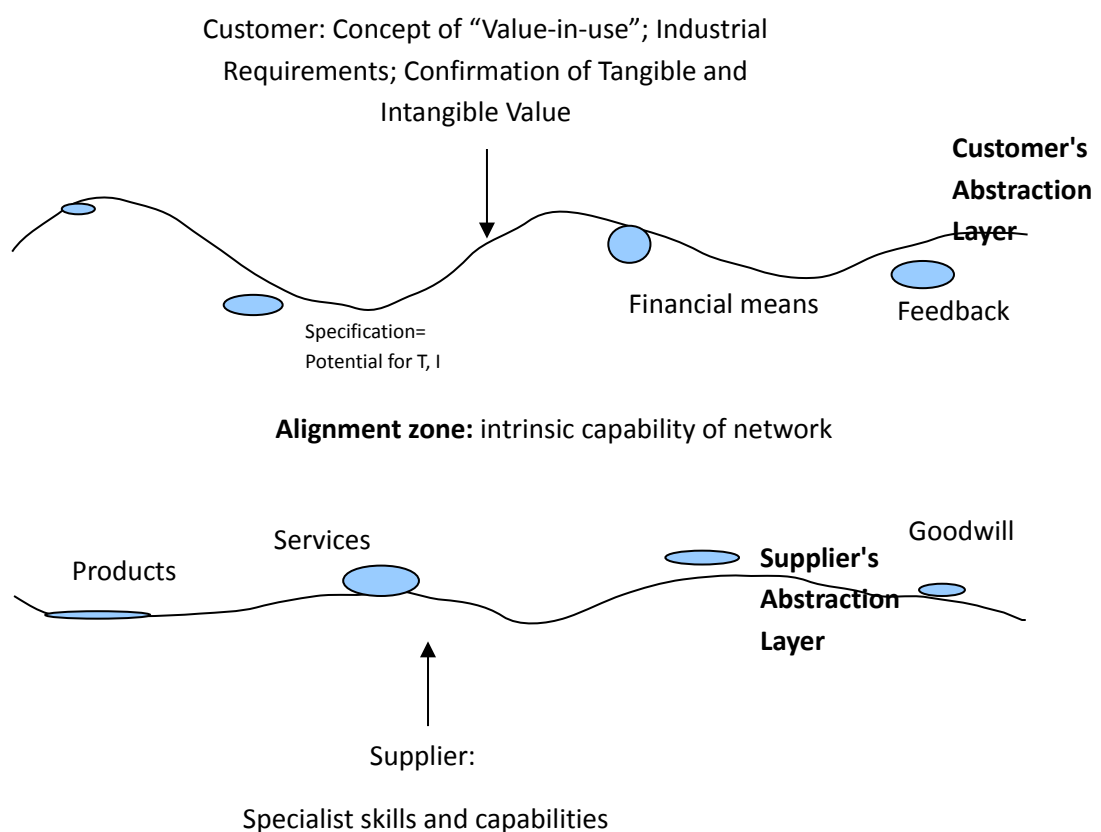
**Figure 11.3: Model for industrial innovation in immediate networks**

## 11.2.2. Abstraction layer and alignment zone for network innovation

***Which entities are exchanged in the research setting's immediate network by means of collaboration and by which mechanisms are they generated?***

This question, set out as question 3 and answered in Chapter 9, devises the research agenda for the *second subject-related contribution*.

In this thesis' empirical work, I found strong indications for a three-tier interaction interface in a network's many dyads from the outset. Guided by my initial findings and in order to be consistent with extant research, I set out a value creation blueprint derived from Grönroos' service logic to examine the collaboration interface with its mechanisms and ingredients (for a synopsis, see Grönroos and Ravald, 2011) as in Figure 11.4:



**Figure 11.4: Constituents of dyadic industrial innovation**

The main elements of this blueprint in Figure 11.4 are described as follows:

These network interaction phenomena take place in dyadic cells for methodical reasons and in accordance with the literature (Grönroos and Ravald, 2011).

These cells are the locales for rich, *aligned*, customer-centric business-to-business collaboration.

- Onto the amorphous surfaces shown in Figure 11.4, the collaborating partners transport their respective input towards the common realm. In this interstice, I claim the *alignment* (Claycomb and Frankwick, 2010) taking place.
- Metaphorically, I refer to the bordering surfaces as *abstraction layers*; these are capable of converting products, services, skills and *inventions* of the supplier into a useful value and *innovation* for the customer.
- The comprehensive dyadic collaboration system thus establishes a common *interaction process interface* as previously postulated by Ford (2011).
- This interface serves as a particularly functional overlap of the exchange partners in a network where the desirable quality of the *intrinsic network value* (see below) is created and sustained.

### **11.2.3. Value through alignment in industrial innovation networks**

#### ***How do different actors in this research setting value the distinct approach of developing innovation in a customer-centric manner?***

This question, set out as question 4 and answered in Chapter 9, was directing my research towards the *third subject-related contribution*. For separating an correlating customer-centric socio-technological exchange, I had started from my initial model about product, service, and goodwill provision in exchange for monetary and non-monetary selling price to result in tangible and intangible *value* as expressed by the formula:

$$\int_{t=0}^n p_n P_n (t)dt + \int_{t=0}^n s_n S_n (t)dt + \int_{t=0}^n g_n G_n (t)dt = \int_{t=0}^n V_n (t)dt = \int_{t=0}^n T_n (t)dt + \int_{t=0}^n I_n (t)dt$$

Where  $|p_n, s_n, g_n| \leq 1$

The findings from the empirical work revolving around these constituents can be summarised as follows:

Value-in-exchange is a necessary prerequisite for all other *value* materialised in a business-to-business relationship.

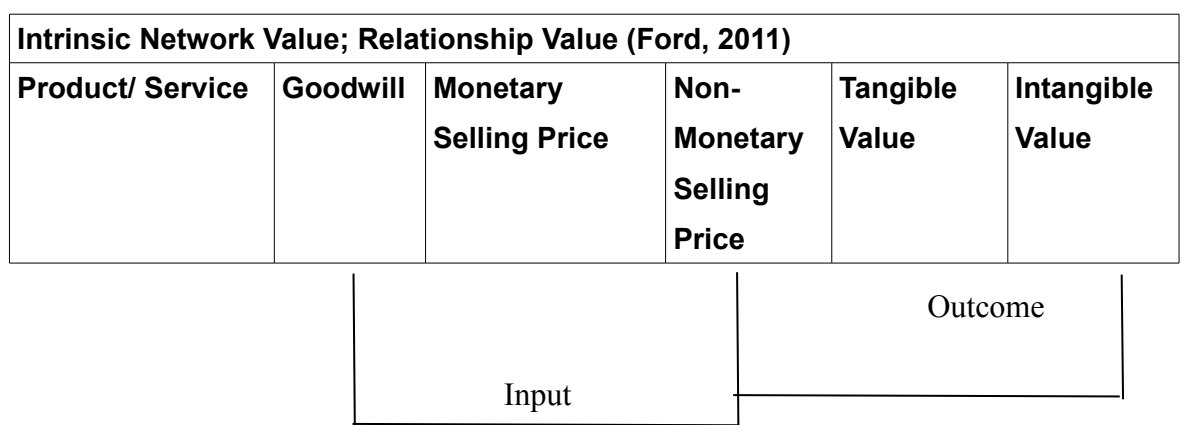
Value-in-use requires an additional mutual *alignment* through dialogue and social construction of technology.

This process of joint social construction of technology, the *alignment process*, leads to an *aligned state* capable of accommodating particularly rich innovation collaboration.

*Value-in-exchange* and *value-in-use* both occur (albeit to a different extent) in a collaborative dyadic industrial exchange.

Their differential I found an instrumentally and meaningful entity which I call, in accordance with Ford (2011), *relationship value*.

This *relationship value* (Ford, 2011) is visualised in Figure 11.5:



**Figure 11.5: Intrinsic network value**

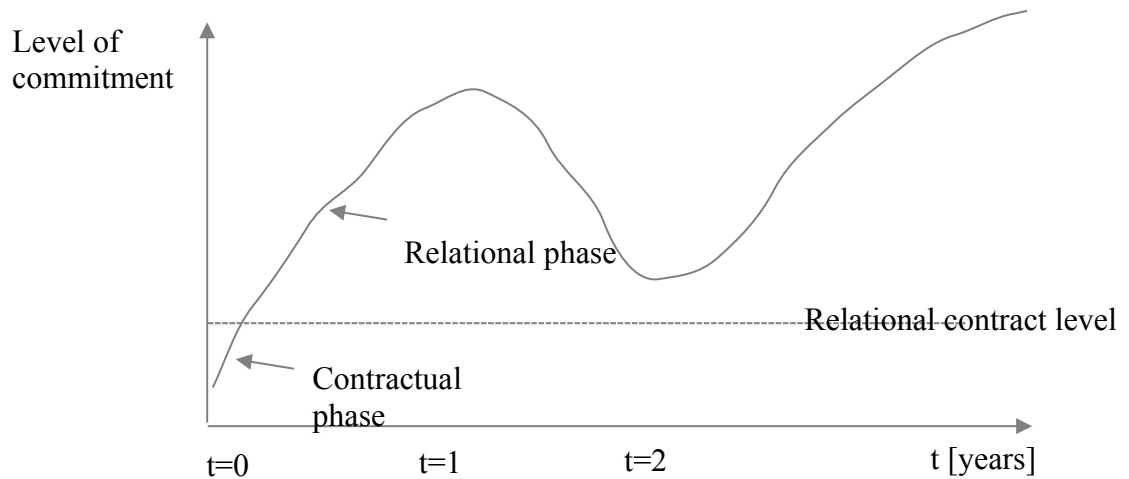
#### 11.2.4. Contractual and relationship *phases* in industrial network life cycles

In the research setting's immediate industrial network, what are the governing principles and mechanisms for balancing customer input, supplier input, and value?

***How do immediate networks in the research setting accumulate an own memory of joint experience of the actors therein over time? How do actors draw on this memory to influence the performance in a particular innovation project?***

These two questions, set out as number 5 and 6 and answered in Chapter 10, devise the route towards the *fourth subject-related contribution*:

- The development of joint industrial innovation projects over time can be seen as a subsequence of various challenging *epochs* coined by different characteristics.
- There is an initial veritable (juridical) *contract* which initiates a just process which may or may not stay balanced. This way it provides the blueprint for an overall justice but recedes over time as its divisions become outdated or impracticable.
- The *juridical contract* recedes in significance and is mostly replaced by the *relational contract*.
- This relational contract is fostered by distributive and procedural justice.
- Long-term thinking is particularly beneficial for the relational contract.
- The *success* of a collaboration over time is therefore largely determined by the ability of the partners to step over a critical relational threshold.
- This replacement occurs along a relational life cycle as shown in figure 11.6:



**Figure 11.6: Contractual and relational phases** ( $t=0$ : signature of juridical contract)

### 11.3. Managerial contribution

Managers will also be able to draw on this thesis' findings:

- By the development and methodical utilisation of a mathematical representation for the research constituents, the interdisciplinary dualism of natural and social sciences in the industrial innovation domain becomes transparent.
- The scorecard has already evolved as a valuable instrument for innovation performance evaluation. The inherent constituents of set out a guide for controlling exchange, useful and relational value.
- This thesis' findings on power, justice, alignment, and contract may lead to a refined sensitisation in the network management debate.
- The *abstraction layer* can be used as a visual guide for collaborative *alignment* .
- The ongoing sense-making, value-offering, and value confirmation processes emphasise the need for a *long-term orientation* and perspective.

- The equivalent network *memory* accordingly constitutes an ex post reflection on synergetic forbearance.

In particular, Company A introduced the scorecard as an official management tool already during my thesis' research process. Currently it is utilised as an internal consulting instrument and for key account analysis.

## 11.4. Further research

### 11.4.1 Quantification

The value exchange constituents identified and operationalised in this thesis may be further scrutinised and quantified. For this, I recommend a common standard so as to make several scorecards or epochal developments comparable. The potential further elaboration I illustrate in Table 11.1:

**Table 11.1: Quantified value exchange elements; suggestion for standardisation**

<b>Product /Service</b>	<b>Goodwill</b>	<b>Monetary Selling Price</b>	<b>Non-Monetary Selling Price</b>	<b>Tangible Value</b>	<b>Intangible Value</b>
Equivalents of hard resources provided by supplier (input cost)/ Work time equivalents provided by supplier (labour input)	<i>How much more is customer willing to pay to have these project staff again?</i> (subjective)	Selling price; work time equivalents spent on joint project	<i>How much is the customer's project input worth?</i> (subjective)	Economies enabled by innovation; increased output; savings in quality and availability costs	<i>What would you pay for an increased reliability/ more information?</i> (subjective)

Although the quantification of goodwill, non-monetary selling price, and

intangible value will be difficult and a source of potential analytical bias, the discussion may already induce a reflection on joint goals and the overall relationship balance. In the long term, a customer prepared to reflect on subjective monetary equivalents may thus externalise the intuitive perception on a project or process and enable a more thorough debate and adjusted services to be provided.

### **11.5.2. Exploration versus exploitation**

The alignment in a network's dyad is coined by mutual learning and reaping the benefits thereof. However, the activities and knowledge in the B2B context will always remain fragmentarily synchronised. A managerial task of networking will therefore be to maintain a pragmatic balance between exploration and exploitation as in the sense of March (1991).

This thesis' empirical observation has shown that this balance of mutual adaptation and performance may be distorted in two ways. First, the alignment will never be considered as sufficient and valuable exploitation potential is lost by endless learning. Second, the approximation may be skipped in favour of starting to reap benefits immediately. Both conditions are imminent threats particularly if the actors' goals diverge considerably.

As mutual learning across organisations is particularly resource intensive, the optimisation of this alignment with respect to performing in a network over time constitutes a promising further area for scrutiny. I found a good balance in the first two cases and a both misaligned and exploitative condition in the third.

### **11.5.3. Contractual / relational divide**

For the relationship path as set out by Corsaro and Snehota (2012), I identified a general level above which the relational contract supersedes the initial, formal contract. This level I approximated by a line with slope = 0, i.e.  $f(t) = const$ , in this thesis' analysis as illustrated in Figure 11.6. The existence

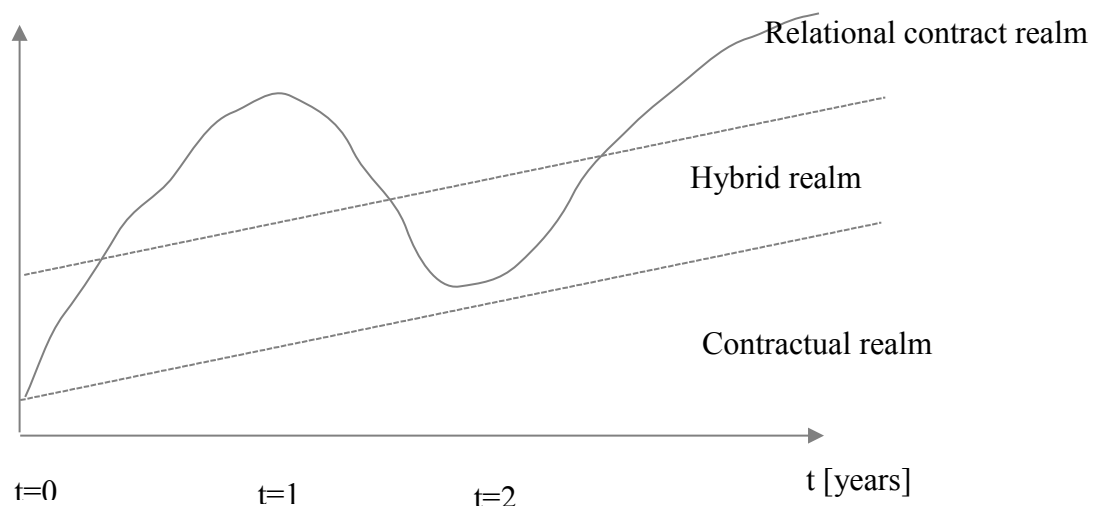


of the *threshold* has been generally reaffirmed by my industrial respondents.

However, I had already identified transitional phases, making the level a hybrid realm potentially. Together with the, albeit subjective, quantification of the relationship-specific value exchange elements, namely goodwill, non-monetary selling price, and intangible value, such a realm may also be negotiated in a joint discussion with respondents. Such a triangulation would further enable a robust isolation of *value*-related phenomena.

Moreover, actors in a rich collaboration may expect the relational ties to prevail increasingly over time; thus demanding a higher threshold for leaving the contract behind. Such a relational divide curve may therefore be a realm with a positive slope as indicated in Figure 11.7:

Level of  
commitment



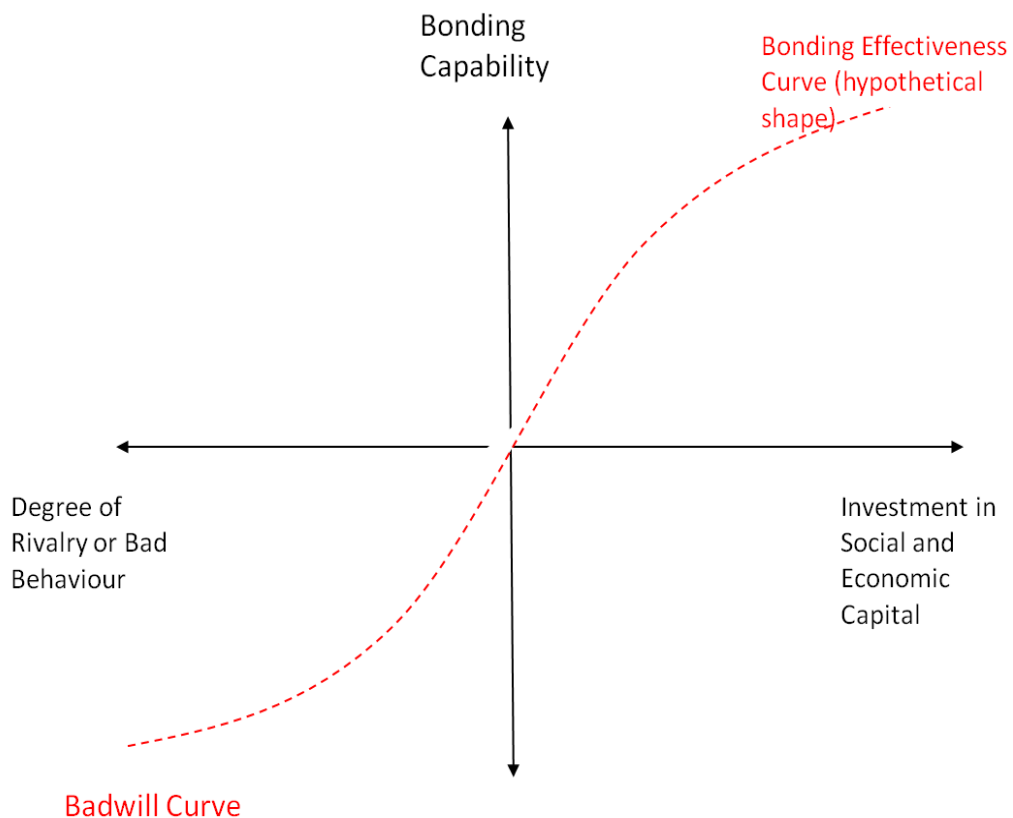
**Figure 11.7: Contractual realms in a relationship path picture**  
(own extension of Carsaro and Snehota's (2012) model)

#### 11.5.4. Linking goodwill to Solow's consumption curve

During my negotiations on the research objective with the industrial field, I recognised that the *goodwill* of the supplier needed further analysis. In my

own mathematical equation drawing on Solow, I showed a potential way to isolate such goodwill or badwill from an uncalibrated environment.

My working hypothesis for the quantitative possibilities of a complex semi-quantitative approach was that the perceived bonding capability – how the customer side perceives and values the accumulated exchange relationship – can be approximated by a curve in the shape of a consumption function according to Solow (Bretschger, 2004) as in figure 11.8:



**Figure 11.8: Solow's model resulting in a goodwill extraction curve (own model)**

In most relationships (e.g. where there is no initial goodwill due to brand reputation or recommendations) the bonding capability I assume to be nil in the beginning of all mutual investment in social and economic capital. These commitments will include the provision of goods and services from the one

side, and the provision of trust, information, and money from the other. I further imply that even with both exchange parties incurring great effort, there will be a moderating effect in the long term, like oblivion, fluctuation of addressees, or upper limits of mutual resources. The extraction of the goodwill components from such a scenario where much of the monetary and otherwise quantifiable exchange is available would provide a quite valuable measure. With its help, the potential of involvement could be assessed and another identified gap in current research about a customer's heuristics by which they become prepared to enter and sustain business relationships would be filled.

Like in the formulae evaluated and refined in this thesis, I also take into account negative effects, whereas I do not intend to strongly address this domain. However, rather than bonding, also alienation is possible. For isolating the goodwill, I have identified the Cobb-Douglas (Cobb & Douglas, 1928; Frenkel & Hemmer, 1999) form of the Solow equation as suitable like shown in the following:

Production Function of the Solow Model

Cobb-Douglas form

Bonding Capability B in Terms of Core Offerings C=(Product+Service) and Goodwill

$$B = C^\alpha G^{1-\alpha}$$

where  $0 \leq \alpha < 1$

$\alpha$  denominates the share of bonding capability produced by the Core Offering; e.g. if  $\alpha = 0.7$  then 70% of coherence is due to product and service and 30% by goodwill.

This notion of course makes sense only if product and service contributions are known. In a chaotic environment, where several departments of a company work decoupled from each other towards one customer, this dilemma may not be dissoluble.

Further assuming now, that the growth rate of goodwill is given exogenously, which means by the sheer presence of product and service exchange, its

growth slope becomes measurable just by knowing exogenous quantities:

$$B = C^\alpha G^{1-\alpha}$$

$$\ln(B) = \alpha \ln(C) + (1 - \alpha) \ln(G)$$

$$\frac{B'}{B} = \alpha \cdot \frac{C'}{C} + (1 - \alpha) \frac{G'}{G}$$

If  $\frac{G'}{G} = x$ , i.e. G being linear over increasing C,

$$\frac{B'}{B} = \alpha \cdot \frac{C'}{C} + (1 - \alpha) x$$

→ In order to assess the growth rate of the Bonding Effectiveness B, the growth rate of the Core Offering C and the proportion  $\alpha$  has to be determined.

The goodwill factor and thus bonding effectiveness on the provider side and its positive reception on the customer side will hence be calculable for the ideal case. Starting from these empirical considerations, systematised and symbolised in formulae and graphs, I thus identified an area of research with high relevance for both the industry and the scientific community.

## **11.6. Limitations**

This thesis' research cycles enable a deep analysis of three comparable cases, generalising findings particularly arising from variety in *ceteris paribus*- constellations. Whereas some of the fundamental theoretical claims derived thereof may be applied in wide areas of business-to-business networks and their intricate innovation mechanisms, there are some caveats to be taken into account when transferring the new insight into other industrial scenarios.

### **11.6.1. Subject-related limitations**

The industry under consideration is a closed engineering and information technology domain with a particular focus on complex capital equipment requiring high availability maintenance and repair, in this case represented by full service. The companies' strategic goals are predominantly expressed in operational and technological terms, aiming at revenue safeguarding and optimisation. Although the projects considered in the three cases were highly venturous and bore numerous unexpected turns, the major long-term goals of each actor were more easily anticipated than in a purely governmental or other public project.

Moreover, this thesis' research has concentrated on large-scale business-to-business strategic projects entailing a high degree of innovation and uncertainty. Routine processes, smaller-scale or low-budget innovation projects may have quite different, even reversed, effects as those observed in my empirical studies.

This thesis' case studies were conducted in quite a peculiar epoch in economic history. The projects had each been initiated in the wake of the world financial crisis in 2008 and strongly fulfilled a mission to stabilise the work situation of many participant actors. This safe harbour had been

perceived as a relief in the beginning stages but had not fulfilled this function any more in their respective last year. Whereas the first two projects seemed not particularly influenced by this development, the success of project three may have been impeded by the unique situation additionally. As longitudinal observations always reflect the underlying socio-economic and political developments to a certain degree, potential research cycles in different future epochs may reveal additional regularities.

### **11.6.2. Methodical limitations**

All cases considered in this thesis involved the collaboration of large, predominantly multinational, organisations. Due to the public listing of the major collaborating companies, including company A and company B, the corporate missions and overall strategies were known and some key numbers open to the public. This thesis' methodical research approach of triangulation with hard facts may become less viable in a smaller-scale setting.

The intimate access to an inter-firm network, its project proceedings, negotiations, and the technical immersion I had accomplished in this thesis is certainly hardest to obtain. An almost undistorted insight particularly into industrial actors' resistance to collaborate, into controversial discourse and occasional fight will most likely not be granted if the researcher is a relative outsider. Even this thesis' empirical work was conducted in a unique window of opportunity; company A wanted to support me in a difficult period, and their team leader Claus was in a position to patronize my field work. (Immediately after my empirical work had ended, Claus assumed the managerial position for large Chemical plants which did offer no such research potential any more.) The firms participating in the researched networks were equally benevolent, one of them being my former employer and thus particularly confiding in my discretion. The regular struggles I had over the degree of participation and the depth of scrutiny nevertheless signalled that such case

studies put a strain on all project teams.

Ethnography *at home* requires a close familiarity with the Lebenswelt to be researched. This approach thus asks for a professional disruption from the industrial work to academia, having a great impact on the lifetime planning of a researcher. A double qualification is required, that of a specialist in the field to be scrutinised, including the secondary socialisation and habitualisation therein, and of the management scientist.

The greatest impediment for generating and diffusing knowledge in rich case studies may be the poor reputation of the predominantly qualitative methods in multinational corporations, particularly with engineering and technological cultures. Moreover, I learnt that the (German) interdisciplinary academia often assigns a lower status to such an ambiguous, multi-faceted research, with far-reaching implications for visibility and further dissemination. The consciousness-raising in Central Europe for socio-economic research in the technical domain has in my eyes only just begun.

### **11.7. Learning outcomes and reflection on self**

This thesis induced a different way of my thinking. Starting from the perspective of the natural and computer scientist, I had predominantly drawn on my MBA's instrumental toolset for managing industrial projects and accounts. Therefore, my stance had been a positivist one, favouring quantitative methodologies, transaction costing and the resource-based view.

In the course of this thesis' philosophical research, I learned that apart from the formal necessity of a chemist and economist, my original stance had been an interpretivist one. For the first time I had to deliberately take a stance involving a differentiated image of humanity. Learning in long discussions that my own daughter advocated an opposite paradigm made the exploration journey even more animated. The most intensive new experience in this

thesis' first year (and also a valuable distraction from a difficult situation in life) was therefore in the fields of social science and research philosophy.

Moreover, this thesis constituted an overdue systematisation and furthering of what I had done practically over many years in the high technology industry. I had chosen the area of research by my own great interest which had emerged in my professional and managerial tension between technology, economic pressure and social liaison. This interest even deepened as I increasingly gained an understanding of academic foundation of industrial marketing.



## 11.8. Conclusion

In this conclusive chapter, I expounded on this thesis' contributions to theory, scientific methods, and managerial practice.

In the subject-related realm, I devised an extension to IMP's ARA model from an overlay of the ARA with service logic (Grönroos and Ravald, 2011). I highlighted the alignment zone as a new concept for visualising alignment, abstraction and *découpage*.

I expounded on this thesis' contribution towards the value debate. In extension to value-in-exchange and value-in-use, this research thus first considers an itemised *intrinsic network value* (Ford, 2011).

This research project has also revealed network phases accumulating to network life cycles drawing on a network memory.

This chapter further introduced an outline of this thesis' managerial contributions. Suggestions for further research were depicted, such as the quantification of further scorecard elements and the isolation of a goodwill factor.

I outlined some of the limitations of the underlying studies as to subject and methods.

This chapter concluded with a personal reflection and an outlook.

## REFERENCES

- Abels, H., 2004: *Interaktion, Identität, Präsentation. Kleine Einführung in interpretative Theorien der Philosophie*. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Abernathy W.J. Utterback, J.M., 1978: Patterns of Innovation in Industry. *Technology Review* 80 (7), 40-47.
- Achrol, R.S. Kotler, P., 1999: Marketing in the network economy. *Journal of Marketing* 63, 146-163.
- Adams, J. S. ,1965: Inequity in social exchange. In: L. Berkowitz (Ed.), *Advances in experimental social psychology* Vol. 2. New York: Academic Press, 267-299.
- Adiwa, 2010: *Innovation Round Table*. [Online] Available at [http://www.adiwa.net/index.php?id=251&L=0&tx\\_ttnews%5Btt\\_news%5D=44&cHash=0215364eb0b175c06ed88e9888114e0c&type=123](http://www.adiwa.net/index.php?id=251&L=0&tx_ttnews%5Btt_news%5D=44&cHash=0215364eb0b175c06ed88e9888114e0c&type=123) . Accessed 18.2.2013.
- Adler, P.S., 2001: Market, Hierarchy, and Trust: The Knowledge Economy and the Future of Capitalism. *Organization Science* 12 (2), 215–234.
- Agarwal, R. Selen, W., 2009: Dynamic Capability Building in Service Value Networks for Achieving Service Innovation. *Decision Sciences*, 40 (3), 431-475.
- Altrichter, H. Posch, P., 1998: *Lehrer erforschen ihren Unterricht: eine Einführung in die Methoden der Aktionsforschung*. Bad Heilbrunn: Klinkhardt.
- Ames, R.T., 2004: Confucianism and Deweyan Pragmatism: A Dialogue. *Journal of Chinese Philosophy* 30 (3 /4), 403.
- Andersen, P.H. Kragh, H., 2010: Sense and sensibility: Two approaches for using existing theory in theory-building qualitative research. *Industrial Marketing Management* 39 (1), 49-55.
- Anderson, E. Weitz, B., 1989: Determinants of Continuity in Conventional

- Industrial Channel Dyads *Marketing Science* 8, 310-323.
- Anderson, J.C. Håkansson, H. Johanson, J., 1994: Dyadic Business Relationships within a Business Network Context. *Journal of Marketing* 58 (4), 1-15.
- Araujo, L. Spring, M., 2006: Services, products, and the institutional structure of production. *Industrial Marketing Management* 35 (7), 797-805.
- Araujo, L. and Kjellberg, H. , 2009: Shaping exchanges, performing markets: The study of market-ing practices. in P. Maclaran, M. Saren, B. Stern and M. Tadajewski (eds.): *Handbook of Marketing Theory*, pp. 195-218.
- Araujo, L. Finch, J. Kjellberg, H., 2010: *Reconnecting marketing to markets*. Oxford: University Press.
- Araujo, L. Easton, G., 2012: Temporality in business networks: The role of narratives and management technologies. *Industrial Marketing Management* 41, 312–318.
- Arnscheid, R., 1999: *Gemeinsam sind wir stark? Zum Zusammenhang zwischen Gruppenkohäsion und Gruppenleistung*. Münster: Waxmann.
- Asgari, A. Silong, A.D. Ahmad, A. Abu Sama, B., 2008: The Relationship between Transformational Leadership Behaviors, Leader-Member Exchange and Organizational Citizenship Behaviors. *European Journal of Social Sciences* 6 (4), 140-151.
- Ashour, A. S., 1973: The Contingency Model of Leadership Effectiveness: An Evaluation, *Organizational Behavior and Human Decision Processes*, 9(3), 339–55.
- Atkinson, P. Coffey, A. Delamont, S. Lofland, J. Lofland, L., 2001: *Handbook of Ethnography*. London: Sage.
- Augusto, M. Coelho, F., 2009: Market orientation and new-to-the-world products: Exploring the moderating effects of innovativeness, competitive strength, and environment forces. *Industrial Marketing Management* 38, 94–108.

- Avison, D. Lau, F. Myers, M. Nielsen, P.A., 1999: Action Research. *Communications of the ACM* 42 (1), 94-97.
- Backend Innovations Report, 2004: *Software AG incorporates Research and Development into the XMLi and ETS Modernization strategic focus areas*. [Online] Available at [http://backend.innovations-report.com/html/reports/information\\_technology/report-36485.html](http://backend.innovations-report.com/html/reports/information_technology/report-36485.html) Accessed 25.9.2012.
- Backhaus, K. Voeth, M., 2007: *Industriegütermarketing*. 8<sup>th</sup> ed. München: Vahlen.
- Baerveldt, C. Cresswell, J. Lepine, C., 2006: *Wittgenstein and the normativity of concept formation: implications for a theory of education*. [Online] Available at [http://www.ualberta.ca/~cor/Documents/Wittgenstein\\_and\\_the\\_normativity\\_of\\_concept\\_formation.pdf](http://www.ualberta.ca/~cor/Documents/Wittgenstein_and_the_normativity_of_concept_formation.pdf). Accessed 6.12.2012.
- Baeva, L., 2012: Existential Axiology. *International Journal of Philosophy of Culture and Axiology* 9(1), 73-83.
- Bagozzi, R.P., 1974: Marketing as an Organized Behavioral System of Exchange. *Journal of Marketing* 38 (4), 77-81.
- Baldwin, C.Y. Clark, K.B., 2006: Between 'knowledge' and 'the economy': notes on the scientific study of designs. In: B. Kahin, D.Foray, (eds.), *Advancing Knowledge and the Knowledge Economy*. Cambridge, MA: MIT Press, 310-341.
- Baldwin, C.Y., 2008: Where do transactions come from? Modularity, transactions, and the boundaries of firms. *Industrial and Corporate Change* 17 (1), 155-195.
- Ballering, T., 2000: Strategische Konzepte zur Bildung einer dynamischen Unternehmensarchitektur. *Europäische Hochschulschriften*. Frankfurt: Verlag Peter Lang.
- Bannister, D., 1985: *Issues and approaches in personal construct theory*. London: Academic Press.

- Barclay, L.J. Skarlicki, D.P. Pugh, S.D., 2005: Exploring the Role of Emotions in Injustice Perceptions and Retaliation. *Journal of Applied Psychology* 90(4), 629-643.
- Barley, S. R., 1990: The Alignment of Technology and Structure Through Roles and Networks. *Administrative Science Quarterly* 35, 61-103.
- Barras, R., 1986: Towards a Theory of Innovation in Services. *Research Policy* 15 (3), 161-173.
- Barry, A. Slater, D., 2002: Introduction: the technological economy. *Economy and Society* 31 (2) 175-193.
- Bartel, C.A. and Garud, R., 2009: Role of Narratives in Sustaining Organizational Innovation. *Organization Science* 20(1), 107–117.
- Barth, M., 2009: “Wir nennen es Kreativität”: Inszenierungen von “alter” und „neuer“ Arbeit in Werbebildern der Informations- und Kommunikationstechnologie. In: I. Götz, A. Wittel (eds.), *Prekär arbeiten, prekär leben. Kulturwissenschaftliche Perspektiven auf ein gesellschaftliches Phänomen*. Frankfurt, New York: Campus Verlag, 183-204.
- Bateson, G., 1955: “A Theory of Play and Fantasy”. In: G.Bateson, *Steps to an Ecology of Mind*. London: Intertext, 177-193.
- Beer, B., 2003: *Methoden und Techniken der Feldforschung*. Berlin: Reimer.
- Bengtsson, M. Knock, S., 2000: “Coopetition” in business networks – To cooperate and compete simultaneously. *Industrial Marketing Management* 29, 411-426.
- Bengtson, M. Mullern, T. Soderholm, A. Wahlin, N., 2007: *A Grammar of Organizing*. Cheltenham: Edward Elgar Publishing Ltd.
- Benson, J.K., 1975: The Interorganizational Network as Political Economy. *Administrative Science Quarterly* 20 (2), 229-249.
- Berger, P. Luckmann, T., 1966: *The social construction of reality. A treatise in the sociology of knowledge*. New York: Doubleday.
- Berger, P. Berger, B. Kellner, H., 1996: *Das Unbehagen in der Modernität*.

Frankfurt: Campus Verlag.

Berry, L.L., 1983: Relationship Marketing. In: American Marketing Association (ed.), *Emerging Perspectives on Services Marketing*. Chicago: AMA, 25-28.

Beverland, M. Lindgreen, A., 2010: What makes a good case study? A positivist review of qualitative case research published in *Industrial Marketing Management*, 1971-2006. *Industrial Marketing Management* 39, 56-63

Biemans, W.G. Makovec Brenčič, M. Malshe, A., 2010: Marketing–sales interface configurations in B2B firms. *Industrial Marketing Management* 39 , 183–194.

Binner, S., 2000: Trouble with Conjoint Methodology in International Industrial Markets. *Proceedings of the 8<sup>th</sup> Sawtooth Software Conference, Sequim*, 23-29.

Blazevic, V. Lievens, A., 2008: Managing innovation through customer coproduced knowledge in electronic services: An exploratory study. *Journal of the Academy of Marketing Science* 36(1), 138-151.

Blois, K.J., 2002: Business to business exchanges: a rich descriptive apparatus derived from MacNeil's and Menger's analyses. *Journal of Management Studies* 39 (4),528-551.

Blois, K.J. Ivens, B.S., 2006: Measuring relational norms: some methodological issues. *European Journal of Marketing* 40 (3/4), 352-365.

Blois, K.J. Ivens, B.S., 2007: Method issues in the measurement of relational norms. *Journal of Business Research* 60, 556–565.

Boari, C. Odorici, V. Zamarian, M., 2003: Clusters and rivalry: Does location really matter? *Scandinavian Journal of Management* 19, 467-489.

Bock, G. W. Zmud, R. W. Kim, Y. G. Lee, J. N., 2005: Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS Quarterly*, 29, 87–111.

Bogaschewsky, R., 1995: Vertikale Kooperationen. Erklärungsansätze der

- Transaktionskostentheorie und des Beziehungsmarketing. *Zeitschrift für betriebswirtschaftliche Forschung* 47 (35), 1-19.
- Boje, D. M., 1991: The storytelling organization: A study of storytelling performance in an office supply firm. *Administration Science Quarterly* 36, 106–126.
- Boje, D.M., 1995: Stories of the storytelling organization: A postmodern analysis of Disney as „Tamara-Land“. *Academy of Management Journal* 38 (4), 997-1035.
- Borghini, S. Carù, A. & Cova ,B., 2010: Representing BtoB reality in case study research: Challenges and new opportunities. *Industrial Marketing Management* 39, 16-24
- Boschma, R.A., 2005: Proximity and Innovation: A Critical Assessment. *Regional Studies* 39, 61-74.
- Bourdieu, P., 1970: Zur Soziologie der symbolischen Formen. Frankfurt: Suhrkamp.
- Bourdieu, P., 1976: *Entwurf einer Theorie der Praxis auf der ethnologischen Grundlage der kabyllischen Gesellschaft*. Frankfurt: Suhrkamp.
- Bourdieu, P., 1983: Ökonomisches Kapital, kulturelles Kapital, soziales Kapital. In Reinhard Keckel (Hg.), *Soziale Ungleichheit. Soziale Welt*, Sonderband 2,183-198.
- Bourdieu, P., 1987: *Die feinen Unterschiede. Kritik der gesellschaftlichen Urteilskraft*. Frankfurt: Suhrkamp.
- Bourdieu, P., 1989: Antworten auf einige Einwände. In, Klaus Eder (Hrsg.), *Klassenlage, Lebensstil und kulturelle Praxis: Beiträge zur Auseinandersetzung mit Pierre Bourdieus Klassentheorie*. Frankfurt: Suhrkamp, 395-410.
- Bourdieu, P., 2001: *Meditationen. Zur Kritik der scholastischen Vernunft*. Frankfurt/M: Suhrkamp.
- Bourdieu, P. Wacquant,L.J.D., 1996. *Reflexive Anthropologie*. Frankfurt:

Suhrkamp.

Bowen, D.E. Gilliland, S.W. Folger, R., 1999: HRM and service fairness: How being fair with employees spills over to customers. *Organizational Dynamics*, 27(3), 7-23.

Boyce, M.E., 1995: Collective centering and collective sense-making in the stories and storytelling of one organisation. *Organization Studies* 16(1), 107-137.

Boyce, M.E., 1996: Organizational story and storytelling: A critical review. *The Journal of Organizational Change Management* 9(5), 5-26.

Braun, Sarah (2010): „Niemand geht hier mit einem schlechtem Gefühl weg!“ Eine ethnografische Studie zu emotionaler Arbeit als Dienstleistung in einem Friseursalon. In: Irene, Götz/Huber, Birgit/Kleiner, Piritta (Hg.): *Arbeit in neuen Zeiten. Ethnografien zu Ein- und Aufbrüchen*. München, S. 125-147.

Bretschger, L., 2004: *Wachstumstheorie*. 3rd ed. München: Oldenbourg.

Brians, P. (editor), 1999: *Reading About the World*, Vol. 1, 3rd edition, Harcourt Brace College Publishing

Brito, C.M., 2001: Towards an institutional theory of the dynamics of industrial networks. *Journal of Business and Industrial Marketing* 16 (3), 150-166.

Brock, D. Junge, M. Diefenbach, H. Keller, R. Villányi, D., 2009: *Soziologische Paradigmen nach Talcott Parsons – Eine Einführung*. Wiesbaden: Verlag für Sozialwissenschaften.

Brockner, J. Siegel, P., 1996: Understanding the interaction between procedural and distributive justice: The role of trust. In: R.M. Kramer, T.R. Tyler, (eds.), *Trust in Organizations*. Thousand Oaks, CA: Sage, 390–413.

Bruhn, M., 2001: *Relationship-Marketing. Das Management von Kundenbeziehungen*. München: Vahlen.

Bruhn, M., 2004: *Qualitätsmanagement für Dienstleistungen: Grundlagen, Konzepte, Methoden*. Berlin: Springer Verlag.

Bruhn, M., 2009: *Relationship Marketing. Das Management von*



*Kundenbeziehungen*. München: Vahlen.

Bryman, A., 2001: *Ethnography*. Thousand Oaks, CA: Sage. 4 Vols.

Buchanan, J.M., 1975: Constitutional contract: The theory of law. *The limits of liberty. Between anarchy and Leviathan*. Chicago: University Press, chapter 4.

Budig, M.J., 2002: Male advantage and the gender composition of jobs: who rides the glass escalator? *Social Problems* 49 (2), 258-277.

Bullinger, H.-J. Meiren, T., 2001: Service Engineering –Entwicklung und Gestaltung von Dienstleistungen. In: M.Bruhn, H.Meffert (eds.), *Handbuch Dienstleistungsmanagement*. Wiesbaden: Gabler Verlag, 149-175.

Callon, M. Latour, B., 1981: Unscrewing the Big Leviathan ; or How Actors Macrostructure Reality and How Sociologists Help Them To Do So? in K. Cicourel (ed.), *Advances in Social Theory and Methodology : Toward an Integration of Micro and Macro-Sociologies*, London, Routledge.

Callon, M. Meadel, C. Rabeharisoa, V., 2002: The economy of qualities. *Economy and Society* 2 (31), 194-217.

Callon, M. Millo, Y. Muniesa, F. 2007: *Market devices*. Malden, MA: Blackwell Publishers.

Campbell, M.C., 2007: "Says Who?!" How the Source of Price Information and Affect Influence Perceived Price (Un)Fairness. *Journal of Marketing Research* 44, 261–271.

Cartwright, E. Wooders, M., 2007: *Conformity, equity and correlated equilibrium*. [Online] Available at [147.46.167.195/upload/contents/Nega\\_kts\\_semi\\_124.pdf](http://147.46.167.195/upload/contents/Nega_kts_semi_124.pdf) accessed 6.2.2013.

Carlile, P., 2002: A pragmatic view of knowledge and boundaries: Boundary objects in new product development. *Organization Science* 13(4), 442-455.

Carlile, P.R., 2004: Transferring, Translating, and Transforming: An Integrative Framework for Managing Knowledge Across Boundaries.

- Organization Science* 15(5), 555-568.
- Cavalli, N., 2007: The Symbolic Dimension of Innovation Processes. *American Behavioral Scientist* 50, 958-969.
- Checkland, P., 1981: *Systems Thinking, Systems Practice*. Chichester: Wiley.
- Checkland, P., 1985: From optimizing to learning: A development of systems thinking for the 1990s. *Journal of Operational Research in Sociology* 36(9), 757-767.
- Checkland, P., 1991: From Framework Through Experience to Learning: The Essential Nature of Action Research, in: Nissen, H.E.; Klein, H.K.; Hirschheim, R. (Hrsg.): *Information Systems Research: Contemporary Approaches and Emergent Traditions*, Amsterdam: Elsevier, S. 397-403.
- Checkland, P. Holwell, S., 1998: Action Research. Nature and Validity. *Systemic Practice and Action Research* 11 (1), 9-21.
- Checkland, P., 2000: Soft systems methodology: a thirty year retrospective. *Systems Research in Behavioural Science* 17, 11–58.
- Checkland P (2006) Reply to Eden and Ackermann: any future for problem structuring methods? *Journal of the Operations Research Society* 57(7),769–771.
- Chen, J.S. Tsou, H.T., 2012: Performance effects of IT capability, service process innovation, and the mediating role of customer service. *Journal of Engineering and Technology Management* 29 (1), 71-94.
- Christiansen, C., 1997: *The innovators' dilemma: When new technologies cause great firms to fail*. Cambridge: Harvard Business School Press.
- Claessens, D., 1974: *Rolle und Macht*. München: Juventa.
- Claycomb, C. Frankwick, G.L., 2010: Buyers' perspectives of buyer-seller relationship development. *Industrial Marketing Management* 39 , 252–263.
- Coase, R. H., 1937: The Nature of the Firm. *Economica, New Series* 4(16), 386-405.
- Cobb, C.W. Douglas, P.H., 1928: A Theory of Production. *American*

*Economic Review* 18 (1), 139-165.

Cohen-Charash, Y. Spector, P.E., 2001: The role of justice in organizations: A meta-analysis. *Organizational Behaviour and Human Decision Processes* 86, 278-321.

Colapietro, V., 2009: A Revised Portrait of Human Agency: A Critical Engagement with Hans Joas's Creative Appropriation of the Pragmatic Approach. *European Journal of Pragmatism and American Philosophy* 1 (1).

Colquitt, J.A., 2001: On the dimensionality of organizational justice: a construct validation of a measure. *Journal of Applied Psychology* 86, 386-400.

Colquitt, J.A. Conlon, D.E. Wesson, M.J. Porter, C.O.L.H. Ng, K.Y., 2001: Justice at the millennium. A meta-analytic review of 25 years of organizational justice research. *Journal of Applied Psychology* 86 (3), 425-445.

Coleville, I. Pye, A., 2010: A sensemaking perspective on network pictures. *Industrial Marketing Management* 39, 372–380

Cooke, P., 2001: Regional innovation systems, clusters, and the knowledge economy. *Industrial and Corporate Change* 10 (4), 945-974.

Cooper, R. Burrell, G., 1988: Modernism, Postmodernism and Organizational Analysis: An Introduction. *Organization Studies* 9 (1), 91-112.

Corsaro, D. Ramos, C. Henneberg, S.C. Naudé, P., 2010: Actor network pictures and networking activities in business networks: An exploratory empirical study. *Proceedings of the 26<sup>th</sup> IMP Conference, Budapest*.

Corsaro, D. Snehota, I., 2011: Alignment and Misalignment in Business Relationships. *Industrial Marketing Management* 40(6), 1042-1054.

Corsaro, D. Cantù, C. Tunisini, A., 2012: Actors' Heterogeneity in Innovation Networks. *Industrial Marketing Management* 41 (4), 669–679.

Corsaro, D. Snehota I., 2012: Perceptions of Change in Business Relationships and Networks. *Industrial Marketing Management* 41, 270–286.

- Corsten, H., 2001: Dienstleistungsmanagement. München: Oldenburg Verlag.
- Cova, B. Ford D. Salle R., 2008: Marketing solutions in accordance with the S-D logic: Co-creating value with customer network actors. *Industrial Marketing Management* 37 (3), 270-277.
- Cova, B. Ford D. Salle R. 2009: Academic brands and their impact on scientific endeavour: The case of business market research and researchers, *Industrial Marketing Management* 38, 570–576
- Crook, T.R. Coombs, J.G., 2007: Sources and consequences of bargaining power in supply chains. *Journal of Operations Management* 25, 546-555.
- Cropanzano, R. Byrne, Z.S. Bobocell, D.R. Rupp, D.E., 2001: Moral Virtues, Fairness Heuristics, Social Entities, and Other Denizens of Organizational Justice. *Journal of Vocational Behavior* 58, 164–209.
- Crowther, P. Donlan, L., 2011: Value-creation space: The role of events in a service-dominant marketing paradigm. *Journal of Marketing Management* 27 (13-14), 1444-1463.
- Czarniawska-Joerges, B., 1995: Autobiographical acts and organizational identities. In S.Linstead, R. Grafton-Small, P. Jeffcutt (eds.), *Understanding management*. London: Sage.
- Czarniawska, B., 1997: *Narrating the Organization: Dramas of Institutional Identity*. Chicago: University of Chicago Press.
- Czarniawska, B., 2004: On time, space, and action nets. *Organization* 11(6), 773-791.
- Dacin, T. Reid, D. Ring, P.S., 2008: Alliances and joint ventures: The role of partner selection from an embeddedness perspective. In: S. Cropper, M. Ebers, C. Huxham, P.S. Ring (eds.), *The Oxford handbook of interorganizational relations*. Oxford: Oxford University Press, 90-117.
- Damanpour, F. Gopalakrishnan, S., 1999: Organizational adaption and innovation: The dynamics of adopting innovation types. In: K. Brockhoff, A.K.

- Chakrabarti, J. Hauschildt (eds.), *The dynamics of innovation: Strategic and managerial implications*. Berlin: Springer, 57-84.
- Darwin, C., 1859: *The Origin of Species by Means of Natural Selection, or The Preservation of Favoured Races in the Struggle for Life*. London: John Murray.
- Davenport, T.H. Short, J.E., 1990: The new industrial engineering. Information technology and business process redesign. *Sloan Management Review* 34 (1), 1-46.
- Davies, A., 2003: Integrated solutions: the changing business of systems integration. In: A. Davies, M. Hobday and A. Prencipe (eds.), *The Business of Systems Integration*. Oxford: Oxford University Press, 333-373.
- Davies, A., 2004: Moving base into high-value integrated solutions: a value stream approach. *Industrial and Corporate Change* 13 (5), 727-756
- Davies, A. Brady, T. Hobday, M., 2006: Charting a Path Toward Integrated Solutions. *MIT Sloan Management Review* 47 (3), 39-48.
- Davis, C.J. Tremblay, M.C. Fuller, R.M. Berndt, D.J., 2006: Communication challenges in requirements elicitation and the use of the Repertory Grid technique. *Journal of Computer Information Systems, Special Issue*, 78-86.
- Dawes, R. M., 1998: Behavioral decision making and judgment. In: D. T. Gilbert, S. T. Fiske, G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 1). Boston: McGraw-Hill, 497-548.
- De Cuyper, N. Van der Heijden, B. De Witte, H., 2011: Associations between perceived employability, employee well-being, and its contribution to organizational success: a matter of psychological contracts? *International Journal of Human Resource Management* 22 (7), 1486-1503.
- De Man, A.-P. Roijackers, N., 2009: Alliance governance: Balancing control and trust in dealing with risk. *Long Range Planning* 42, 75-95.
- Demes, H., 1989: Die pyramidenförmige Struktur der japanischen Automobilindustrie und die Zusammenarbeit zwischen Endherstellern und

- Zulieferindustrie. In: N. Altmann, D. Sauer (eds.), *Systemische Rationalisierung und Zulieferindustrie*. Frankfurt, New York: Campus Verlag, 251-297.
- Denzin, N.K., 2001. *Interpretive Interactionism*. London: Sage Publications. Ch.6 (Doing interpretation), pp. 119-142
- Denzin, N.K. Lincoln, Y.S., 1994: *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- De Rond, M. Bouchiki, H., 2004: On the dialectics of strategic alliances. *Organization Science* 15 (1), 56-69.
- Dewey, J., 1910: *Wie wir denken*. Translated from English by R. Horlacher and J. Oelkers, 2002. Zürich: Verlag Pestalozzianum.
- Dewey, J., 1925: *Erfahrung und Natur*. Translated from English by M. Suhr, 2007. Frankfurt: Suhrkamp.
- Diathesopoulos, M., 2010: *Relational contract theory and management contracts: A paradigm for the application of the Theory of the Norms*. [Online] Available at [mpra.ub.uni-muenchen.de/24028](http://mpra.ub.uni-muenchen.de/24028). Accessed 6.2.2013.
- Disselkamp-Niewiarra, S., 2000: Rekonstruktion subjektiver Gewalttheorien von Jugendlichen. In: K. Kraimer (ed.) *Die Fallrekonstruktion. Sinnverstehen in der sozialwissenschaftlichen Forschung*. Frankfurt am Main: Suhrkamp.
- Diller, H., 1995: Beziehungs-Marketing. *Wirtschaftswissenschaftliches Studium* 24 (9), 442-447.
- Dirksmeier, P., 2007: Mit Bourdieu gegen Bourdieu empirisch denken: Habitusanalyse mittels reflexiver Fotografie. *ACME: An International E-Journal for Critical Geographies* 6(1), 73-97.
- Dobrzynska, M.M., 2010: Lässig Probleme lösen. Das Berufsprofil eines Softwareentwicklers in einem IT-Unternehmen. In: I. Götz, B. Huber, P. Kleiner (eds.), *Arbeit in "neuen Zeiten". Ethnografien und Reportagen zu Ein- und Aufbrüchen. Münchner Ethnographische Schriften 7*. München: Herbert Utz Verlag, 177-188.

- Doloreux, D., 2004: Regional innovation systems in Canada: a comparative study. *Regional Studies* 38 (5), 481-494.
- Dolwick, J.S., 2009: 'The Social' and Beyond: Introducing Actor-Network Theory. *Journal of Maritime Archeology* 4, 21–49.
- Donaldson, T. Dunfee, T.W., 1996: Towards a unified conception of business ethics: integrated social contracts theory. *Academy of Management Review* 19 (2), 252-284.
- Dougherty, D.S. Drumheller, K., 2006: Sensemaking and emotions in organizations: accounting for emotions in a rational(ized) context. *Communication Studies* 57, 215-238.
- Dubois, A. Gibbert, M., 2010: From complexity to transparency: managing the interplay between theory, method and empirical phenomena in IMM case studies. *Industrial Marketing Management* 39, 129-136.
- Durkheim, E., 1965: *Die Regeln der soziologischen Methode*. Neuwied: Luchterhand.
- Dux, G., 2008: *Warum denn Gerechtigkeit. Die Logik des Kapitals. Die Politik im Widerstreit mit der Ökonomie*. Weilerswist: Velbrück Wissenschaft.
- Dyer, J. Chu, W., 2003: The role of trustworthiness in reducing transaction costs and improving performance: Empirical evidence from the United States, Japan, and Korea. *Organizational Science* 14, 54-68.
- Dwyer, F.R. Schurr, P.H. Oh, S., 1987: Developing Buyer-Seller Relationships. *Journal of Marketing* 51(2), 11-27.
- Eberle, T.S., 1999: Die methodologische Grundlegung der interpretativen Sozialforschung durch die phänomenologische Lebensweltanalyse von Alfred Schütz. *Österreichische Zeitschrift für Soziologie* 24 (4), 65-90.
- Eden, C. Ackermann, F., 2006: Where next for problem structuring methods. *Journal of the Operations Research Society* 57(7), 766–768.
- Eder, K. (ed.), 1989: *Klassenlage, Lebensstil und kulturelle Praxis. Theoretische und empirische Beiträge zur Auseinandersetzung mit Pierre*

*Bourdieu's Klassentheorie*. Frankfurt: Suhrkamp.

Eggert, A. Ulaga, W. Schultz, F., 2006: Value creation in the relationship life cycle: A quasi-longitudinal analysis. *Industrial Marketing Management* 35, 20 – 27.

Eisenhardt, K., 1989: Building theories from case study research. *Academy of Management Review* 14 (4), 532-550.

Eisenhardt, K.M. Martin, J.A., 2000: Dynamic capabilities: What are they? *Strategic Management Journal* 21 (10/11), 1105-1121.

Ellis, N. Hopkinson, G., 2010: The construction of managerial knowledge in business networks: Managers' theories about communication. *Industrial Marketing Management* 39 , 413–424

Ellram, L.M. Tate, W.J. Billington, C., 2008: Offshore outsourcing of professional services: a transaction cost economics perspective. *Journal of Operations Management* 26 (2), 148-163.

El-Mafaalani, A. Wirtz, S., 2011: Wie viel Psychologie steckt im Habitusbegriff? Pierre Bourdieu und die »verstehende Psychologie. *Journal für Psychologie* 19 (1).

Emerson, R. M. Fretz, R.I. Shaw, L.L., 1995: *Writing Ethnographic Fieldnotes*. Chicago, London: Chicago University Press.

Endreß, M., 2006: *Alfred Schütz*. Konstanz: uvk Verlag.

Engelmann, D. Strobel, M., 2004: Inequality Aversion, Efficiency, and Maximin Preferences in Simple Distribution Experiments. *The American Economic Review* 857-869.

Falk, A. Fehr, E. Fischbacher, U., 2003: On the Nature of Fair Behavior. *Economic Inquiry* 41(1), 20-26.

Fang, Y.H. Chiu, C.M., 2010: In justice we trust: Exploring knowledge-sharing continuance intentions in virtual communities of practice. *Computers in Human Behavior* 26, 235–246.

Fang, S.R. Fang, S.C. Chou, C.H. Yang, S.M. Tsai, F.S., 2011: Relationship



- learning and innovation: The role of relationship-specific memory. *Industrial Marketing Management* 40, 743-753.
- Feinman, J. M., 2000: Relational contract theory in context. *Northwestern University Law Review*, 94 (3), 737–48.
- Feldman, F., 2000: Basic intrinsic value. *Philosophical Studies* 99, 319-346.
- Fetchenhauer, D. Goldschmidt, N. Hradil, S. Liebig, S., 2010: *Warum ist Gerechtigkeit wichtig? Antworten der empirischen Gerechtigkeitsforschung*. München: Roman Herzog Institut.
- Feyerabend, P., 1976: *Wider den Methodenzwang*. Frankfurt: Suhrkamp.
- Fiedler, F. E., 1967: *A Theory of Leadership Effectiveness*. New York: McGraw-Hill.
- Finch, J. Geiger, S., 2010: Positioning and relating: Market boundaries and the slippery identity of the marketing object. *Marketing Theory* 10 (3), 237-251.
- Finch, Geiger, 2010: Markets are trading zones. In: L. Araujo, J. Finch, H. Kjellberg, (eds): *Reconnecting marketing to markets*. Oxford: University Press, 117-137.
- Fiske, A. P., 1993: *Structures of Social Life. The Four Elementary Forms of Human Relations*. New York: Free Press.
- Fletcher, R. Barrett, N., 2001: Embeddedness and the evolution of global networks. *Industrial Marketing Management* 30 (7), 561-573.
- Flick, U., 2008. *Triangulation: Eine Einführung*. 2nd ed. VS Verlag für Sozialwissenschaften, Wiesbaden.
- Foggin, J.H.; Signori, P.; Monroe, C.L., 2007: Diagnosing the Supply Chain. In: Mentzer, J.T; Myers, M.B.; Stank, Theodore P.(eds.), *Handbook of Global Supply Chain Management*. London: Sage Publications.
- Folger, R., 2001: Fairness as deonance. In: S. Gilliland, D. Steiner, D. and D. Skarlicki (Eds.), *Theoretical and Cultural Perspectives on Organizational Justice*. Greenwich, CT: IAP, 3-34.

- Folger, R. Konovsky, M.A., 1989: Effects of procedural and distributive justice on reactions to pay rise decision. *Academy of Management Journal* 31 (1), 115-130.
- Ford, D., 1980: The Development of Buyer-Seller Relationships in Industrial Markets. *European Journal of Marketing* 14(5/6), 339-353.
- Ford, D. (ed.), 1990: *Understanding Business Markets. Interaction, Relationships and Networks*. London: Academic Press.
- Ford, D. and Håkansson, H. (2006) "The Idea of Interaction", *The IMP Journal*, 1 (1), 4-27.
- Ford, D. Gadde, L.-E. Håkansson, H. Snehota, I., 2002: Managing Networks. *Proceedings of the 18th IMP Conference*, Perth, Australia.
- Ford, D., 2008: IMP and SDL: Divergence, convergence and development. *Otago Forum 2 – Academic Papers* 8.
- Ford, D. Gadde, L.-E. Håkansson, H. Snehota, I. Waluszewski, A., 2010: Analysing Business Interaction. *IMP Journal* 4(1), 82-105.
- Ford, D. Mouzas, S., 2010: Networking under uncertainty: Concepts and research agenda. *Industrial Marketing Management* 39, 956-962.
- Ford, D., 2011: IMP and service-dominant logic: Divergence, convergence and development. *Industrial Marketing Management* 40, 231-239.
- Ford, D., 2011a: Personal Communication. *28<sup>th</sup> Annual IMP Conference*, Glasgow: University of Strathclyde.
- Ford, D. Mouzas, S., 2012: Theory and Practice of Business Interaction. *Industrial Marketing Management*, ISSN 0019-8501 (In Press).
- Frehse, J., 2002: *Internationale Dienstleistungskompetenzen: Erfolgsstrategien für die europäische Hotellerie*. Wiesbaden: Gabler Verlag.
- French, J.R.P. Raven, B., 1959: The bases of social power. In: D. Cartwright (ed.), *Studies in social power*. Michigan: University of Michigan Press, 150-167.
- Frenkel, M. Hemmer, H-R., 1999: *Grundlagen der Wachstumstheorie*.

München: Vahlen, 33-35.

Fuchs-Heinritz, W. König, A., 2005: *Pierre Bourdieu. Eine Einführung*.  
Konstanz: uvk Verlag.

Gadrey, J., 2000: The characterization of goods and services: an alternative approach. *Review of Income and Wealth* 46 (3), 369-387.

Galbraith, J.R., 1998: Designing the networked organization. In: S.A. Mohrmann, J.R. Galbraith, E.E. Lawler III (eds.), *Tomorrow's organization. Crafting winning capabilities in a dynamic world*. San Francisco: Jossey-Bass, 76-102.

Garfinkel, H., 1967: *Studies in Ethnomethodology*. New Jersey: Englewood Cliffs.

Garfinkel, H., 1973: Studien über die Routinehandlungen von Alltagshandeln. In: H.Steinert (ed.), *Symbolische Interaktion. Arbeiten zu einer reflexiven Soziologie*. Stuttgart: Klett, 280-293.

Garfinkel, H., 1980: Das Alltagswissen über soziale und innerhalb sozialer Strukturen. In: Arbeitsgruppe Bielefelder Soziologen (eds.), *Alltagswissen, Interaktion und gesellschaftliche Wirklichkeit*. Opladen: Westdeutscher Verlag, 189-210.

Garfinkel, H., 1990: A Conception of, and Experiments with, „Trust“ as a Condition of Stable Concerted Actions. In: J. Coulter (ed.), *Ethnomethodological Sociology*. Aldershot: Elgar Publishing, 3-54.

Garfinkel, H. Sacks, 1976: Über formale Strukturen praktischer Handlungen. In: E.Weingarten, F.Sack, J.Schenkein (eds.), *Ethnomethodologie. Beiträge zu einer Soziologie des Alltagshandelns*. Frankfurt: Suhrkamp, 130-178.

Gartner, 2003: *Understanding Gartner's hype cycles*. [Online] Available at <http://www.ask-force.org/web/Discourse/Linden-HypeCycle-2003.pdf>. Accessed 4.12.2012.

Gavalas, D. Greenwood, D. Ghanbari, M. O'Mahony, M., 2000: Advanced network monitoring applications based on mobile/intelligent agent technology.

*Computer Communications* 23 (8), 720-730.

Gebauer, H., 2008: Identifying service strategies in product manufacturing companies by exploring environment–strategy configurations. *Industrial Marketing Management* 37, 278–291.

Geertz, C., 1973: *Dichte Beschreibung: Beiträge zum Verstehen kultureller Systeme*. Translated from English by R. Bindemann and B. Luchesi. Frankfurt: Suhrkamp.

Geiger, S. Finch, J., 2009: Industrial Sales People as Market Actors. *Industrial Marketing Management* 38, 608–617.

Geiger, S. Finch, J., 2010: Networks of mind and networks of organizations: The map metaphor in business network research. *Industrial Marketing Management* 39 (3), 381–389.

Geiger, S. Finch, J., 2011: Buyer-Seller interactions in mature industrial markets. *Journal of Personal Selling & Sales Management* 31 (3), 255–268.

Geum, Y. Lee, S. Kang, D. Park, Y., 2011: Technology roadmapping for technology-based product–service integration: A case study. *Journal of Engineering and Technology Management* 28 (3), 128–146.

Gibbert, M. Ruigrok, W. Wicki, B., 2008: What passes as a rigorous case study? *Strategic Management Journal* 29, 1465–1474.

Gill, J. Johnson, P., 2002: *Research Methods for Managers*. London: Sage.

Gilliland, S., 2008: The tails of justice: A critical examination of the dimensionality of organizational justice constructs. *Human Resource Management Review* 18, 271–281.

Gioia, D.A. Chittipeddi, K., 1991: Sensemaking and sensegiving in strategic change initiation. *Strategic Management Journal* 12, 433-448.

Glaser, B.G. Strauss, A.L., 2005: *Grounded Theory. Strategien qualitativer Forschung*. 2., korr. Aufl. Bern: Huber.

Goetz, C.J. Scott, R.E., 1983: The Mitigation Principle: Toward a General Theory of Contractual Obligation. *Virginia Law Review* 69 (5), 967-68.

- Goffin, K. New, C., 2001: Customer support and new product development – An exploratory study. *International Journal of Operations & Production Management*, 21 (3), 275-301.
- Goffman, E., 1959: *Wir alle spielen Theater – Die Selbstdarstellung im Alltag*. Translated from English by P. Weber-Schäfer, 2010. München: Piper.
- Goffman, E., 1977: *Rahmen-Analyse. Ein Versuch über die Organisation von Alltagserfahrungen*. Translated by H. Vetter. Frankfurt: Suhrkamp.
- Goffman, E., 1981: *Strategische Interaktion*. München: Hanser.
- Goffman, E., 1994: Die Interaktionsordnung. In: E.Goffman (ed.), *Interaktion und Geschlecht*. Konstanz: uvk Verlag, 50-104.
- Goodson, R.E., 2002: Read a plant fast. *Harvard Business Review*, 105-113.
- Granovetter, M., 1985: Economic action and social structure: the problem of embeddedness. *American Journal of Sociology* 91 (3), 481-510.
- Granovetter, M., 2005: The Impact of Social Structure on Economic Outcomes. *The Journal of Economic Perspectives* 19 (1), 33-50.
- Griffith, D.A. Harvey. M.G. Lusch, R.F., 2006: Social exchange in supply chain relationships: the resulting benefits of procedural and distributive justice. *Journal of Operations Management* 24 (2), 85-98.
- Grönroos, C., 2008: Service logic revisited: who creates value? And who co-creates? *European Business Review* 20 (4), 298-314.
- Grönroos, C., 2011: A service perspective on business relationships: The value creation, interaction and marketing interface. *Industrial Marketing Management* 40, 240-247.
- Grönroos, C. Ravald, A., 2011: Service as business logic: implications for value creation and marketing. *Journal of Service Management* 22 (1), 5-22.
- Groh, D., 1992: Pierre Bourdieus „allgemeine Wissenschaft der Ökonomie praktischer Handlungen. In: D.Groh (ed.), *Anthropologische Dimensionen der Geschichte*. Frankfurt: Suhrkamp, 15-26.
- Groth, T., 2003: *Enactment*. In: T.M. Bardemann, A. Lamprecht (eds.):

Systemisches Management multimedial. Heidelberg: Institut für Systemische Arbeiten.

Gu, F.F. Wang, D.T., 2011: The role of program fairness in asymmetrical channel relationships. *Industrial Marketing Management*. 40, 1368–1376.

Habermas, J., Luhmann, N., 1971: *Theorie der Gesellschaft oder Sozialtechnologie – was leistet die Systemforschung?* Frankfurt: Suhrkamp.

Habermas, J., 1985: *Der philosophische Diskurs der Moderne*. Frankfurt/Main: Suhrkamp.

Hagedoorn, J. Schakenraad, J., 1994: The Effect of Strategic Technology Alliances on Company Performance. *Strategic Management Journal* 15 (4), 291-309.

Hahn, C. Brandt, A. Kiese, M. Krätke, S., 2008: Netzwerkanalyse in der Wissensökonomie. *Regionalpolitik* 1, 41-53.

Haidt, J., 2001: The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment. *Psychological Review* 108, 814–34.

Hald, K.S. Cordón, C. Vollmann, T.E., 2009: Towards an understanding of attraction in buyer-supplier relationships. *Industrial Marketing Management* 38, 960-970.

Halinen, A. Salmi, A. Havila, V., 1999: From dyadic change to changing business networks: an analytical framework. *Journal of Management Studies* 36:6, 779-794.

Halinen, A. Törnroos, J.-A., 2005: Using case methods in the study of contemporary business networks. *Journal of Business Research* 58, 1285-1297.

Hamel, G., 1999: Bringing Silicon Valley inside. *Harvard Business Review* 77 (5), 71-84.

Hamel, G., 2000: *Leading the revolution*. New York: Plume.

Harrison, D., 2004: Is a Long-term Business Relationship an Implied Contract? Two Views of Relationship Disengagement. *Journal of*

*Management Studies* 41 (1), 107-125.

Harrison, D. Kjellberg, H., 2010: Segmenting a market in the making: Industrial market segmentation as construction, *Industrial Marketing Management* 39 (5), 784–792.

Hasse, R., 2003: *Die Innovationsfähigkeit der Organisations-Gesellschaft – Organisation, Wettbewerb und sozialer Wandel aus institutionentheoretischer Sicht*. Wiesbaden: VS Verlag für Sozialwissenschaften.

Hauschildt, J. Salomo, S., 2007: *Innovationsmanagement. 4. Auflage*. München: Gabler Verlag.

Helmhout, J.M. Gazendam, H.W.M. Jorna, R.J., 2004: Virtual, Distributed and Flexible Organisations: Studies in Organisational Semiotics, in: *Social construct and boundedly rational actors: A simulation framework*. Dordrecht: Kluwer Academic Publishers, 153.179.

Henneberg, S., Mouzas, S., & Naudé, P., 2006: Network Pictures: Concepts and Representations. *European Journal of Marketing*, 40(3/4), 408-429.

Henneberg, S.C. Naudé, P. Mouzas, S., 2010: Sense-making and management in business networks — some observations, considerations, and a research agenda. *Industrial Marketing Management* 39 , 355–360

Heuer, L. Stoessner, S.J., 2011: The multi-value basis of procedural justice. *Journal of Experimental Social Psychology* 47, 541–553.

Higgins, E.T., 1998: Promotion and prevention: regulatory focus as a motivational principle. In: M.P. Zanna (ed), *Advances in Experimental Social Psychology*. New York: Academic Press, 1-46.

Hirschauer, S. Amann, K., 1997: *Die Befremdung der eigenen Kultur. Zur ethnographischen Herausforderung soziologischer Empirie*. Frankfurt am Main: Suhrkamp.

Hirschauer, S., 2006: Wie geht Bewerten? Zu einer anderen Evaluationsforschung. In: U.Flick (ed.), *Qualitative Evaluationsforschung. Konzepte, Methoden, Umsetzungen*. Hamburg: Rohwolt, 405-423.

- Hofstede, G., 2001: *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd ed.). Thousand Oaks, CA: Sage.
- Hoholm, T. Araujo, L., 2011: Studying innovation processes in real-time: The promises and challenges of ethnography. *Industrial Marketing Management* 40 (6), 933-939.
- Holmen, E. Pedersen, A.-C., 2003: Strategizing through analyzing and influencing the network horizon. *Industrial Marketing Management* 32(5), 409-418.
- Homburg, C. Hoyer, W.D. Koschate, N., 2005: Customers' Reactions to Price Increases: Do Customer Satisfaction and Perceived Motive Fairness Matter? *Journal of the Academy of Marketing Science* 33 (1), 36-49.
- Hornych, C. Brachert, M., 2010: Unternehmensnetzwerke in der Photovoltaik-Industrie – starke Verbundenheit und hohe Kooperationsintensität. *Wirtschaft im Wandel* 1, 57-64.
- Horváth, P., 2006: *Controlling*. München: Vahlen Verlag.
- Houser, N., 2006: *Peirce's Contrite Fallibilism. Semiotics and Philosophy in Charles Sanders Peirce*. Newcastle: Cambridge Scholars Press.
- Howard, M. B. and Caldwell, N. D. , 2010: Introduction. In: N.D. Caldwell, M.B. Howard, M.B. (Eds), *Procuring Complex Performance: Studies of Innovation in Product Service Management*. New York: Routledge/Taylor & Francis.
- Hubbell, A. P. Chory-Assad, R. M., 2005: Motivating factors: Perceptions of justice and their relationship with managerial and organizational trust. *Communication Studies* 56, 47–70.
- Hulthén, K. Mattson, L.-G., 2010: Distribution network dynamics: Evolution in the PC distribution network. *IMP Journal* 4(1), 170-193.
- Hung, H.M., 2010: Reconciling the paradox of supply-side and demand-side strategies in industrial innovation. *Industrial Marketing Management* 39, 342–



350.

Husserl, E., 1935: *Die Lebenswelt: Auslegungen der vorgegebenen Welt und ihrer Konstitution. Texte aus dem Nachlass (1916-1937)* (Husserliana: Edmund Husserl - Gesammelte Werke). Edited by R. Sowa, 2008. Berlin: Springer.

Husserl, E., 1954: *Die Krisis der Europäischen Wissenschaften und die transzendente Phänomenologie*. Hamburg: Meiner.

Hutchinson, D. Wellington, W.J. Saad, M. Cox, P., 2011: Refining value-based differentiation in business relationships: A study of the higher order relationship building blocks that influence behavioural intentions. *Industrial Marketing Management* 40, 465-478.

Håkansson, H., & Johanson, J., 1988: Formal and informal cooperation strategies in international industrial networks. In: F. J. Contractor, P. Lorange (eds.), *Cooperative strategies in international business*. Lexington, MA: Lexington Books.

Håkansson, H., Snehota, I., 1989: No business is an island: the network concept of business strategy. *Scandinavian Journal of Management* 5 (3), 187-200.

Håkansson, H. Johanson, J., 1992: A Model of Industrial Networks. In: B. Axelsson, G. Easton (eds): *Industrial Networks. A New View of Reality*. London: Routledge, 28-34.

Håkansson, H., and Snehota, I., 1995: *Developing Relationships in Business Networks*. London: Routledge.

Håkansson, H. Ford, D., 2002: How Should Companies Interact in Business Networks? *Journal of Business Research*, 55, 133-139.

Håkansson, H. Waluzewski, A., 2002: *Managing Technological Development*. London: Routledge.

Håkansson, H., Snehota, I., 2006: No business is an island: the network concept of business strategy. *Scandinavian Journal of Management* 22, 256-

270.

Håkansson, H., Snehota, I., 2006b: No business is an island: 17 years later. *Scandinavian Journal of Management* 22, 271-274.

Håkansson, H. Ford, D. Gadde, L. E. Snehota, I. Waluszewski, A., 2009: *Business in Networks*. Chichester: Wiley and Sons.

IMP Group, 2002: An interaction approach. In D. Ford (Ed.), *Understanding Business Markets*. London: Thompson Learning, 19-34.

Irlenbusch, B., 2003: Auf der Suche nach Gerechtigkeit. Eine empirische Herangehensweise. *Zeitschrift für Wirtschaft und Unternehmensethik* 4/3, 351-371.

Ivens B.S. Blois, K.J., 2004: Relational exchange norms in marketing: a critical review of Macneil's contribution. *Marketing Theory* 4(3), 239–63.

Järvensivu, T. Törnroos, J.-Å., (2010) Case study research with moderate constructionism: Conceptualization and practical illustration. *Industrial Marketing Management* 39, 100–108.

Jacob, F. Ulaga, W., 2008: The transition from product to service in business markets: An agenda for academic inquiry. *Industrial Marketing Management* 37, 247–253.

James, W., 1950: What pragmatism means. In: G.Kennedy (ed.), *Pragmatism and American Culture*. Lexington: Heath & Co., 1-23.

Jehn, K.A. Mannix, E.A., 2001: The Dynamic Nature of Conflict: A Longitudinal Study of Intragroup Conflict and Group Performance. *The Academy of Management Journal* 44 (2), 238-251.

Joas, H., 1996: *The creativity of action*. Cambridge: Polity.

Joham, C. Metcalfe, M. Sastrowardoyo, S., 2009: Project conceptualization using pragmatic methods. *International Journal of Project Management* 27, 787–794.

Johanson, J. Mattson, L.-G., 1987: Interorganizational Relations. A Network Approach Compared to Transaction-Cost Approach. *International Studies of*

*Management and Organization* 17 (1), 34-48.

Johnson, T.R. Krems, J. Amra, N.K., 1994: A computational model of human abductive skills and its acquisition. In: A. Ram & K. Eiselt (Eds.), *Proceedings of the 16<sup>th</sup> annual conference of the cognitive science society*, 463-468.

Johnsen, R.E. Ford, D., 2001: Developing the Concept of Asymmetrical and Symmetrical Relationships: Linking Relationship Characteristics and Firms' Capabilities. *Proceedings of the 17<sup>th</sup> IMP conference, Oslo*.

Johnsen, R.E. Ford, D., 2007: Exploring the concept of asymmetry: A typology for analysing customer–supplier relationships. *Industrial Marketing Management* 37 (4), 471-483.

Johnson, M.E., 2006: Supply Chain Management: Technology, Globalization, and Policy at a Crossroads. *Interfaces* 36 (3), 191-193.

Kahneman, D. Knetsch, J.L. Thaler, R.H., 1986: Fairness as a constraint on profit seeking: entitlements in the market. *The American Economic Review* 76(4), 728-741.

Kale, P. Singh, H. Perlmutter, H., 2000: Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal* 21 (3), 217-237.

Kaplan, R. S. Anderson, S.R., 2003: *Time-Driven Activity-Based Costing*. Online at SSRN: <http://ssrn.com/abstract=485443>. Accessed 18.04.2011.

Karimi, J. Somers, T.M. Gupta, Y.P., 2001: Impact of Information Technology Management Practices on Customer Service. *Journal of Management Information Systems* 17 (4), 125-158.

Karlsson, C. Lovén, E., 2005: Managing new technology integration: integrating software in manufactured products. *International Journal of Innovation Management* 9 (3), 343-370.

Karlsson, L. Dahlstedt, A.G. Regnell, B. Natt och Dag, J. Persson, A., 2007: Requirements engineering challenges in market-driven software development – An interview study with practitioners. *Information and*

*Software Technology* 49 (6), 588-604.

Karlsson, C. Taylor, M. Taylor, A., 2010: Integrating new technology in established organizations. A mapping of integration mechanisms. *International Journal of Operations and Production Management* 30 (7), 672-699.

Kaufmann, P.J. Stern, L., 1988: Relational exchange norms, perceptions of unfairness, and retained hostility in commercial litigation. *Journal of Conflict Resolution* 32 (3), 534-552.

Keh, H.T. Xie, Y., 2009: Corporate reputation and customer behavioral intentions: The roles of trust, identification and commitment. *Industrial Marketing Management* 38, 732–742.

Kelly, G.A., 1955: *The psychology of personal constructs*. New York: Norton.

Keohane, R., 1986: Reciprocity in international relations. *International Organization* 40 (1), 1-27.

Kern, E., 1990: *Der Interaktionsansatz im Investitionsgütermarketing. Eine konfirmatorische Analyse*. Berlin: Duncker und Humblot.

Kernan, M.C. Hanges, P.J., 2002: Survivor reaction to reorganization: antecedents and consequences of procedural, interpersonal, and informational justice. *Journal of Applied Psychology* 87 (5), 916-928.

Kersten, W. Zink, T. Kern, E.-M., 2006: Wertschöpfungsnetzwerke zur Entwicklung und Produktion hybrider Produkte: Ansatzpunkte und Forschungsbedarf. In: Th. Blecker, H.-G. Gemünden, H.-G. (Hrsg.): *Wertschöpfungsnetzwerke. Festschrift für Bernd Kaluza*. Berlin: Verlag Erich Schmidt, 189-201.

Khandelwal, U. Bajpai, N., 2012: Price Fairness and Its Linear Dependence on Consumer Attitude: A Comparative Study in Metro and Non Metro City. *European Journal of Business and Management* 4(10), 94-101.

Kjellberg, H. Helgesson, C.-F., 2006: Multiple versions of markets: multiplicity and performativity in market practice. *Industrial Marketing Management* 35

(7), 839-855.

Klee, A., 2000: *Strategisches Beziehungsmanagement*. Aachen: Shaker Verlag.

Klendauer, R. Deller, J., 2009: Organizational justice and managerial commitment in corporate mergers. *Journal of Managerial Psychology* 24 (1), 29-45.

Knight, L. Pye, A., 2007: The search for network learning: Some practical and theoretical challenges in process research. In: T. Gössling, L. Oerlemans, R. Jansen (eds.), *Inside networks*. Cheltenham: Edward Elgar, 163-191.

Knyphausen-Aufseß, D. zu, 1999: Theoretische Perspektiven der Entwicklung von Regionalnetzwerken. *Zeitschrift für Betriebswirtschaft* 69 (5/6), 593-616.

Koka, B.R. Madhavan, R. Prescott, J.E., 2006: The Evolution of Interfirm Networks: Environmental Effects on Patterns of Network Change. *Academy of Management Review* 31 (3), 721-737.

Konovsky, M.A., 2000: Understanding Procedural Justice and Its Impact on Business Organizations. *Journal of Management* 26 (3), 489-511.

Krais, B. Gebauer, G., 2008: *Habitus*. 2<sup>nd</sup> ed. Bielefeld: transcript.

Kroggel, S., 2007: *John Rawls' Theorie der Gerechtigkeit von 1971 - Eine kritische Rekonstruktion der Herleitung der Rawlschen Gerechtigkeitsprinzipien*. München: Grin Verlag.

Kuhn, T.S., 1962. *Die Struktur wissenschaftlicher Revolutionen*. Translated from English by H. Vetter., 1976. Frankfurt am Main: Suhrkamp. Kern, E., 1990: *Der Interaktionsansatz im Investitionsgütermarketing*. Berlin: Duncker und Humblot.

Kumar, A. Balraj, V., 2006: SNMP for RFID Agent Middleware. *University of Arkansas CSCE Department RFID Agent Middleware Final Report*, Spring 2006.

Laaksonen, T. Pajunen, K. Kulmala, H., 2008: Co-evolution of trust and

- dependence in customer–supplier relationships. *Industrial Marketing Management* 37, 910.
- Langer, E.J., 1989: *Mindfulness*. Reading, MA: Addison-Wesley.
- Langlois, R.N., 2006: The secret life of mundane transaction costs. *Organization Studies* 27 (9), 1389-1410.
- Latour, B., 1986: Visualization and cognition: Thinking with eyes and hands. *Journal of Product Innovation Management* 23, 556-574.
- Leek, S. Mason, K., 2009: Network pictures: Building an holistic representation of a dyadic business-to-business relationship. *Industrial Marketing Management* 38, 599–607.
- Leek, S. Mason, K., 2010: The utilisation of network pictures to examine a company's employees' perceptions of a supplier relationship. *Industrial Marketing Management* 39, 400–412.
- Lerch, F. Sydow, J. Wilhelm, M., 2010: Zum Management von Netzwerkkoooperationen angesichts von Konkurrenz. In: J. Sydow (ed.), *Management von Netzwerkorganisationen*. Wiesbaden: Gabler Verlag, 218-235.
- Levin, J. McDowell, B., 1983: The Balance Theory of Contracts: Seeking Justice in Voluntary Obligations, *McGill Law Journal* 29, 24.
- Lewin, K., 1934: Der Richtungsbegriff in der Psychologie. Der spezielle und allgemeine Hodologische Raum. *Psychological Research* 19 (1), 249-299.
- Liebig, S., 1995: Gerechtigkeitsvorstellungen und Unternehmenskultur. Befunde zu den Bedingungen der Gerechtigkeitsbeurteilungen in Unternehmen. *Industrielle Beziehungen* 2 (4), 345-366.
- Liebig, S. Wegener, B., 1995: Primäre und sekundäre Ideologien: Ein Vergleich von Gerechtigkeitsvorstellungen in Deutschland und den USA. In: H.-P.Müller, B.Wegener (eds.), *Soziale Ungleichheit und soziale Gerechtigkeit*. Leverkusen: Leske und Budrich Verlag, 265-293.
- Lin, C. P., 2008: Clarifying the relationship between organizational citizenship

- behaviors, gender, and knowledge sharing in workplace organizations in Taiwan. *Journal of Business Psychology* 22, 241–250.
- Lin, Y. Shi, Y. Ma, S., 2012: Servitization Strategy: Priorities, Capabilities, and Organizational Features. *Service Science, Management, and Engineering*, 11-35.
- Lind, E.A. Lissak, R.I., 1986: Apparent Impropriety and Procedural Fairness Judgements. *Journal of Experimental Psychology* 21, 19.29.
- Lind, E. A., 2001: Fairness heuristics theory: Justice judgments as pivotal cognitions in organizational relations. In: J. Greenberg, R. Cropanzano (Eds.), *Advances in organizational justice*. Stanford, CA: Stanford University Press, 56–88.
- Lind, E.A. Tyler, T.R., 1988: *The Social Psychology of Procedural Justice*. Berlin: Springer.
- Lind, E.A. Kray, L., 2001: Primacy Effects in Justice Judgments: Testing Predictions from Fairness Heuristic Theory. *Organizational Behavior and Human Decision Processes* 85 (2), 189–210.
- Lindberg, N.Nordin, F., 2008: From products to services and back again: Towards a new service procurement logic. *Industrial Marketing Management* 37, 292–300.
- Lindner, R., 1990: *Die Entdeckung der Stadtkultur. Soziologie aus der Erfahrung der Reportage*. Frankfurt: Suhrkamp.
- Linton, R., 1979: *Mensch, Kultur, Gesellschaft*. Stuttgart: Hippokrates-Verlag.
- Liu, Y., 2009: Perceived organizational support and expatriate organizational citizenship behaviour. *Personnel Review* 38 (3), 307-319.
- Logistics IT, 2004: *Software AG Integrates DispoPilot into FleetBoard's Telematics Service*. [Online] Available at <http://www.logisticsit.com/articles/2004/10/06/341-software-ag-integrates-dispopilot-into-fleetboards-telematics> Accessed 25.9.2012.
- Lovelock, C. Gummesson, E., 2004: Whither Services Marketing? In Search

- of a Paradigm and Fresh Perspectives. *Journal of Service Research* 7 (1), 20-41.
- Lowe, S. Ellis, N. Purchase, S., 2008: Rethinking language in IMP research: Networking processes in other words. *Scandinavian Journal of Management* 24 (4), 295–307.
- Lowe, S. Hwang, K-S., 2012: A NICE agenda for IMP research. *Industrial Marketing Management* 41, 706-714.
- Luhmann, N., 1995: *Social Systems*. Palo Alto: Stanford University Press.
- Luhmann, N., 2000: *Organisation und Entscheidung*. Opladen: Westdeutscher Verlag.
- Lusch, R.F. Vargo, S.L., 2006: Service-Dominant Logic: Reactions, Reflections and Refinements. *Marketing Theory* 6 (3), 281-288.
- Lusch, R.F. Vargo, S.L. O'Brien, M., 2007: Competing through service: insights from service-dominant logic. *Journal of Retailing* 83 (1), 5-18.
- Lusch, R.F. Vargo, S.L. Wessels, G., 2008: Toward a conceptual foundation for service science: Contributions from service-dominant logic. *IBM Systems Journal* 47 (1), 5-14.
- Lusch, R.F. Vargo, S.L. Tanniru, M., 2010: Service, value networks and learning. *Journal of the Academy of Marketing Science* 38 (1), 19-31.
- Macdonald, E.K. Wilson, H. Martinez, V. Toossi, A., 2011: Assessing value-in-use: A conceptual framework and exploratory study. *Industrial Marketing Management* 40 (5), 671-682.
- Mackenzie, S.B. Podsakoff, P. Paine, J.B, 1999: Do citizenship behaviors matter more for managers than salespeople. *Journal of the Academy of marketing Science* 27(4), 396-410.
- Macneil, I.R., 1980: *The new social contract: an inquiry into modern contractual relations*. New Haven: Yale University Press.
- Macneil, I.R., 1985: Relational contract. What we do and do not know. *Wisconsin Law Review* 3, 483-526.



- Macneil, I.R., 2000: Relational contract theory: challenges and queries. *Northwestern University Law Review* 94 (3), 877-908.
- Macneil, I.R., 2001: Exchange and cooperation, in Campbell, D (editor) *The relational Theory of Contract: Selected Works of Ian Macneil*, Sweet and Maxwell, London, pp. 89-124.
- Madhavan, R. Koka, B.R. Prescott, J.E., 1998: Networks in Transition: How Industry Events (Re)Shape Interfirm Relationships. *Strategic Management Journal* 19, 439-459.
- Mai, R. Wünschmann, S. Wittig, K., 2008: *Zweistufige Messung der Zahlungsbereitschaft für hybride Produkte*. [Online] Available at [http://ibis.in.tum.de/mkwi08/11\\_Integration\\_von\\_Produkten\\_und\\_Dienstleistungen-Hybride%20Wertschoepfung/02\\_Mai.pdf](http://ibis.in.tum.de/mkwi08/11_Integration_von_Produkten_und_Dienstleistungen-Hybride%20Wertschoepfung/02_Mai.pdf). Accessed 3.4.2011.
- Mannheim, K., 1923: The problems of generations. In: K. Mannheim (ed.), *Essays on the sociology of knowledge*. 1952 Edition. London: RKP.
- March, J.G., 1991: Exploration and Exploitation in Organizational Learning. *Organization Science* 2, 71-87.
- Marx, K., 1962: *Marx, Karl, Friedrich Engels, Werke (MEW); Kapital I*. Berlin: Dietz.
- Mason, K., 2011: A commentary on “The role of actors in combining resources into complex solutions”. *Journal of Business Research* 65(2), 151-152.
- Matthyssens, P. Vandenbempt, K., 2008: Moving from basic offerings to value-added solutions: Strategies, barriers and alignment. *Industrial Marketing Management* 37, 316-328.
- Matthyssens, P. Vandenbempt, K. Weyns, S., 2009: Transitioning and co-evolving to upgrade value offerings: A competence-based marketing view. *Industrial Marketing Management* 38, 504–512.
- Matuschek, I. Arnold, K. Voß, G.G., 2007: *Subjektivierete Taylorisierung. Organisation und Praxis medienvermittelter Dienstleistungsarbeit*. Mehring:

Hampp.

McCluskey, M., 2004: How mature is your service operation? *Supply Chain Management Review* 8 (5), 17

Mead, G.H., 1934: *Mind Self and Society*. Chicago: University of Chicago Press.

Mead, G.H., 1980: Die soziale Identität. In: G.H.Mead, *Gesammelte Aufsätze, Bd.1*. Frankfurt: Suhrkamp, 241-249.

Meehan, J. Wright, G.H., 2012: The origins of power in buyer-seller relationships. *Industrial Marketing Management* 41 (4), 669-679.

Meffert, H. Bruhn, M., 2003: *Dienstleistungsmarketing: Grundlagen – Konzepte – Methoden*. Wiesbaden: Gabler Verlag.

Meffert, H., 2006: Marketing für innovative Dienstleistungen. In: H.-J. Bullinger, A.-W. Scheer (eds.), *Service Engineering: Entwicklung und Gestaltung innovativer Dienstleistungen*. Berlin: Springer Verlag, 249-270.

Meier, A., 2010: *Relationale und postrelationale Datenbanken*. 7<sup>th</sup> ed. Heidelberg: Springer.

Meier, H. Roy, R. Seliger, G., 2010: Industrial Product-Service Systems – IPS2. *CIRP Annals - Manufacturing Technology* 59 (2), 607-627.

Mele, C. Polese, F., 2011: Key Dimensions of Service Systems in Value-Creating Networks. *Service Science: Research and Innovations in the Service Economy*, 37-59.

Meyer, A., 1991: Dienstleistungs-Marketing. *Betriebswirtschaft* 51 (2), 195-202.

Meyer, C.B., 2001: Allocation processes in mergers and acquisitions: an organizational justice perspective. *British Journal of Management* 12 (1), 47-66.

Meyer, R. Walgenbach, P., 2007: *Neoinstitutionalistische Organisationstheorie*. Stuttgart: Kohlhammer.

Michel, S. Brown, S.W. Gallan, A.S., 2008: Service-Logic Innovations: How

To Innovate Customers, Not Products. *California Management Review* 50 (3), 49-65.

Mills, J.H., 2003: *Making Sense of Organizational Change*. London: Routledge.

Mische, A. White, H., 1998: Between conversation and situation: Public switching dynamics across network domains. *Social Research* 65, 695-724.

Mitchell, E.T., 1945: Dewey's Theory of Valuation. *Ethics* 55 (4), 287-297.

Mitchell, V.W., 1999: Consumer perceived risk: conceptualisations and models. *European Journal of Marketing* 33 (1/2), 163-195.

Möhring, J., 2013: *The impact of service quality in full-service airlines in Europe on customer satisfaction with the airline and its effect on customers' repurchase intentions*. Master thesis, University of Glasgow.

Möhring, M.M., 1988: *Dipolwechselwirkungen auf regelmäßigen und pseudostochastischen Teilchenoberflächen*. Diplomarbeit der Fakultät für Chemie, Institut für Physikalische Chemie II, Universität Bayreuth.

Möller, K.K. Halinen, A., 1999: Business relationships and networks: managerial challenges for a network era. *Industrial Marketing Management* 28 (5), 413-427.

Möller, K. Svahn, S., 2003: Managing strategic nets: A capability perspective *Marketing Theory* 3(2), 201–226.

Möller, K., 2006: *Wertschöpfung in Netzwerken*. München: Vahlen.

Möller, K. Cassack, I., 2008: Prozessorientierte Planung und Kalkulation (kern-) produktbegleitender Dienstleistungen. *Zeitschrift für Unternehmenssteuerung* 19 (2), 159-184.

Möller, K., 2010: Sense-making and agenda construction in emerging business networks — How to direct radical innovation. *Industrial Marketing Management* 39, 361–371.

Moore, G.C. Benbasat, I., 1991: Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation.

*Information Systems Research* 2, 3192-3222.

Morgan, R.M. Hunt, S.D., 1994: The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing* 58 (3), 20-38.

Mouzas, S. Henneberg, S. Naudé, P., 2008: Developing network insight. *Industrial Marketing Management* 37 (2), 167-180.

Mouzas, S. Blois, K., 2008: *Relatioal contract theory: confirmations and contradictions*. [Online] Available at [impgroup.org/uploads/papers/6764.pdf](http://impgroup.org/uploads/papers/6764.pdf). Accessed 6.2.2013.

Mouzas, S. Ford, D., 2012a: Leveraging knowledge-based resources: The role of contracts. *Journal of Business Research* 65, 153–161.

Mouzas, S. Ford, D., 2012b: Contracts as a Facilitator of Resource Evolution. *Journal of Business Research* 65(9), 1251-1253.

Müller, H.-P., 1992: *Sozialstruktur und Lebensstile. Der neue theoretische Diskurs über soziale Ungleichheit*. Frankfurt: Suhrkamp.

Müller-Busch, E., 1996: *Organisationstheorien von Weber bis Weick*. Wien: Fakultas.

Münch, R., 2003: Die Strukturen der Lebenswelt. Der phänomenologische Forschungsansatz von Alfred Schütz, Peter L. Berger und Thomas Luckmann. In: R.Münch, *Soziologische Theorie Band 2: Handlungstheorie*. Frankfurt: Campus, 189-230.

Neely, A. McFarlane, D. and Visnjic, I., 2011: Complex Service Systems – Identifying Drivers Characteristics and Success Factors. In *18th International Annual EurOMA Conference, Exploring Interfaces*, 3-6 July 2011, Cambridge, UK. Cambridge University Press, Cambridge, UK, 74.

Nejati, M. Nejati, M., 2008: Global Business and Management Research: An International Journal 2 (1), 15.

Nemati, H.R. Steiger, D.M. Iyer, L.S. Herschel, R.T., 2002: Knowledge warehouse: an architectural integration of knowledge management, decision support, artificial intelligence and data warehousing. *Decision Support*

Systems 33, 143-161.

Netland, T.H. Alfnes, E. Fauske, H., 2007: How mature is your supply chain? A supply chain maturity assessment test. [Online] Available at [http://www.sintef.no/project/SMARTLOG/Publikasjoner/2007/Netland%20et%20al%20\\_2007\\_%20How%20mature%20is%20your%20supply%20chain.pdf](http://www.sintef.no/project/SMARTLOG/Publikasjoner/2007/Netland%20et%20al%20_2007_%20How%20mature%20is%20your%20supply%20chain.pdf). Accessed 18.04.2011.

Neves, P. Caetano, A., 2006: Social exchange processes in organizational change: The roles of trust and control. *Journal of Change Management* 6, 351–364.

Neves, P. Caetano, A., 2009: Commitment to Change: Contributions to Trust in the Supervisor. *Group & Organization Management* 34: 623-644.

Nooteboom, B., 2002: *Trust. Forms, foundations, functions, failures and figures*. Cheltenham: Edward Elgar.

Noritz, J., 2011: Procedural justice is a key driver of business performance. *Rochester Business Journal*. [Online] Available at <http://www.rbj.net/article.asp?aID=186275>. Accessed 12.2.2013.

Normann, R., 2001: *Reframing Business: When the Map Changes the Landscape*. Chichester: Wiley.

Öberg, C. Henneberg, S.C. Mouzas, S., 2012: Organizational inscriptions of network pictures: A meso-level analysis. *Industrial Marketing Management* 41 (8), 1270-1283.

Oelsnitz, D.v.d. Tiberius, V.A., 2007: Zur Dynamisierung interorganisationaler Lernstrategien – Pfade zwischen Kooperation und Konkurrenz. In: G. Schreyögg, J. Sydow (eds.), *Managementforschung* 17. Wiesbaden: Gabler Verlag, 121-160.

Österle, H. Brenner, W. Hilbers, K., 1991: *Unternehmensführung und Informationssystem: Der Ansatz des St. Galler Informationssystem-Managements*. Stuttgart: Teubner.

OGC, 2012: *Configuration Management*. [Online] Available at

[http://www.itlibrary.org/index.php?page=Configuration\\_Management\\_](http://www.itlibrary.org/index.php?page=Configuration_Management_)  
Accessed 31.7.2012.

Oliver, A.L., 2004: On the duality of competition and collaboration: Network-based knowledge relations in the biotechnology industry. *Scandinavian Journal of Management* 20, 151-171.

Olkkonen, R., 2001: Case study: The network approach to international sports sponsorship arrangement. *Journal of Business and Industrial marketing* 16 (4).

Organ, D. W., 1988: *Organizational citizenship behavior: The good soldier syndrome*. Lexington, MA: Lexington Books.

Organ, D.W. Ryan, K., 1995: A meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behavior. *Personnel Psychology* 48, 775-802.

Osborne, J.D. Stubbart, C.I. Rampaprasad, A., 2001: Strategic groups and competitive enactment: A study of dynamic relationships between mental models of performance. *Strategic Management Journal* 22, 435-454.

Ott, C.M. Ivens, B.S., 2009: Revisiting the norm concept in relational governance. *Industrial Marketing Management* 38, 577–583.

Overdevest, C., 2011: Towards a more pragmatic sociology of markets. *Journal of Theory and Society* 40, 533-552.

Oxley, J.E., 1999: Institutional environment and the mechanisms of governance: the impact of intellectual property protection on the structure of inter-firm alliances. *Journal of Economic Behavior & Organization* 38, 283-309.

Palmatier, R.W. Dant, R.P. Grewal, D. Evans. K.R., 2006a: Factors Influencing the Effectiveness of Relationship Marketing: A Meta-Analysis. *Journal of Marketing* 70 (4), 136-153.

Patel C. Budhwar P. Varma A., 2011: Overall justice, work group identification and work outcomes: Test of moderated mediation process. *Journal of World*

*Business*. Elsevier: doi:10.1016/j.jwb.2011.04.008.

Parasuraman, A., 1998: Customer service in business-to-business markets: an agenda for research. *The Journal of Business and Industrial Marketing* 13 (4/5), 309-321.

Pawar, K.S. Beltagui, A. Riedel, J.C.K.H., 2009: The PSO triangle: designing product, service and organisation to create value. *International Journal of Operations and Production Management* 29 (5), 468-493.

Peirce, Ch. S., 1929: Guessing. In: *Hound and Horn* 2(3), S. 267-282.

Peirce, CP: *Collected Papers of Charles Sanders Peirce*. I-VI ed. by Charles Hartshorne and Paul Weiss, 1931–1935; VII-VIII ed. by Arthur W. Burke 1958. Cambridge/Mass.: Harvard University Press, 1931–1958

Peirce, C.S., 1877: The Fixation of Belief. *Popular Science Monthly* 12, 1-15.

Peirce, C.S., 1877: *Writings II*. Edited by H. Fisch et al., 1984. London: Bloomington, p.247.

Peirce, C.S., 1878: Illustrations of the Logic of Science II – How to make our ideas clear. *Popular Science Monthly* 12.

Peirce, Ch. S., 1997: *Pragmatism as a Principle and Method of Right Thinking*. Edited by P.A. Turrisi. Albany, N.Y.: New York Press.

Peirce, Ch. S. 1898: *Reasoning and the Logic of Things*. Edited by K. L. Ketner. Cambridge, MA: Harvard University Press.

Peirce, C. S., 1973: *Lectures on Pragmatism - Vorlesungen über Pragmatismus. herausgegeben mit Einleitung und Anmerkungen von Elisabeth Walther*. Hamburg: Felix Meiner Verlag.

Pentland, B.T., 1995: Grammatical Models of Organizational Processes. *Organization Science* 6 (5), 541-556.

Pentland, B.T. Haerem, T. Hillison, D., 2010 Comparing Organizational Routines as Recurrent Patterns of Action. *Organization Studies* 31 (7), 917-940.

Pentland, B.T., 1999: Building process theory with narrative: from description

to explanation. *Academy of Management Review* 24 (4), 711-724.

Perrone, V. Zaheer, A. McEvily, B., 2003: Free to be trusted? Organizational constraints on trust in boundary spanners. *Organization science* 14, 422-439.

Pfister, B., 1998: *Die neuere Rechtsprechung zu Treu und Glauben im Zivilprozeß*. Frankfurt/Main: Peter Lang.

Pflüger, J. Pongratz, H.J. Trinczek, R., 2010: Methodische Herausforderungen arbeits- und industriesoziologischer Fallstudienforschung. *Arbeits- und Industriesoziologische Studien*, 3 (1), 5-13.

Piekkari, R. Plakoyiannaki, E. Welch, C., (2010): 'Good' case research in industrial marketing: Insights from research practice. *Industrial Marketing Management* 39, 109–117.

Podsakoff, P. M. MacKenzie, S. B. Moorman, R. H. & Fetter, R., 1990: Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly* 1, 107–142.

Popitz, H. Bahrtdt, H.-P. Jüres, E.A. Kesting, H., 1957: *Technik und Industriearbeit*. Tübingen: Mohr Siebeck.

Poppo, L. Zenger, T., 2002: Do formal contracts and relational governance function as substitutes or complements? *Strategic Management Journal* 23, 707-725.

Portal der Wirtschaft, 2002: *RTL strafft Redaktionsabläufe*. [Online] Available at <http://www.portaldervirtschaft.de/pages/pm/?show=4765> Accessed 25.9.2012.

Posner, R.A. Rosenfield, A.M., 1977: Impossibility and Related Doctrines in Contract Law: An Economic Analysis. *The Journal of Legal Studies* 6 (1), 83-118.

Powell, W.W., 1990: Neither market nor hierarchy: Network forms of organization. *Research in Organizational Behavior* 12, 295-336.



Power, D. Singh, P., 2007: The e-integration dilemma: The linkages between Internet technology application, trading partner relationships and structural change. *Journal of Operations Management* 25 (6), 1292-1310.

Prahalad, C.K. Ramaswamy, V., 2004: Co-Creation Experiences: The Next Practice in Value Creation. *Journal of Interactive Marketing* 18(3), 5-14.

Prell, C., 2009: Rethinking the Social Construction of Technology through 'Following the Actors': A Reappraisal of Technological Frames. *Sociological Research Online* 14(2)4.

Press Relations, 2002: *Heitec und Software AG führen elektronische Akte in der Landeshauptstadt München ein*. [Online] Available at [http://www.pressrelations.de/new/standard/result\\_main.cfm?pfach=1&n\\_firmanr\\_=104405&sektor=pm&detail=1&r=97028&sid=&aktion=jour\\_pm&quelle=0](http://www.pressrelations.de/new/standard/result_main.cfm?pfach=1&n_firmanr_=104405&sektor=pm&detail=1&r=97028&sid=&aktion=jour_pm&quelle=0). Accessed 25.9.2012.

Quintens, L. Matthyssens, P., 2010: Involving the process dimensions of time in case-based research. *Industrial Marketing Management* 39, 91-99.

Rabe, C., 2003: Anwendungspotentiale traditioneller und neuerer Ansätze zur Messung von Einstellungen. In: C. Rabe, J.Lieb, *Zukunftsperspektiven des Marketing – Paradigmenwechsel und Neuakzentuierungen*. Berlin: Duncker und Humblot, 233-250.

Rai, A. Tang, X., 2010: Leveraging IT Capabilities and Competitive Process Capabilities for the Management of Interorganizational Relationship Portfolios. *Information Systems Research* 21 (3), 516-542.

Ramos, C., 2008: *Developing network pictures as a research tool: capturing the output of individuals' sense-making in organisational networks*. University of Bath: PhD Dissertation.

Ramos, C. Ford, D., 2011: Network pictures as a research device: Developing a tool to capture actors' perceptions in organizational networks. *Industrial Marketing Management* 40, 447-454.

Ramos, C. Mitrega, M. Henneberg, S., 2011: Networking capability, networking rent and firm performance: a nomological model including

- moderation effects. Proceedings of the IMP Conference, Glasgow.
- Rampersad, G. Quester, P. Troshani, I., 2010: Managing innovation networks: exploratory evidence from ICT, biotechnology and nanotechnology networks. *Industrial Marketing Management* 39 (5), 793-805.
- Rawls, J., 1971: *A Theory of Justice*. Cambridge, MA: Harvard University Press.
- Rawls, A.W., 1987: The Interaction Order Sui Generis: Goffman's Contribution to Social Theory. *Sociological Theory* 5 (2), 136-149.
- Reichertz, J., 2002: *Die Abduktion in der qualitativen Sozialforschung*. Opladen: Westdeutscher Verlag.
- Reichheld, F. Sasser, W., 1990: Zero defects: quality comes to services. *Harvard Business Review* Sept-Oct, 105-111.
- Rijlaarsdam, R., 2007: *The Interaction Effect of Source and Motives on Fairness Perceptions in the Context of Revenue Management in the Airline Industry*. Master Thesis, Univerisiteit Maastricht Faculty of Economics and Business Administration.
- Robertson, R., 1993: Cultural Relativity and Social Theory: Werner Stark's Sociology of Knowledge Revisited. In: Leonard, E. Strasser, H. Westhues, K. (eds.), 1993: *In Search of Community. Essays in Memory of Werner Stark, 1909-1985*. New York: Fordham University Press.
- Roels, G. Karmarkar, U.S. Carr, S., 2010: Contracting for Collaborative Services. *Management Science* 56(5), 849-863.
- Rösner, J., 1998: *Service – ein strategischer Erfolgsfaktor von Industrieunternehmen*. Hamburg: Schmidt Verlag.
- Roos, I., 2002: Methods of Investigating Critical Incidents. *Journal of Service Research* 4 (3), 193-204.
- Rosen, C.C. Chang, C.H. Johnson, R.E. Levy, P.E., 2009: Perceptions of the organizational context and psychological contract breach: Assessing competing perspectives. *Organizational Behavior and Human Decision*

*Processes* 108, 202–217.

Rosenthal, S.B., 1994: *Charles Peirce's Pragmatic Pluralism*. New York: University Press.

Rouwette, E. Bastings, I. Blokker, H., 2011: A Comparison of Group Model Building and Strategic Options Development and Analysis. *Group Decision and Negotiation* 19 (5), 1-23.

Rudd, M. Vohs, K.D., Aaker, J., 2012: Awe Expands People's Perception of Time, Alters Decision Making, and Enhances Well-Being. *Psychological Science* [Online] Available at <http://www.psychologicalscience.org/index.php/news/releases/being-in-awe-can-expand-time-and-enhance-well-being.html>. Accessed 22.12.2012.

Rühle von Lilienstern, H., 1995: Kooperation, zwischenbetriebliche. In: H. Kern (ed.), *Handwörterbuch der Produktion*. 2nd ed. Stuttgart: Schäffer-Poeschel Verlag, 928-938.

Salmi, A., (2010): International research teams as analysts of industrial business networks. *Industrial Marketing Management* 39, 40-48.

Salunke S. Weerawardena J. McColl-Kennedy, J.R., 2011: Towards a model of dynamic capabilities in innovation-based competitive strategy: Insights from project-oriented service firms. *Industrial Marketing Management* 40, 1251-1263.

Sampson, S.E. Froehle, C.M., 2006: Foundations and implications of a proposed unified services theory. *Production and Operations Management* 15 (2), 329-343.

Sauer, D. Döhl, V., 1997: Die Auflösung des Unternehmens? – Entwicklungstendenzen der Unternehmensreorganisation in den 90er Jahren. In: ISF, INIFES, IfS, SOFI (eds.), *Jahrbuch Sozialwissenschaftliche Technikberichterstattung*. Berlin: Edition Sigma, 19-76.

Schmitz, G., 2008: Der wahrgenommene Wert hybrider Produkte: Konzeptionelle Grundlagen und Komponenten. In: M. Bichler, T. Hess, H. Kremer, U. Lechner, F. Matthes, A. Picot, B. Speitkamp P. Wolf (eds.),

- Multikonferenz Wirtschaftsinformatik 2008*. Berlin: GITO Verlag.
- Schneider, D, 1973: *Unternehmungsziele und Unternehmungsk Kooperation*. Wiesbaden: Dr. Th. Gabler Verlag.
- Schonert, T., 2008: *Interorganisationale Wertschöpfungsnetzwerke in der deutschen Automobilindustrie*. Wiesbaden: Gabler Verlag.
- Schramm-Klein, H., 2005: Wettbewerb und Kooperation in regionalen Branchenclustern. In: J. Zentes, B. Swoboda, D. Morschelt (eds.), *Kooperationen, Allianzen und Netzwerke. Grundlagen – Ansätze – Perspektiven*. Wiesbaden: ???, 531-556.
- Schütz, A., 1971: Die soziale Welt und die Theorie der sozialen Handlung. In: A.Schütz (ed.), *Gesammelte Aufsätze Band 2: Studien zur soziologischen Theorie*. Den Haag: Martinus Nijhoff, 3-21.
- Schütz, A. Luckmann, T., 1979: *Strukturen der Lebenswelt Bd. 1*. Frankfurt: Suhrkamp.
- Schultz, D.E., 1999: We Could Be More Efficient If We Considered.. *Marketing News* 33 (15), 8.
- Scott, J.T. Matland, R.E. Michelbach, P.A. Bornstein, B.H., 2001: Just deserts: An experimental study of distributive justice norms. Faculty Publications, Department of Psychology Paper 185. [Online] Available at <http://digitalcommons.unl.edu/psychfacpub/185>. Accessed 5.2.2013.
- Searle, J.R., 2005: What is an Institution. *Journal of Institutional Economics* 1(1), 1-22.
- Shafer, S.M. Smith, H.J. Linder, J.C., 2005: The power of business models. *Business Horizons* 48, 199-207.
- Siguaw, J.A. Simpson, P.M. Enz, C.A., 2006: Conceptualizing innovation orientation: A framework for study. *Journal of Production and Innovation Management* 23, 556-574.
- Simchi-Levi, D. Kaminsky, P. Simchi-Levi, E., 2003: *Designing and managing the supply chain: concepts, strategies, and case studies*. Irwin: McGraw-Hill.

Slater, D., 2002: Markets, materiality and the “new economy”. In: S. Metcalfe, A. Warde (eds.), *Market Relations and the Competitive Process*. Manchester: Manchester University Press, 95-113.

Smircich, L. Stubbart, C., 1985: Strategic Management in an Enacted Environment. *Academy of Management Review* 10, 724-736.

Smith, A., 1776: *An Inquiry into the Nature and Causes of the Wealth of Nation*. [Online] Available at <http://www.econlib.org/library/Smith/smWN.html>. Accessed 5.4.2011.

Software AG, 2000-2005: *Personal work experience*. See also online at <http://tech.forums.softwareag.com/techjforum/posts/list/12535.page> . Accessed 18.2.2013.

Spring, M. Araujo, L., 2006: Services, products, and the institutional structure of production. *Industrial Marketing Management* 35 (7), 797-805.

Spring, M. Araujo, L., 2009: Service, services and products: rethinking operations strategy. *International Journal of Operations and Production Management* 29 (5), 2009, 444-467.

Spring, M. Araujo, L., 2012: Beyond the service factory: Service innovation in manufacturing supply networks. *Industrial marketing management*. *Industrial Marketing Management* <http://dx.doi.org/10.1016/j.indmarman.2012.11.006>. Accessed 8.2.2013.

Srai, J.S. Gregory, M., 2005: Supply chain capability assessment of global operations. *EurOMA Conference Proceedings Budapest*.

Srai, J.S. Gregory, M., 2008: A supply network configuration perspective on international supply chain development. *International Journal of Operations and Production Management* 28 (5), 386-411.

Statistisches Bundesamt, 2011: *Basisdaten Bruttowertschöpfung*. [Online] Available at [http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Statistiken/Internationales/InternationaleStatistik/Thema/Tabellen/Basistabelle\\_\\_BWWertschoepfung.psml](http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Statistiken/Internationales/InternationaleStatistik/Thema/Tabellen/Basistabelle__BWWertschoepfung.psml). Accessed 3.4.2011.

- Stauss, B., 2005: Dienstleistungsmarketing als Innovator des Marketingverständnisses? Eine kritische Auseinandersetzung mit dem Ansatz von Vargo/Lusch. In: A. Haas, B.S. Ivens (eds.), *Innovatives Marketing. Entscheidungsfelder – Management – Instrumente*. Wiesbaden: Gabler, 479-499.
- Steffen, M., 2001: *Strategische Netzwerke für komplexe Konsumgüter am Beispiel der Industriellen Maßkonfektion*. Frankfurt: Verlag Peter Lang.
- Steinbrenner, J.O., 2001: *Japanische Unternehmensgruppen – Organisation, Koordination und Kooperation der Keiretsu*. Stuttgart: Schäffer-Poeschel Verlag.
- Stephen, R.T. Coote, L.V., 2007: Interfirm behavior and goal alignment in relational exchanges. *Journal of Business Research* 60, 285–295.
- Storbacka, K. Nenonen, S., 2011: Markets as configurations. *European Journal of Marketing* 45 (1/2), 241-258.
- Strandvik, T. Törnroos, J.-A., 1997: Discovering Relationscapes. Extending the Horizon of Relationship Strategies in Marketing. In: American Marketing Association (ed.), *New and Evolving paradigms. The Emerging Future of Marketing*. Dublin: AMA, 381-393.
- Stremersch, S. Wuyts, R. Frambach, R.T., 2001: The Purchasing of Full-Service Contracts: An Exploratory Study within the Industrial Maintenance Market. *Industrial Marketing Management* 30(1), 1-12.
- Strauss, A. Corbin, J., 1996: *Grounded Theory: Grundlagen qualitativer Sozialforschung*. Opladen: Westdeutscher Verlag.
- Storbacka, K., 2011: A solution business model: Capabilities and management practices for integrated solutions. *Industrial Marketing Management* 40 (5), 699-711.
- Stringer, E. T., 1996: *Action Research, a handbook for practitioners*. Thousand Oaks: Sage Publications.
- Suhr, M. 1994. *John Dewey zur Einführung*. Hamburg: Junius.

- Svensson, G. (2004). Vulnerability in business relationships: the gap between dependence and trust. *Journal of Business and Industrial Marketing* 19(7), 469–483.
- Sydow, J., 2010: *Management von Netzwerkorganisationen. Beiträge aus der Managementforschung, 5th ed.* Wiesbaden: Gabler Verlag.
- Sydow, J. Möllering, G., 2009: *Produktion in Netzwerken. Make, Buy & Cooperate.* München: Vahlen.
- Sydow, J. Wilhelm, M., 2007: Unternehmenskooperation entlang der Wertkette – Implikationen für das Marketing von Automobilherstellern. *Thesis* 24 (3), 2-6.
- Sydow, J. Windeler, A., 2003: Knowledge, trust, and control. Managing tensions and contradictions in a regional network of service firms. *International Studies of Management and Organization* 33, 69-99.
- Szymanski, D. M. Henard, D.H., 2001: Customer Satisfaction: A Meta-Analysis of the Empirical Evidence. *Journal of the Academy of Marketing Science* 29 (1), 16-35.
- Takala, T. Uusitalo, O., 1996: An alternative view of relationship marketing: a framework for ethical analysis. *European Journal of Marketing* 30 (2), 45-60.
- Terwal, A.L. Boschma, R., 2009: Co-evolution of Firms, Industries and Networks in Space. *Regional Studies*, 1-15.
- Teubner, G., 2001: Rechtsirritationen: Zur Koevolution von Rechtsnormen und Produktionsregimes. In: G. Dux, F. Welz (Eds.), *Moral und Recht im Diskurs der Moderne: Zur Legitimation gesellschaftlicher Ordnung.* Opladen: Leske und Budrich, 351-381.
- Thomas, W.I., 1965: *Person und Sozialverhalten.* Ed. by E.H.Volkart. Neuwied, Berlin: Luchterhand.
- Tokman, M. Beitelspacher, L.S., 2011: Supply chain networks and service-dominant logic: suggestions for future research. *International Journal of Physical Distribution & Logistics Management* 41 (7), 717 – 726.

Tomczak, T., 1992: Forschungsmethoden in der Marketingwissenschaft – Ein Plädoyer für den qualitativen Forschungsansatz. *Marketing-Zeitschrift für Forschung und Praxis* 14 (2), 77-87.

Toulmin, S. Rieke, R. Janik, A., 1979: *An Introduction to Reasoning*. New York: Macmillan.

Traub, S. Seidl, C. Schmidt, U. Levati, V., 2005: Friedman, Harsanyi, Rawls, Boulding – or Somebody Else? An Experimental Investigation of Distributive Justice. *Social choice and welfare* 24 (2), 283-309.

Trompenaars, F., Hampden-Turner, C., 1997: *Riding The Waves of Culture: Understanding Diversity in Global Business*. New York: McGraw- Hill.

Tullius, K., 2004: *Vertrackte Kontrakte. Formwandel des betrieblichen Steuerungsregimes und die neue Rolle des Meisters*. Berlin: Edition Sigma.

Turnbull, P.W. Valla, J.-P., 1986: *Strategies for International Industrial Marketing*. London: Croom Helm.

Tuusjärvi, E., 2009: Taking Macneil's Contract Theory to New Directions. Online at [www.impgroup.org/uploads/papers/7338.pdf](http://www.impgroup.org/uploads/papers/7338.pdf) Accessed 6.2.2013.

Tyler, T. R., 1989: The psychology of procedural justice: A test of the group-value model. *Journal of Personality & Social Psychology* 25 (3), 1-35.

Ulaga, W., & Eggert, A., 2003: Relationship value in business markets: development of a measurement scale. *ISBM Report 2-2003*. [Online] Available at <http://isbm.smeal.psu.edu/library/working-paper-articles/2003-working-papers/02-2003-relationship-value-in-business-markets.pdf> Accessed 14.09.2011.

Ulaga, W.; Eggert, A., 2006: Value-Based Differentiation in Business Relationships: Gaining and Sustaining Key Supplier Status. *Journal of Marketing* 70 (1), 119-136.

University of Calgary, 2013: *Webgrid 5*. [Online] Available at <http://gigi.cpsc.ucalgary.ca:2000/> Accessed 1.2.2013.

Van den Bos, K. Lind, E. A., 2002: Uncertainty management by means of



- fairness judgments. In: M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* 34. San Diego: Academic Press, 1-60.
- Van den Bos, K., 2003: On the Subjective Quality of Social Justice: The Role of Affect as Information in the Psychology of Justice Judgments. *Journal of Personality and Social Psychology* 85 (3), 482-498.
- Van den Bos, K. Ham, J. Lind, E.A., Simonis, M. Van Essen, W.J. Rijpkema, M., 2008: Justice and the human alarm system: The impact of exclamation points and flashing lights on the justice judgment process. *Journal of Experimental Social Psychology* 44, 201–219.
- Van den Bos, K. Brockner, J. Stein, J.H. Steiner, D.D. Van Yperen, N.W. Dekker, D.M., 2010: The Psychology of Voice and Performance Capabilities in Masculine and Feminine Cultures and Contexts. *Journal of Personality and Social Psychology* 99 (4), 638–648.
- Van der Valk, W. Wynstra, F. Axelsson, B., 2009: Effective buyer-supplier interaction patterns in ongoing service exchange. *International Journal of Operations and Production Management* 29 (8), 807-833.
- Van de Ven, A.H., 2007: *Engaged Scholarship: A Guide for Organizational and Social Research*. Oxford: Oxford University Press.
- Van de Ven, A.H. Poole M.S., 1990: Methods for studying innovation development in the Minnesota Innovation Research Program. *Organization Science* 1 (3), 313-335.
- Vargo, S.L., 2007: On a theory of markets and marketing: from positively normative to normatively positive. *Australasian Marketing Journal* 15 (1), 53-60.
- Vargo, S.L., 2008: Service Dominant Logic: Prologue, Progress and Prospects. 38. *Jahrestagung der Kommission Marketing*. Berlin. URL: [http://www.sdlogic.net/SDL\\_Overview\\_Berlin.ppt](http://www.sdlogic.net/SDL_Overview_Berlin.ppt). Accessed 17.11.2010.
- Vargo, S.L., 2009: *Service-Dominant Logic: An Alternative Mindset for Innovation*. 2009 Ministry of the Knowledge Economy Conference on Service Innovation through R&D Seoul, Korea Nov 10, 2009. Online at

[http://www.sdlogic.net/Seoul\\_RD\\_2009.pdf](http://www.sdlogic.net/Seoul_RD_2009.pdf). Accessed 3.4.2011.

Vargo, S. L. Akaka, M., 2009: Service Dominant Logic as a Foundation for Service Science: Clarifications. *Service Science* 1(1), 32-41.

Vargo, S.L. Lusch, R.F., 2004: Evolving to a New Dominant Logic for Marketing. *Journal of Marketing* 68 (1), 1-17.

Vargo, S.L. Lusch, R.F., 2008: From products to service: Divergences and convergences of logics. *Industrial Marketing Management* 37, 254-259.

Vargo, S.L. Lusch, R.F., 2011: It's all B2B...and beyond: Toward a systems perspective of the market. *Industrial Marketing Management* 40,181-187.

Vargo, S.L. Maglio P. P. Akaka M.A., 2008: On value and value co-creation: A service systems and service logic perspective. *European Management Journal* 26, 145-152.

Venkatesh, A. Penaloza, L. Firat, F., 2006: The market as a sign system and the logic of the market. In: R.F. Lusch, S.L. Vargo (eds.), *The Service-Dominant Logic of Marketing: Dialog, Debate, and Direction*. Armonk, N.Y.: ME Sharpe, 251-265.

Visconti, L.M., 2010: Ethnographic Case Study (ECS): Abductive modelling of ethnography and improving the relevance in business marketing research. *Industrial Marketing Management* 39, 25-39

Vonortas, N.S. Okamura, K., 2008: Research Partners. *International Journal of Technology Management* 46 (3/4), 280-306.

Vriens, M. Hofstede, F.T., 2000: Linking attributes, benefits and consumer values. *Marketing Research* 12 (3), 4-10.

Walker, R., 2005: *Social Security and Welfare: Concepts and comparisons*. Milton Keynes: Open University Press/McGraw-Hill.

Walsham, G., 1995: The emergence of interpretivism in IS research. *Information Systems Research* 6 (4), 376 – 394.

Wang, H. Hou, W., 2011: The impact of business process modularity on relational contract in the outsourcing of two business processes.

*Proceedings of the International Conference on Services Systems and Services Management - ICSSSM*, 1-6.

Weber, S.-M., 1999: *Netzwerkartige Wertschöpfungssysteme. Informations- und Kommunikationssysteme im Beziehungsgeflecht Hersteller – Handel – Serviceanbieter*. Wiesbaden: Dr. Th. Gabler Verlag.

Weber, J. Willauer, B. Schäffer, U., 2003: Einführung zur Skalenübersicht. In: J. Weber, J. Kunz (Eds.), *Empirische Controllingforschung: Begründung – Beispiele – Ergebnisse*. Wiesbaden: Gabler, 15-51.

Weerawardena, J. Mavondo, F.T., 2011: Capabilities, innovation and competitive advantage. *Industrial Marketing Management* 40 (8), 1220-1223.

Wehberg, H., 1959: Pacta Sunt Servanda. *The American Journal of International Law* 53(4), 775.

Weick, K.E., 1969: *The Social Psychology of Organizing*. New York: McGraw Hill.

Weick, K.E., 1985: *Der Prozess des Organisierens*. Frankfurt: Suhrkamp.

Weick, K.E., 1988: "Enacted Sensemaking in Crisis Situation", in: *Journal of Management Studies*. 25:4, 305–317.

Weick, K. E., 1995: *Sense-making in Organizations*. London: Sage.

Weick, K.E., 2001 a: Leadership as the Legitimation of Doubt. In: W. Bennis, G. Spreitzer, T. Cummings (eds.), *The Future of Leadership*. San Francisco: Jossey-Bass, 91-102.

Weick, K.E., 2001 b: Drop Your Tools. In: T.M. Bardmann, T. Groth (eds.): *Zirkuläre Positionen 3. Organisationen, Management, Beratung*. Wiesbaden: VS Verlag für Sozialwissenschaften, 123-138.

Weißenfels, S., 2007: *Ressourcenorientierte Aufteilung von Aktivitäten in industriellen Dienstleistungsnetzwerken*. Frankfurt: Verlag Peter Lang.

Birger Wernerfelt, B., 1984: A Resource-Based View of the Firm. *Strategic Management Journal* 5 (2), 171-180.

Werz, S., 2006. *Repertory Grid: Untersuchung eines Analyseverfahrens*.

*Diplomarbeit der Universität Konstanz, Fachbereich Mathematik.* [Online]  
Available at <http://www.ub.uni-konstanz.de/kops/volltexte/2007/2778/>  
[Accessed 28 Feb 2010].

Whetten, D. A., 1982: Issues in conducting research. In D.L. Rogers, D. A. Whetten (Eds), *Interorganizational Coordination*. Ames, IA: The Iowa State University Press, 97–121.

White, H. Fuhse, J. Thiemann, M. Buchholz, L., 2007: Networks and Meaning: Styles and Switchings. *Soziale Systeme* 13 (1,2), 2007: 543-555.

Wilhelm, M., 2009: *Kooperation und Wettbewerb in Automobilzulieferernetzwerken*. Marburg: Metropolis Verlag.

Williamson, O.E., 2002: *The Theory of the Firm as Governance Structure: From Choice to Contract*. [Online] Available at [http://webkuliah.unimedia.ac.id/ebook/files/williamson\(theory%20of%20gov\).pdf](http://webkuliah.unimedia.ac.id/ebook/files/williamson(theory%20of%20gov).pdf) Accessed 28.10.2012.

Wilkinson, I., 2001: A History of Network and Channels Thinking in Marketing in the 20th Century. *Australasian Journal of Marketing*, 9 (2), 23-53.

Wilson, T.P., 1981: Theorien der Interaktion und Modelle soziologischer Erklärung. *Arbeitsgruppe Bielefelder Soziologen*, 54-79.

Wilson, T.P., 1982: Qualitative „oder“ quantitative Methoden in der Sozialforschung. *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 34, 487-508.

Winand, U. Nathusius, K., 1998: *Unternehmensnetzwerke und virtuelle Organisationen*. Stuttgart: Schäffer-Poeschel Verlag.

Windeler, A., 2001: *Unternehmensnetzwerke. Konstitution und Strukturation*. Wiesbaden: VS Verlag für Sozialwissenschaften.

Windeler, A. Lutz, A. Wirth, C., 2000: Netzwerksteuerung durch Selektion – Die Produktion von Fernsehserien in Projektnetzwerken. In: J.Sydow, A. Windeler (eds.), *Steuerung von Netzwerken*. Wiesbaden: Vahlen Verlag, 178-205.

- Wirth, C. (ed.), 2000: *Die Welt als Zeichen und Hypothese. Perspektiven der Peirceschen Zeichentheorie*. Frankfurt: Suhrkamp Wissenschaft 2000.
- Wirth, C. Sydow, J., 2004: Hierarchische Heterarchien – heterarchische Hierarchien: Zur Differenz von Konzern- und Netzwerksteuerung in der Fernsehproduktion. In: J. Sydow, A. Windeler (eds.), *Organisation von Content-Produktion*. Wiesbaden: Vahlen Verlag, 125-147.
- Wirtschaftswoche, 2012: *Professoren-Panel im Januar 2012* [online]. Available at <http://www.deutschland-check.de/professoren-panel-im-januar-2012.html#Zusammenfassung> , 29.5.2012
- Wise, R. Baumgartner, P., 1999: Go downstream: the new profit imperative in manufacturing. *Harvard Business Review* 77 (5), 133-141.
- Wittel, A., 2001: Toward a Network Sociality. *Theory, Culture & Society* 18 (6), 51-76.
- Womack, J. Jones, D. Roos, D., 1990: *The Machine that Changed the World*. New York: Harper.
- Woodside, A.G., (2010): Bridging the chasm between survey and case study research: Research methods for achieving generalization, accuracy, and complexity. *Industrial Marketing Management* 39, 64-75.
- Woodward, J., 1965: *Industrial Organization: Theory and Practice*. Oxford: Oxford University Press.
- Woratschek, H., 2001a: Zum Stand einer „Theorie des Dienstleistungsmarketing“. *Die Unternehmung* 55(4/5), 261-278.
- Woratschek, H., 2001b: Preisbildung im Dienstleistungsbereich auf der Basis von Marketinformationen. In: M. Bruhn, H. Meffert (eds.), *Handbuch Dienstleistungsmanagement*. Wiesbaden: Gabler Verlag, 606-625.
- Wynstra, F. Axelsson, B. Van der Valk, W., 2006: An Application-based Classification to Understand BuyerSupplier Interaction in Business Services. *International Journal of Service Industry Management* 17 (5), 474-496.
- Yakura, E.K., 2002: Charting Time: Timelines as Temporal Boundary Objects.

*The Academy of Management Journal* 45 (5), 956-970.

Yang, Z. Zhou, C. Jiang, L., 2011: When do formal control and trust matter? A context-based analysis of the effects on marketing channel relationships in China. *Industrial Marketing Management* 40(1), 86–96.

Yin, R.K., 1989: *Case study research – design and methods*. 2<sup>nd</sup> ed. Newbury Park: Sage Publications.

Zaefarian, G.Henneberg, S.C. Naudé, P., 2012: Assessing the strategic fit between business strategies and business relationships in knowledge-intensive business services *Industrial Marketing Management*, <http://dx.doi.org/10.1016/j.indmarman.2012.08.008>

Zaheer, A.S., 2011: Absence of procedural justice leads to retaliation behaviour. *International Journal of Business Research* 11 (4).[Online] Available at <http://www.questia.com/library/1G1-272485001/absence-of-procedural-justice-leads-to-retaliation>. Accessed 20.2.2013.

Zahn, E. Spath, D. Scheer, A.-W., 2004: *Vom Kunden zur Dienstleistung: Methoden, Instrumente und Strategien zum Customer related Service Engineering*. Stuttgart: IRB Verlag.

Zhang, C. Henke, J.W.Jr. Griffith, D.A., 2009: Do buyer cooperative actions matter under relational stress? Evidence from Japanese and US assemblers in the US automotive industry. *Journal of Operations Management* 27 (6), 479-494.

Zhu, X. Mukhopadhyay, S.K. Kurata, H., 2012: A review of RFID technology and its managerial applications in different industries. *Journal of Engineering and Technology Management* 29 (1), 152-167.

Zipkin, P., 2006: The best things in life were free: on the technology of transactions. *Manufacturing & Service Operations Management* 8 (4), 321-329.

# Appendix

## Supplementary tables

**Table 3.a: Alignment concepts in the literature**

Authors	Characterisation	Operationalisation
Callon and Latour, 1981; adp. by Cavalli, 2007	black boxing	In this context, an a priori consent about unquestioned objects in a dyad of actors on a symbolic level
Latour, 1986	flat display	Three-dimensional givens deflated into a two-dimensional picture; semiotic simplification; one kind of artifact
	flat inscription	Flat display mobilised and reproducible but open to bias and interpretation
	stabilisation	Gradual development of an artifact within one relevant social group
Slater, 2002	découpage	Cut out or effectively delimit certain aspects of products and services
Barry and Slater, 2002	technical objects	Technical artifacts reified by semiotic découpage
Helmhout et al., 2004	semiotic Umwelt	Evaluation and validation - through negoatiation and cooperation - of social constructs guided by <i>belief, desire, and intention</i>
Prell, 2009	social construction of technology	Flat display, inscription and stabilisation of technical objects
	closure (in a dyad)	Sharing one interpretation of an artifact in a dyad
Luhmann, 1995; 2000, White et al., 2007	themes	Jointly internalised and closed meaning complexes outliving projects
Storbacka and Nenonen, 2011	configuration	Establishment of norms and rules (technical standards, social codes of conduct, formal laws etc.)
Ford, 2011	relationship value	Long-term potential for joint problem solving



**Table 4.a:**

**Temporality research agenda** (adapted from Ramos, 2008; Quintens and Matthyssens, 2010; Ramos and Ford, 2011)

Concept (Ramos and Ford, 2011)	Duration and Frequency: Long term (Quintens and Matthyssens, 2010)	Duration and Frequency: Short term (Quintens and Matthyssens, 2010)
Activities	Actors appropriately selecting, utilising and combining resources (see chapter 2) to result in new resources which benefit all members equally	Preparation of next steps; processing of past input
Sequence; project orientation	Agreement on which goal to pursue, mutual coordination; aligning in epochs, sequence related perception of fairness	Immediate planning; choice of sequential work, joint calendar
Past events	Common achievements, learning from common drawbacks, unitary relationship heritage, inherited dilemmas	Something just said and done, recent impressions, recent change in the environment
Future events	Directionality towards continued justice and joint learning, future orientation, continuance intention	Working towards an approaching deadline, arrange for the next telephone conference
Speed and transition	Adaptation and utilisation of new technologies, adherence to schedules, time-to-market orientation	Plan subsequent module, draw discussion on next topic, recover quickly after disruptions and technical problems
Offensiveness	Taking initiative; circumspection, innovative mindset, open attitude, diligence	Adapt new topic at once; introduce a new viewpoint, anticipate developments and problems

**Table 4.b: Concepts for this thesis' research questions**

<b>Concepts</b>	<b>Influential literature</b>
Actors, scripting, and power	Hakansson and Snehota (1995), Steinbrenner (2001), Mouzas et al. (2008), Storbacka and Nenonen (2011), Vargo and Lusch (2011)
Resources, information	Hakansson and Snehota (1995), Srari and Gregory (2008), Lin (2008), Ramos and Ford (2011)
Power, conflict, and choice	Wittel (2001), Johnsen and Ford (2001), Slater (2002), Weber et al. (2003), Sydow (2010), Ott and Ivens (2009), Möller (2010), Lerch et al. (2010)
Products and services	Vargo and Lusch (2004), Lovelock and Gummesson (2004), Baldwin and Clark (2006), Backhaus and Voeth (2007), Lindberg and Nordin (2008), Möller and Cassack (2008), Lusch et al. (2010)
Promise of delivery	Woratschek (2001), Ulaga and Eggert (2003), Araujo and Spring (2006), Möller and Cassack (2008), Hutchinson et al. (2011), Grönroos (2011)
<b>Value</b>	Davies (2003; 2004), Spring and Araujo (2006), Sampson and Froehle (2006), Vargo (2007), Kjellberg and Helgesson (2006), Cova et al (2008), Crowther and Donlan (2011), Grönroos (2011); Ford (2011); Corsaro and Snehota (2012)
<b>Innovation</b>	Barras (1986), Wittel (2001), Vargo and Lusch (2008), Möller (2010)
Alignment	Latour (1986), Slater (2002), Hald et al. (2009), Prell (2009), Ellis and Hopkinson (2010), Crowther and Donlan 2011, Storbacka and Nenonen (2011), Mason (2011)
Desirability and degree of innovation	Hauschildt and Salomo (2007), Blazevic and Lievens (2008), Möller and Cassack (2008), Gebauer (2008), Augusto and Coelho (2009), Lusch et al. (2010), Geum et al. (2011)
<b>Temporality</b>	Ford (1980), Dwyer et al. (1987), Czarniawska (2004); Halinen and Törnroos (2005), Quintens and Matthyssens (2010)
Network life cycle, short-term and long-term activities	Hakansson and Snehota (1995), Knight and Pye (2007), Hornyk and Brachert (2010), Srari and Gregory (2008), Sydow (2010), Corsaro and Snehota (2012)
Perception and memory, event paradigm	Turnbull and Valla (1986), Johanson & Mattson (1987), Cropanzano et al. (2001), Wittel (2001), Henneberg et al. (2010), Leek and Mason (2009; 2010), Colville and Pye (2010), Geiger and Finch (2010), Ramos and Ford (2011)
<b>Justice</b>	Rawls (1971), Colquitt et al. (2001), Traub et al. (2005), Blois and Ivens (2007), Kroggel (2007), Fetchenhauer et al. (2010)
Distributive justice	Lind and Kray (2001), Blois (2002), Rosen et al. (2009), Gu and Wang (2011)
Procedural justice	Colquitt (2001), Lind and Kray (2001), Fang and Chiu (2010), Cropanzano et al. (2001)
Formal contract	Coase (1937), Organ and Ryan (1995), Mouzas and Ford (2012a,b)
Relational contract	Macneil (1980; 1985; 2000; 2001), Goetz and Scott (1983), Harrison (2004), Rosen et al. (2009), Neves and Caetano (2009)

**Table 7.a: Concepts of *engaged scholarship* (Van de Ven, 2007) in this dissertation's methodical procedures**

<b><i>Engaged Scholarship</i> concepts</b>	<b>Coining in this dissertation's field studies (examples)</b>
Seeking dialogue with the field	Interactive research process; sharing important insight with key respondents
Prioritisation of initial question in accordance with the field	Negotiation of research focus with key enablers; ensuring secondary outcome for management
Discussion and negotiation of alternative theories and concepts	Sharing diverse streams of scientific literature; putting concepts into relationship with practical field researched
Combination of extant theories into new concepts (Van de Ven and Poole, 1990:317)	E.g. Combination of human resource theories and network theory (into network citizenship behaviour, chapter 10)
Dependence; i.e. need to reconcile mutual stances in research question (Van de Ven, 2007:238)	Reconciliation of scientific ambition with managerial goals; application of theoretical resolutions in industrial practice
Assuming an inter-subjective lens (Van de Ven, 2007:74)	Reflecting situations, narratives and materials from respondents' assumed angles; negotiating anticipated perspectives
Historical consideration of extant cases, first order narratives (Lowe and Hwang, 2012)	Ex-post narratives of preparatory and prior phases; prior occupation with projects
Attached stance, inside perspective (Van de Ven, 2007:27)	Re-enacting decisions by prior personal experience; anticipating reactions
Describing and explaining by research (Van de Ven, 2007:27)	Assuming a neutral phenomenological stance

**Table 7.b: Empirical work for the first case, 2007-2012**

Kind of interaction	Typical duration	Number of occurrences	Duration in total/ volume/ number
Presales presentations*	2 hours	2	4 hours
Joint workshop*	8 hours	1	8 hours
Technical consultancy*	2 hours	3	6 hours
Personal interview	½ – 2 hours	6	5 hours
Phone call	½ – 1 hour	8	6 hours
Informal discussion with stakeholder	½ – 1 hour	18	14 hours
Research discussion with team	2-3 hours	6	14 hours
Evaluation of secondary materials			500 MB
Network drawings obtained			5
Repertory grid questionnaires			5

\* as a key account manager for company A, in 2007/2008

**Table 7.c: Empirical work for the second case, 2007-2012**

Kind of interaction	Typical duration	Number of occurrences	Duration in total/ volume/ number
Presales presentations*	4 hours	3	12 hours
Joint workshop*	2 hours	1	2 hours
Technical consultancy*	2 hours	3	6 hours
Meeting with CIO*	1 hour	1	1 hour
Personal interview	1-2 hours	2	3 hours
Phone call	½ – 1 hour	4	3 hours
Informal discussion with stakeholder	½ hour	11	5,5 hours
Research discussion with team	2-3 hours	3	7,5 hours
Evaluation of secondary materials			400 MB
Network drawings obtained			4
Repertory grid questionnaires			4

\*as a key account manager for company A, in 2007/2008

**Table 7.d: Empirical work for the third case, 2009-2012**

Kind of interaction	Typical duration	Number of occurrences	Duration in total/ volume/ number
Personal interview	1-2 hours	11	14,5 hours
Phone call	½ – 1 hour	72	47 hours
Informal discussion with stakeholder	½ – 1 hour	18	14 hours
Team meeting	2-3 hours	6	15 hours
<i>Shadowing</i> of daily routine	7 hours	1	7 hours
Meeting with research centre director	1-2 hours	3	4,5 hours
Consortium meeting	6-8 hours	7	44 hours
Research discussion with team	2-3 hours	12	26 hours
Secondary documentation			6 GB
Network drawings obtained			11
Pictures taken			35
Repertory grid questionnaires			11

**Table 7.e: Addressing this dissertation’s research question in applied research**

Question	Method; instrumental proceedings
How do people draw on their business-to-business collaboration network to achieve rich exchange and innovation?	Participant observation, ethnography <i>at home</i> ; exploratory interviews; analysis of network drawings, organisation charts, protocols and other artefacts; <i>back stage</i> observation (shadowing)
What are the governing mechanisms and their underlying principles in industrial business-to-business networks’ rich exchange and innovation?	Coding and analysis of narratives of in-depth interviews and participant observation; dramaturgic analysis of the <i>stage play</i> ; scorecard analysis of collaboration processes;
By which elements are favourable collaboration and innovation constituted and by which mechanisms are they generated?	Ethnography <i>at home</i> , micro sequential analysis of qualitative materials; temporal, economic and interpersonal triangulation; repertory grid technique
What is value in customer-centric industrial business-to-business collaboration and innovation?	Negotiation with respondents, engaged scholarship; analysis of the <i>front stage</i> ; comparison of verbatim and economic records; micro-sequence analysis; scorecard analysis and discussion
In an industrial network, what are the governing principles and mechanisms for equilibrium balancing customer input, supplier input, and value?	Participant observation, ethnography <i>at home</i> ; Coding, categorisation and analysis of inscripts, description of rich observation and meeting protocols; micro-sequences; repertory grid technique
How does a network accumulate an own <i>memory</i> of joint experience of the actors therein over time? How does this record influence the performance in the network?	Longitudinal case studies, engaged scholarship, time series of interviews, participant observation, ex-post accounts; anticipation interviews; sequence analysis by micro-sequences and scorecard; comparison of meeting protocols and presentations over time

**Table 8.a: Applied network research blueprint for the three cases**

<b>Ingredient</b>	<b>Explanation</b>
Actors	Claus, Richard, Bernhard, Ludwig, their collaboration partners, end customers, sponsoring committees, consortium partners, competitors
Resources	Machines, computer software and hardware, companies' assets, estate, production facilities, actors' skills and capabilities, financial means, work experience, information
Virtualisation	Electronic exchange of knowledge, data, and computer software, formation of virtual teams, distributed development with punctual meetings and interaction; global reference and test groups, global distribution of outcome
Information orientation	Information on new technologies, competitor claims, need in the field, data to be processed, best practice processes
Technological sociality	Seamless collaboration over large distances enabled by information and telecommunication technologies, virtual synchronisation of work packages, virtual objects of exchange
Trust (active); choice	Voluntary engagement of network partners, bilateral trust, exchange of data and process information, risking exploitation, extra-role commitment
Hierarchy; scripting	The organisation's research centre as technological scriptor, ability of the steering committee to dictate, central position of a consortium partner, social hierarchies among actors
Power; influence	Influencing more effectively than others; taking a lead in a cooperation through industrial authority and size (as company A), individual capabilities (e.g. of the project leader) and relational rapport (among actors and groups)
Discord	Intra-organisational disagreement, diverging personal goals, inter-organisational dissent, hidden agendas of partners, different perception on workload and responsibility, technical dispute



**Table 8.b: Source and relevance of power**

<b>Source of Power</b>	<b>Relevance within a division</b>	<b>Inter-divisional/ inter-organisational relevance</b>
<b>Organisational = globally held power</b>		
Size / industrial rank	X	X
Dependency / available alternatives/ sanctions available	X	X
<b>Individual = industry-wide held power</b>		
Knowledge (here: monopoly)	X	X
Skills (here: monopoly)	X	X
Insignia, Rank	X	(x)
<b>Relational = power held specifically in a particular network</b>		
Justice	(x)	X
Alignment Capabilities	(x)	X

X: strong relevance; (X): occasional or minor relevance

**Table 8.c: Scripting of the focal actor**

Concepts by Storbacka and Nenonen (2011)	Explanation	Instances scrutinised in this dissertation's case studies
Focal actor	An actor (individual/collective) capable of significantly influencing and more likely to enforce views on the dyad or network	Customer organisation; target department for new development; funding department; strategy department; team leader; project leader; technical expert; experienced person; member of a comparably more powerful organisation; personally dominating actor
Scripting	The process of exerting strong influence on a dyad's or network's configuration	Dictating societal, cultural, and technological norms and rules; convincing others to enter a project network as a consortium partner, developer, reference customer, or information provider; dictating and monitoring time and resources available; granting or denying access to information, persons, and meetings; taking liberty to sidestep (passive scripting)

**Table 9.a: Empirical findings of servitisation phenomena in this thesis' case studies**

Alignment	Empirical findings
<p>Dominant unit of exchange: <i>good and service;</i> <i>invention</i></p>	<p>Supplier perspective: already existing technologies to be supported according to the expectations of and information provided by the customer.</p>
	<p>Examples: Process development embodied in mobilisation, reliability, and asset flow technologies Knowledge embodied in diagnostic tools with artificial intelligence algorithms</p>
<p>Main drivers for development and provision: integration of <i>new technologies/</i> standardisation</p>	<p>Customer perspective: simplification of processes, reliability, new insight and perspectives.</p>
	<p>Examples: Need to incorporate on-the-edge technologies; standardisation across middleware; process standardisation and simplification</p>
<p>Main source for <i>value</i>: inherent in system integration of the <i>offering or innovation</i></p>	<p>Customer perspective: improvement and controllability provided from a particularly capable and expert supplier</p>
	<p>Examples: Removal of redundant processes, simplification of tasks, elimination of potential human bias, anticipation of cost and workload</p>

**Table 9.b: Value and success characteristics of the cross-case studies**

	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>
Black boxing	Effective	Effective	Incompatible
Flat display	Iterative	Continuous	Intermittent
Stabilisation	Emergent	Early stage	Negated
Découpage	Iterative	Successful	Problematic
Social construction of technology	Exemplary	Exemplary	Problematic
Closure (in a dyad)	Effective	Early stage	Partial
Configuration	Comprehensive	Comprehensive	Partial
Success (product related)	Negated	Confirmed	Negated
Success (process related)	Confirmed	Confirmed	Negated
Value-in-use	Negated	Confirmed	<i>no value</i>
Relationship value	Yes	Yes	No/ negative

**Table 10.a: Temporality-related findings**

(Concepts derived from Quintens Matthyssens, 2010; Ramos and Ford, 2011)

<b>Concept</b>	Long-term orientation	Short-term orientation
Activities	Selecting and processing technologies, tools and operational data to result in a mobilisation suite (Project 2)	Agreement on a joint agenda for the next meeting (Project 3)
Sequence; project orientation	Adhering to project schedules; alignment through milestone reviews; balancing long-term workload across participants (projects 1, 2)	Prioritisation of preparatory work on next meeting; neglect of longer-term goals in favour of short-term tasks (Project 3)
Past events	Drawing on knowledge and joint documentation of kick-off meeting months/ years ago (all three projects)	Reacting on a change in project responsibilities; fixing newly arising problems in a development; conclusive reflection on a joint discussion (all three projects)
Future events	Anticipating future business needs of the customer; calculating long-term benefits from an innovation (projects 1 and 2)	Plan for joint lunch; terminate a meeting early to catch the train (Project 3)
Speed and transition	Implementing latest technological concepts into the development (all three projects)	Bug fixing of pilot application (Project 2); mediation of arising conflict by Claus (Project 3)
Offensiveness	Suggesting additional feature to customer (Project 2); extending existing technology by own development (Project 1)	Changing showcase of a demonstrated prototype only days before a presentation (Project 3)