

**Collaborating and Competing in Multipartner Initiatives:
A Study on the Emergence, Evolution and Dynamics of
Interorganizational Strategy**

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The President:

Prof. Dr. Thomas Bieger

*Für meine Familie,
Inna, Tristan, Eleonore,*

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Erwin Hettich

Table of Contents

List of Figures.....	ix
List of Tables	x
List of Abbreviations	xi
Abstract.....	xiii
Zusammenfassung.....	xv
1 Introduction.....	1
1.1 Research Background and Objectives	2
1.2 Relevance and Contribution	5
1.3 Dissertation Outline	6
PART I: THEORETICAL FOUNDATIONS	
2 Conceptualization of Strategy and Process.....	8
2.1 Strategy	8
2.2 Process	10
2.3 Strategic Initiatives as Manifestations of Strategy	12
3 Theoretical Perspectives on Strategy Process.....	14
3.1 Evolutionary Theory.....	15
3.2 Social Exchange Theory	17
3.3 Implications for this Dissertation.....	18
4 Review of Strategy Process Research	19
4.1 Review Approach	20
4.2 Intraorganizational Strategy Process Models	24
4.2.1 Strategy Process as Formation of Patterns	24
4.2.2 Strategy Process as Resource Commitment	25
4.2.3 Strategy Process as Context and Behavior Outcome.....	27
4.2.4 Strategy Process as Iterations of Resource Allocation	29
4.2.5 Strategy Process as Guided Evolution.....	30
4.3 Interorganizational Strategy Process Models	31
4.3.1 Strategy as Emergent and Engineered Process.....	32
4.3.2 Strategy Process as Systemic Collective Approach	33
4.3.3 Strategy Process as Collaboration Stages.....	34

4.3.4	Strategy Process as Repetitive Interaction.....	37
4.4	Critical Reflection and Research Implications	39

PART II: QUALITATIVE EMPIRICAL STUDYA PROCESS

5 When Multiple Partners Ally: A Study on the Formation of Interorganizational Strategy..... 42

5.1	Introduction.....	42
5.2	Background.....	44
5.3	Methodological Basis and Research Approach	45
5.3.1	Paradigmatic Positioning.....	45
5.3.2	Research Method	46
5.3.3	Research Approach.....	47
5.3.4	Research Design	49
5.4	Research Setting	51
5.4.1	Case Selection.....	58
5.4.2	Background: Ecology of Baden-Württemberg.....	58
5.4.3	Background: Ecology of Bavaria.....	61
5.5	Research Process	63
5.5.1	Data Collection	66
5.5.2	Analysis and Data Coding	69
5.5.3	Trustworthiness of Research Design	72
5.6	A Process Model.....	73
5.6.1	Initiation.....	73
5.6.2	Negotiation	81
5.6.3	Execution	85
5.7	Discussion.....	92
5.8	Conclusion and Implications	98

PART III: QUANTITATIVE EMPIRICAL STUDY

6 Strategic Interaction beyond Firm Boundaries: Bridging the Simultaneity of Cooperation and Competition..... 102

6.1	Introduction.....	102
6.2	Background.....	105
6.2.1	Coopetition: A Synthesis of Cooperation and Competition..	105
6.2.2	Strategic Bridging.....	109

6.3	Theoretical Foundations and Conceptual Model.....	112
6.4	Hypotheses.....	113
6.4.1	Coopetition: Cooperation, Competition and Performance	113
6.4.2	The Moderating Role of Bridging Activity	119
6.5	Methodology.....	127
6.5.1	Sample Selection	127
6.5.2	Data Collection	127
6.5.3	Measures	130
6.5.4	Robustness and Reliability	134
6.5.5	Validity	135
6.6	Analyses and Results	138
6.6.1	Descriptive Statistics	138
6.6.2	Coopetition and Multipartner Alliance Performance	141
6.6.3	The Role of Strategic Bridging in Multipartner Alliances	144
6.7	Discussion.....	146
6.8	Conclusion	153
7	Overall Discussion and Conclusion.....	154
7.1	Synthesis of the Results	154
7.1.1	Conceptualization and Review	156
7.1.2	The IOS Process	156
7.1.3	Strategic Bridging and Coopetition	157
7.2	Contributions to Theory.....	159
7.2.1	Expanding Scope of Strategy Process Research.....	159
7.2.2	Introducing Novel Concepts to Strategy Process Research ..	160
7.2.3	Interfirm Perspective on Strategic Initiatives	161
7.3	Managerial Implications	162
7.4	Final Conclusion	163
	References	165
	Appendices.....	190

List of Figures

Figure 1: Results of Keyword Search	21
Figure 2: Types of Strategies	24
Figure 3: Resource Allocation Process Model	26
Figure 4: Strategy Process as Context and Behavior Outcome	27
Figure 5: The Five Elements of Guided Evolution.....	30
Figure 6: Stage Model of Collective Strategy Evolution.....	35
Figure 7: Stage Model of Interorganizational Processes	36
Figure 8: Collaboration Process Framework	38
Figure 9: Initiative Domains and Types in the Electric Mobility Sector.....	50
Figure 10: e-GAP Initiative	53
Figure 11: Ecology View of Electric Mobility Initiatives and Actors in Baden-Württemberg	60
Figure 12: Ecology View of Electric Mobility Initiatives and Actors in Bavaria.....	62
Figure 13: A Process Model of IOS.....	91
Figure 14: One Continuum versus Two Continua Concept of Coopetition	107
Figure 15: Proposed Model.....	113
Figure 16: Two-Way Interaction of Cooperation, Competition, and Performance....	143
Figure 17: Three-Way Interaction of Coopetition, Bridging, and Performance	145
Figure 18: Moderating Effect of Bridging on Coopetition and Performance.....	147

List of Tables

Table 1: Dissertation Outline	7
Table 2: Definitions and Conceptualizations of Interorganizational Strategy.....	9
Table 3: Definitions and Conceptualizations of Strategic Initiatives	13
Table 4: Intraorganizational Strategic Dynamics	22
Table 5: Interorganizational Strategic Dynamics	23
Table 6: Methodological Approaches of selected Strategy Process Studies	48
Table 7: Activity Domains within the eMobility Sector	57
Table 8: Structured Research Process.....	64
Table 9: Overview of Interviews	68
Table 10: Coding Structure – Aggregation of Themes.....	71
Table 11: Roles of Bridging Organizations	110
Table 12: Descriptive Statistics and Correlations.....	140
Table 13: Results of Hierarchical Regression Analysis	142
Table 14: Slope Difference Analysis of Three-Way Interaction	146
Table 15: Overview of Dissertation Studies.....	155
Table 16: Overview of Empirical Findings (Part II)	158

List of Abbreviations

AMR	Academy of Management Review	
ASQ	Administrative Science Quarterly	
BA	Bavaria	
BW	Baden-Württemberg	
CEO	Chief Executive Officer	
cf.	confer	Latin: compare, consult
e.g.	exempli gratia	Latin: for example
ed. /eds.	editor / editors	
eMobility	electric Mobility	
et al.	et alii	Latin: and others
etc.	et cetera	Latin: and other things
EUR	Euro (European currency)	
GGEMO	Joint Agency for Electric Mobility German: Gemeinsame Geschäftsstelle Elektromobilität	
GmbH	Limited Liability Companies Act German: Gesellschaft mit beschränkter Haftung	
i.e.	id est	Latin: that is
ICC	Intraclass Correlation	
ICT	Information and Communications Technology	
IECP	Integrated Energy and Climate Programme	
IOS	Interorganizational Strategy	
IT	Information Technology	

KIT	Karlsruhe Institute of Technology German: Karlsruher Institut für Technologie
MPA	Multipartner Alliances
MS	Management Science
N/A	not applicable
NOW	National Organization for Hydrogen and Fuel Cell Technology
NPE	National Electric Mobility Platform
NPEM	National Platform for Electric Mobility
OEM	Original Equipment Manufacturer
OS	Organization Science
PCA	Principal-component Analysis
Ph. D.	Philosophiae Doctor Latin: Doctor of Philosophy
R&D	Research and Development
REM	Regional Eco Mobility
SIC	Standard Industrial Classification
SMJ	Strategic Management Journal
SSCI	Social Science Citation Index
TV	Television
UK	United Kingdom
US	United States
VDA	German Automotive Industry Association German: Verband derAutomobilindustrie
VIF	Variance Inflation Factor

Abstract

This Ph.D. thesis spotlights interorganizational strategy processes, which in the light of an increasingly complex, interconnected and dynamic environment have gained substantial relevance. How do interorganizational strategies emerge and evolve? What are the specific dynamics when strategy spans organizational boundaries, and why do some multipartner initiatives perform better than others? These are overarching questions that guide this investigation. This study draws on a sample of cases, interviews, and survey data. This study also builds on a rich database of secondary data. The empirical research setting is in the field of the currently emerging electric mobility sector.

Three interrelated research parts are developed to gain comprehensive insights. Building on an introductory chapter, this dissertation presents a literature review of multiple literature threads by organizing and drawing on the currently dispersed knowledge on the dynamics of interorganizational strategies. By synthesizing the most prominent strategy models, this part lays the groundwork for the subsequent studies and reveals worthwhile avenues for future research. The second part applies a case-based qualitative research approach to develop an empirically grounded IOS process model. It offers empirical evidence and argumentation for a more inclusive conceptualization of the strategy process. It thereby contrasts and extends current research by incorporating firm-external contexts into the strategy process. The third part expands prior insights by specifically exploring the impact of intermediaries (third parties) in strategic interaction. I particularly emphasize the inherent tension in multilateral collaborations that arises from the paradoxical forces of cooperation and competition (coopetition). This part shows that strategic bridging may help overcoming such tensions in specific contexts. Empirically testing this finding in varying coopetition intensities allows for a more contextualized view with distinct implications for multipartner alliance performance.

The findings also provide guidance on how to configure or rebalance multipartner constellations to enhance performance in collaborations. Along this path, this dissertation provides insights into the management of multipartner initiatives. The

final part summarizes and embeds these findings theoretically and conceptually. It concludes by describing the dissertation's multiple contributions to strategy process, cooperation, and strategic initiatives literature.

Zusammenfassung

Die vorliegende Dissertation untersucht den interorganisationalen Strategieprozess, der in einer komplexen, vernetzten und dynamischen Unternehmensumwelt zunehmend an Bedeutung gewinnt. Wie entstehen und wie entwickeln sich interorganisationale Strategien? Was sind die spezifischen Dynamiken, wenn Strategien organisationale Grenzen überschreiten, und warum sind einige Multipartner Initiativen erfolgreicher als andere? Diese übergeordneten Fragen leiten die nachfolgende Untersuchung. Diese Forschungsarbeit basiert auf einer Datenbasis aus Fallstudien, Interviews, sowie Umfragen. Darüber hinaus wird auf eine umfangreiche Datenbank aus Sekundärdaten zurückgegriffen. Die Untersuchungen erfolgen im empirischen Forschungskontext des sich gegenwärtig formierenden Elektromobilitätssektors.

Drei zusammenhängende Teile werden entwickelt, um eine umfängliche Perspektive zu erschliessen. Aufbauend auf dem einleitenden Kapitel, beginnt diese Dissertation mit einem Literaturüberblick, der den aktuellen Kenntnisstand über interorganisationale Strategieprozesse und -dynamiken aus unterschiedlichen Forschungssträngen organisiert und zusammenträgt. Diese Zusammenfassung bildet die Grundlage für die nachfolgenden Untersuchungen und identifiziert Forschungslücken für künftige wissenschaftliche Arbeit. Der zweite Teil greift auf einem qualitativen, fallstudienbasierten Forschungsansatz zurück, um ein empirisches interorganisationales Strategieprozessmodell zu formulieren. Damit wird der gegenwärtige Stand der Forschung kontrastiert und erweitert. Aufbauend auf den vorangegangenen Ergebnissen, wird im dritten Teil der Einfluss von Intermediären (Drittparteien) auf die strategische Interaktionen mehrerer Partner untersucht. Ein besonderes Augenmerk gilt hier dem inhärenten Spannungsfeld von Kooperation und Wettbewerb (Coopetition) in Multipartner Konstellationen. Die Ergebnisse der Forschungsstudien zeigen, in welchem Kontext Intermediäre involviert werden können, um dieses Spannungsfeld zu überbrücken. Durch die empirischen Tests konnten Implikationen in Hinblick auf den Erfolg von Multipartner Allianzen entwickelt werden.

Die empirischen Erkenntnisse dieser Arbeit bieten Orientierung bei der Frage, wie Multipartner Allianzen konfiguriert und ausbalanciert werden können, um den Erfolg zu erhöhen. Entlang dieses Pfades bietet diese Dissertation auch Einblicke in das Management von Multipartner Initiativen. Der letzte Teil fasst die Ergebnisse zusammen und setzt diese in den theoretischen und konzeptionellen Kontext. Schlussfolgernd werden die Beiträge dieser Dissertation zum Bereich der Strategieprozessforschung, der Forschung zum Thema Coopetition, sowie strategischen Initiativen unterstrichen.

*Two roads diverged in a wood, and I—
I took the one less traveled by,
And that has made all the difference.*

Robert Frost

1 Introduction

The process of strategy making is at the heart of strategic management research. Albeit a rich history of more than half a century, this research field has neither lost its attraction, nor its relevance. One central premise has fueled the enduring interest of scholars and executives alike: Certain strategic approaches are more promising than others, thus providing some explanation for firms' performance differences as more than mere luck.

Strategy scholars have explored the various facets of the strategic processes by tracing their progression on various levels within the organizational boundaries (Burgelman, 1991; Chakravarthy and Doz, 1992; Hart, 1992). Conventional wisdom holds that strategy is developed behind closed doors, where single firms formulate strategic agendas that are subsequently implemented to achieve a competitive advantage against fierce rivals (Porter, 1996).

Empirically, however, we frequently observe developments that are in stark contrast with this supposition. Firms increasingly join forces to cope with today's mounting innovation complexity (Dougherty and Dunne, 2011) and reap interorganizational advantages that appear inaccessible to single-firm approaches (Dyer and Singh, 1998; Gulati, Nohria, and Zaheer, 2000). Beyond this, two basic trends drive the increasing involvement in joint value creation. A more challenging demand for integrated products, which requires dispersed inputs from varying industries, on the one hand, and increasingly sophisticated technological means, which facilitate interaction, on the other. It is therefore less surprising that firms are

increasingly becoming involved in multipartner initiatives to jointly pursue their strategic goals and in order to meet the competition, which has been elevated above the level of a single firm. For instance, *ARM*, a microprocessor developer, has developed a leading position in its field by systematically pursuing strategies and joint business models with its numerous partners.

Adjacent management research has sketched a similar trend towards more open and collaborative approaches. Organization science has emphasized an increasing shift towards more collaborative designs, such as ecosystems (Adner and Kapoor, 2010), collaborative architectures (Fjeldstad *et al.*, 2012), platforms (Gawer), and meta-organizations (Gulati, Puranam, and Tushman, 2012). Moreover, innovation literature emphasizes the need for more open collaborative strategies (Chesbrough and Appleyard, 2007). Together, these empirical insights suggest a more inclusive conceptualization of the strategy process that goes beyond the theoretically imposed boundaries of the prevailing firm-centric strategy process studies.

It is for these reasons that this dissertation takes a more encompassing view on the strategy process to complement current research and provide guidance for practice alike.

1.1 Research Background and Objectives

Several gaps have been identified, which will be addressed in this dissertation. The following briefly outlines these gaps to lay the groundwork for the analysis and discussion in the subsequent chapters.

First, looking back, prior strategic management research has produced a comprehensive picture of strategy making processes in organizations. An ever-increasing plurality of frameworks and concepts has emerged, illustrating the multi-faceted nature of strategy making. Hart synthesized the existing conceptual models in an overarching framework, concluding that “strategy making must be conceptualized as an organization-wide phenomenon” (1992: 347). Thus far, strategic process scholars have put much spotlight on the varying intraorganizational levels (e.g., Bower, 1970; Burgelman, 1983a, 1991; Chakravarthy *et al.*, 2003; Floyd and Wooldridge, 2000; Lovas and Ghoshal, 2000; Hart and Banbury, 1994; Mintzberg, 1978; Whittington,

2007). But the theory is incomplete at this point, as research on strategy making across organizations has been sparse.

Only a few studies have touched upon strategy processes across organizations (Lewin and Volberda, 1999). Notable exceptions, such as research on collective strategies (Astley and Fombrun, 1983; Astley, 1984; Bresser, 1988; Bresser and Harl, 1986; Dollinger, 1990), or meta-strategies (Huxham, 1993; Selsky and Parker, 2005; Westley and Vredenburg, 1997), are conceptual, or take an overly aggregated (population) perspective. While this research is informative, it leaves a significant void in our understanding of how these processes emerge and evolve at a granular level. Hence, in the tradition of intrafirm strategy research, a finer-grained empirical account is important to complement and contrast extant frameworks.

Second, current strategy models do not explicitly account for external contexts, while several of them underline the importance of establishing external links (Burgelman, 1983b; Lovas and Ghoshal, 2000; Noda and Bower, 1996). The importance of strategic and structural contexts has been demonstrated in respect of distinct fields of inquiry, such as learning (e.g., Lei, Hitt, and Bettis, 1996), adaptation (e.g., Hrebiniak and Joyce, 1985), and decision making (e.g., Papadakis, Lioukas, and Chambers, 1998), while empirically grounded research with a specific focus on the strategy process is still lacking.

Third, academic and practical literature has advanced our knowledge on the strategic initiative's major function to (re-)calibrate intrafirm strategy to environments (Agarwal and Helfat, 2009; Chakravarthy and Doz, 1992), their effective management (Beer, 2000; Darragh and Campbell, 2001), and factors that allow them to thrive (Floyd and Lane, 2000). However, our current understanding of strategic initiatives and their management across multiple firms is little. While the urge to examine and advance research on strategic initiatives beyond the traditional intrafirm locus has been called out (Lechner, 2010), no such account exists thus far, to my best knowledge. Scholars of this field repeatedly argued that strategic initiatives cut across firm boundaries and therefore should not be restricted to intrafirm investigations (Bryson and Bromiley, 1993; Wielemaker, 2003). This confinement seems also somewhat out of touch with the practical world, which increasingly witnesses the occurrence of

interorganizational and cross-sectoral initiatives among multiple partners (Lavie, Lechner, and Singh, 2007; Sakakibara, 2002). A particularly insightful domain is the emerging electric mobility sectors, which is the research setting of this thesis.

My research towards these three research gaps intends to develop a more realistic view on strategy making of multiple firms. By investigating these three distinct, and yet intertwined research topics, the following studies shed light on phenomena that hitherto have not been addressed in strategy process research. This thesis investigates the tension that arises when multiple firms strategize through the simultaneous occurrence of cooperation and competition, denoted as coopetition. It thus highlights context-specific effects that arise when these forces interact.

Moreover, recent accounts of interfirm relationships indicate that external intermediaries might play a strategically important role (Lazzarini, 2015) in establishing trust (Mesquita, 2007), facilitating interaction (Zaheer and McEvily, 1999), resolving conflict, and stabilizing relationships (Heidl, Steensma, and Phelps, 2014; Howells, 2006). Thus far, strategy process research has not incorporated and empirically examined the role of intermediaries. To close these voids, this Ph.D. thesis seeks answers to the following research questions:

(1) What is our current knowledge of the interorganizational strategy process? What are the major shortcomings of interorganizational strategy process research?

(2) How does the interorganizational strategy process emerge and evolve? What are the key activities and dynamics at play and how do they relate or differ from intraorganizational processes?

(3) Does intermediation impinge upon interorganizational collaboration between multiple partners? If so, what context-specific effects on performance exist?

(4) How do interorganizational strategic initiatives differ from those inside firms and how do multiple partners manage them?

1.2 Relevance and Contribution

With this dissertation, I aim to tackle the aforementioned shortcomings and contribute to resolving the discrepancy between the current state of strategy process research and the intrusive empirical fact of the growing strategic interdependence of firms across varying business landscapes. The selected research setting of electric mobility (hereinafter denoted as eMobility) adds practical relevance by providing insights into a domain characterized by the trend towards blurring industry boundaries.

By shifting perspective and going beyond traditional firm boundaries, I follow a “worthwhile academic endeavor” to add additional explanatory power to our existing strategy models (Gulati, Nohria, and Zaheer, 2000: 205). The underlying argument of all my studies is that strategy is increasingly crafted *outside single firm boundaries*. In a broader sense, this thesis intends to contribute to an increasingly acknowledged view of strategy processes as a context-specific research subject that requires an adequate consideration of contextual influences (Van de Ven, 1992).

Prior literature emphasizes that an interorganizational strategy (hereinafter denoted as IOS) allows for tackling meta-problems (Huxham and Macdonald, 1992) and reaping interorganizational advantages (Dyer and Singh, 1998; Gulati, Nohria, and Zaheer, 2000) that single firms cannot access. More recent studies stress that firms rely increasingly on more inclusive and open strategy making (Chesbrough and Appleyard, 2007; Whittington, Caillaud, and Yakis-Douglas, 2011) to deliver integrated solutions and to provide complex innovation (Dougherty and Dunne, 2011). While the rewards and opportunities are clearly stated, the underlying mechanisms and dynamics remain elusive to academia and praxis. This dissertation’s exploration of interorganizational strategies and collaboration is relevant by providing academic research and management praxis with more guidance.

Researchers from different management disciplines have articulated the need for more academic effort to fill this gap. Proponents of relational strategies argue that the ability to build and maintain relationships with other actors is essential in strategy making. Their studies endeavor to shed more light on the interorganizational rent-generating process (Dyer and Singh, 1998) beyond the traditionally atomistic

approaches, in order to gain a more encompassing understanding of strategic behavior in firms (Gulati, Nohria, and Zaheer, 2000: 212). Strategic network reasoning postulates the embeddedness of firms in networks of relationships (Granovetter, 1985; Uzzi, 1997), suggesting that the traditional approaches of individual actors competing for profits need to be supplemented (Gadde, Huemer, and Håkansson, 2003: 358). Resource-based argumentation implies that, on its own, a firm has insufficient resources to satisfy customer demand, as resources reside in a network rather within a single firm alone (Afuah, 2000: 387). Moreover, firms can only exploit their resources by combining them with others' resources (Håkansson and Ford, 2002).

The relevance of studying and advancing our currently dominating strategy models towards more inclusive concepts is aptly underscored by Levinthal:

“I think an important extension [...] is to recognize the role of the structural and strategic context external to the firm. Firms are not operating in a vacuum – they have customers, their scientists and engineers operate in professional communities, and they operate in a regulatory environment. Whether or not the objectives and concerns of these external constituencies are incorporated into the firm’s own strategy and selection criteria, they exist and may be quite salient for a number of actors within the firm and, indeed, in some cases more salient than the firms’ own objectives” (Bower and Gilbert, 2005: 404).

Finally, Huff and Reger remind us that “the most significant contribution to research progress in the field will in fact be made by those who cross the boundaries that have been carefully built up over the last several decades” (1987: 227). My research endeavor literally crosses boundaries by examining IOS processes, which hitherto did not find sufficient attention.

1.3 Dissertation Outline

The structure of this dissertation reflects the focus on three parts that build upon each other. While these parts are interrelated, they draw on distinct theoretical perspectives, samples, and methodological means. Part I lays the theoretical foundation and systematically reviews relevant literature. Part II is an interview-based study that applies a qualitative case-study technique to develop an empirically

grounded IOS process model. Part III aims to increase the research depth by drawing on a survey sample of 153 multipartner alliances and applying regression analysis to test specific aspects that previous parts revealed. These three core parts are complemented by this introductory and a final discussion section, which aims to embed this study into the overall theoretical and research context. The appendix section compiles further information, such as details of the literature review, an overview of the initiatives, an interview guide, a codebook, and survey details. Table 1 illustrates the outline of this dissertation.

Table 1: Dissertation Outline

INTRODUCTION	
PART I	THEORETICAL FOUNDATIONS
	<ul style="list-style-type: none"> ▪ Conceptualization of Strategy and Process ▪ Theoretical Perspectives on Strategy Process ▪ Review of Strategy Process Research
PART II	WHEN MULTIPLE PARTNERS ALLY: A PROCESS MODEL ON INTERORGANIZATIONAL STRATEGY FORMATION
	<ul style="list-style-type: none"> ▪ Introduction ▪ Background ▪ Methodological Basis and Research Approach ▪ Research Setting ▪ Research Process ▪ A Process Model ▪ Discussion ▪ Conclusion and Implications
PART III	COOPERATING AND COMPETING IN MULTIPARTNER ALLIANCES: THE ROLE OF STRATEGIC BRIDGING IN COOPETITION
	<ul style="list-style-type: none"> ▪ Introduction ▪ Background ▪ Theoretical Foundations and Conceptual Model ▪ Hypotheses ▪ Methodology ▪ Analyses and Results ▪ Discussion ▪ Conclusion
OVERALL DISCUSSION AND CONCLUSION	

Part I: THEORETICAL FOUNDATIONS

2 Conceptualization of Strategy and Process

Following the advice that a good work starts with a good definition, I begin by delineating the understanding of the terms strategy and process in this paper, before delving deeper into the models and theories of the strategy process field.

2.1 Strategy

Strategy has been predominantly conceptualized as an attempt to become different (Porter, 1996: 64), or create something different (Kim and Mauborgne, 2005), in order to gain competitive advantage by following a predetermined plan (Drucker, 1974: 104; Slevin and Covin, 1997: 189). While there is a multiplicity of definitions, in its broadest interpretation, strategy implies “the fundamental means an organization uses to achieve its objectives” (Hofer, 1978: 23). Mintzberg (1987), who complemented overly deterministic planning approaches with four rival interpretations to capture a more holistic picture, offers alternative perspectives to these “predict-and-prepare” conceptualizations.

As a *ploy*, strategy is used to outmaneuver competitors through misleading signals (e.g., threats), rather than by executing activities to achieve the own organization’s objectives. In contrast, strategy as a *position* perceives strategy as a medium to create fit between the intra- and extra-organizational contingencies in an attempt to navigate into economically favorable positions. Strategy as a *perspective* is rooted in a cognitive interpretation of an organization’s view of itself and the world. This interpretation asks how an organization makes sense of the internal and external conditions that determine its subsequent strategic reaction. Finally, building on the tenet that only realized action, rather than planned action (which may result in unrealized strategy) shapes strategy, strategy is seen as a *pattern*, whether deliberate or unintended, that coalesces from a stream of decisions and actions (Mintzberg and Waters, 1985).

This last interpretation of strategy as a pattern has achieved broad consensus among researchers and I thus draw on it in this dissertation. However, thus far, most studies on strategy processes conceptualize strategy as a predominantly firm-bound phenomenon. While external contingencies have found their way into strategic calculus (i.e. in strategy as position perspectives), strategy making is primarily viewed as an issue that each firm undertakes individually. Only a few studies elaborate on strategies across firm boundaries. Table 2 presents definitions from various research threads and angles, conceptualizing “interorganizational,” “ecology-wide,” “collaborative,” “architectural,” and “network” strategies:

Table 2: Definitions and Conceptualizations of Interorganizational Strategy

Reference	Definition	Conceptualization
Zajac and Olsen, 1993: 134	"Interorganizational strategies are formed voluntarily by two (or more) organizations seeking to create and sustain a relationship that is valuable to both firms."	Value-creating process
Zaheer and Venkatraman, 1995: 375	"The choice of the form of governance, specifically the determination of the appropriate governance structure and process, is broadly defined as the interorganizational strategy of the firm."	Governance structure and process
Dyer and Singh, 1998: 661	"[F]irms who combine resources in unique ways may realize an advantage over competing firms who are unable or unwilling to do so. Thus, idiosyncratic interfirm linkages may be a source of relational rents and competitive advantage."	Value-creating process
Dougherty and Dunne, 2011: 1220	"Ecology-wide strategies [...] need to be developed among ecology participants because no one organization or even a small set of partners can generate the enterprise-wide value that is needed."	Means of learning and capability development
Maguire and Hardy, 2005: 12	"Collaborative strategy involves an ongoing cooperative relationship among organizations. Rather than relying on market and hierarchical mechanisms of control, it is negotiated in an ongoing communicative process."	Process of negotiation and communication
Håkansson and Ford, 2002: 137	"The ‘strategizing’ task is about identifying the scope for action, within existing and potential relationships and about operating effectively with others within the internal and external constraints that limit that scope."	Process of leveraging network relations
Ozcan and Eisenhardt, 2009: 258	"[A] clear vision to multiple types of firms, a focal firm could mobilize less prescient potential partners to act in concert and could distribute the risks of pioneering a new market. Second, the architectural strategy structured collaboration after tie formation, as firms were motivated to act interdependently to realize the vision."	Means of mobilization and coordination

In this dissertation, I borrow and extend Mintzberg's (Mintzberg, 1978) definition to investigate interorganizational strategic interaction. I therefore expand on the following IOS interpretation:

Strategy is a pattern in a stream of interactions taken across multiple firms over time to pursue an overarching goal to gain competitive advantage.

2.2 Process

An important distinction in strategy research is that between process and content research (e.g., Andrews, 1971). Since their inception, both research fields have developed separately and ever since provoke debates for more integration.¹ Content research focuses on the subject of a strategic decision (explains 'What to do') in a normative sense and its linkage to performance outcomes in various fields (e.g., acquisitions, divestments, turnarounds, and product or market differentiations). Process research, central to this dissertation's focus, spotlights action that creates and supports strategies (explains 'How it is done'). It illuminates the dynamics and action to be taken in a less desirable state (Pettigrew, 1992). It particularly focusses on topics of decision making, learning, planning, and innovating (Van de Ven, 1992), as well as dealing with the unfolding of strategies, as they are formed, implemented, and changed. The term "process" offers a sea of diverging interpretations (for a review, see Van de Ven, 1992). Van de Ven (1992) offers three major classifications to reduce the interpretative confusion:

The first classification views a process as a theoretically conceptualized *story* explaining the causal relationships between independent and dependent variables. The observation of processes itself is of subordinate relevance. Rather, theories are used to retrospectively explain the causal relationships uncovered. The process's underlying

¹ There are rich debates about the usefulness of the fields' separation. Those scholars in favor of separation believe the distinction facilitates research and analysis, thereby providing impetus for new research domains (Chakravarthy and Doz, 1992; Porter, 1980). Those opposing this distinction bemoan the "intellectual trap" (Pettigrew, 1992: 6) of classifying research on strategy into content and process domains by artificially partitioning a phenomenon which is actually inseparably connected in practice (Huff and Reger, 1987; Ketchen, Thomas, and McDaniel, 1996); Müller-Stewens and Lechner, 2011).

logic is more important than the process itself, permitting causal inferences of the input and output relationships, as known from variance theory. This approach implies overly simplistic assumptions of causal relationships; consequently, a single research means is insufficient for naturally complex interorganizational processes.

The second classification views processes as a *developmental event sequence of activities* that describes how change happens, or how unobservable patterns evolve, over time. Processes are seen as historical developments of sequenced events, or activities that change organizations throughout their existence. Van de Ven (1992) notes that by opening the proverbial “black box,” this interpretation provides the most comprehensive insights into the interplay between the inputs, processes, and outputs. By examining processes as a sequence of events and activities, two questions are answered: “how” and “why” changes occur in organizations. However, while accounting for the sequences increases the precision, the generalizability of results may potentially suffer.

The third classification interprets processes as *category of concepts* that can be operationalized as measurable constructs and their variables. This approach, also known as quantification strategy (Langley, 1999), condenses process data systematically towards quantitative time series for statistical analyses (e.g., Brown and Eisenhardt, 1997; Eisenhardt, 1989b). The operationalization of processes into variables allows for causal inferences about dynamic processes’ effect on the outcomes at specific points in time. A merely quantitative-based research approach, however, appears to be somewhat shortsighted, as it may not explain how processes unfold over time. Further, when dealing with complex phenomena, such as strategic processes, it is difficult to provide conventional statistical corroboration of a model (Bower and Gilbert, 2005: 26). In other, metaphorical, words: Only a small box within a bigger black box may be opened, thus carrying the risk of losing sight of the big picture.

To reduce the potential drawbacks and explore the IOS process and its underlying dynamics holistically, this dissertation starts off with different interpretations of the term process. Specifically, Part I aims to review the current literature’s view of (the story of) causal relationships that relate to the IOS process.

Part II draws on the traditional qualitative approach in strategy process research (e.g., Bower, 1970; Burgelman, 1983b, 1991; Floyd and Wooldridge, 2000) that investigates the development of activities and derives a framework inductively. Based on these insights, Part III builds on the third classification by operationalizing and testing selected processes to identify constructs and variables in order to ultimately derive performance implications.

2.3 Strategic Initiatives as Manifestations of Strategy

Throughout the management discipline strategic initiatives² are broadly acknowledged as a core element of strategy making (Nag, Hambrick, and Chen, 2007). They form a crucial mechanism for survival in business environments where competitive advantages (Porter, 1980) and resources (Barney, 1991) erode over time.

Scholars have used strategic initiatives as a unit of analysis to explain a large range of phenomena, such as innovation (Leonard-Barton, 1992; Nonaka, 1988), entrepreneurship (Burgelman, 1983b), and organizational learning (Lechner and Floyd, 2007; McGrath, 2001). Most important to this dissertation, strategic initiatives have shown to be an adequate means to investigate the strategy process (Birkenshaw, 1997; Burgelman, 1991; Floyd and Wooldridge, 2000; Floyd and Lane, 2000; Lovas and Ghoshal, 2000).

No consistent definition has been developed for strategic initiatives. Table 3 specifies some frequently applied interpretations in strategy process research.³ The outlined definitions range from a deliberate attempt to gain a competitive edge against rivals (Birkenshaw, 1997), or to purposefully extract value from the external environment (Lovas and Ghoshal, 2000), to rather serendipitously occurring undertakings that corporate outlaws initiate (Burgelman, 1983a).

² Throughout this thesis, the terms “strategic initiative” and “initiative” are used synonymously. It is important to note, however, that not all emergent initiatives constitute strategic initiatives. Rather, they may become such if they “have the potential to change core organizational capabilities and thereby shift the basis of competitive advantage” Floyd and Wooldridge (2000: 117).

³ Lechner and Kreutzer (2010) offer a more extended discussion on “strategic initiatives”.

Table 3: Definitions and Conceptualizations of Strategic Initiatives

Reference	Definition	Conceptualization
Birkinshaw, 1997: 207	"A discrete, proactive undertaking that advances a new way for the corporation to use or expand its resource [...] An initiative is essentially an entrepreneurial process, beginning with the identification of an opportunity and culminating in the commitment of resources to that opportunity."	Means of entrepreneurship
Burgelman, 1983: 241	"[Initiatives] fall outside the current concept of corporate strategy [...] one of the most important resources for maintaining the capability for renewal [...]."	Means of internal variation, selection and retention
Floyd and Wooldridge, 2000: 117	"[Endeavors] outside the scope of present theory [...] change core organizational capabilities and thereby shift the basis of competitive advantage."	Means of renewal and capability development
Lechner and Kreutzer, 2010: 286	"[T]emporary, coordinated undertakings for renewing or expanding the capabilities of an organization that have the potential to substantially impact its evolution and performance."	Means of renewal and capability development
Lovas and Ghoshal, 2000: 881	"A deliberate effort by a firm at creating or appropriating economic value from the environment, which is organized as an independent project with its own profit and loss responsibility."	Means of competition
McGrath, MacMillan, and Venkataraman, 1995: 252	"A principle mechanism through which organizations develop new competitive advantages is through the pursuit of new initiatives."	Means of competitive advantage

Lechner and Kreutzer (2010) develop a helpful summary of common ground in strategic initiatives definitions by identifying five essential characteristics: (1) Initiatives are temporary firm endeavors. Once the initial purpose has been reached, cancelled (due to other priorities), or was not achieved, initiatives end. (2) Initiatives are multilevel phenomena spanning across firm levels. Studies have shown the interplay of top, middle and lower levels and their distinct roles in driving firm initiatives. (3) Strategic initiatives break new ground. In contrast to day-to-day operation, strategic initiatives renew or advance existing structures, practices, and routines. (4) Initiatives recombine and alter the current resource base to develop existing and add new capabilities. (5) Initiatives absorb a substantial amount of firm

resources (financial, human, and technical). Their outcome, however, is highly uncertain and thus involves a substantial amount of risk exposure.

I follow prior conceptualizations that define strategic initiatives as a “discrete” process (Birkenshaw, 1997: 207), which is distinct from focusing on the operation of a firm alone (Barnett and Burgelman, 1996: 11). This “discrete process has a life of its own and [...] can thus part or spin out from the firm and evolve into a separate firm” (Wielemaker, 2003: 5). This view suggests that strategic initiatives are predisposed to transcend the boundaries of a single firm, thus allowing for an interorganizational perspective on strategy making (Burgelman, 1991). The ontological stance I take in this dissertation is process-related, viewing strategies as a result of interfirm processes rather than a one-off exercise (Klingebiel and Meyer, 2012).

To explore the IOS phenomenon, this dissertation goes beyond previous research’s focus on the traditional, intrafirm locus of initiatives. It thereby also responds to recent calls for research to focus stronger on strategic initiatives that cut across single-firm boundaries (Bryson and Bromiley, 1993; Lechner, 2010; Wielemaker, 2003). In building on prior definitions, I conceptualize multipartner strategic initiatives as follows:

A multipartner strategic initiative is a deliberate, induced, or emergent, temporary process, geared towards renewal or expansion of resources and capabilities across multiple firms.

3 Theoretical Perspectives on Strategy Process

Theories are used and developed to reduce the complexity of empirical phenomena by two means: organizing and communicating parsimoniously and clearly (Bacharach, 1989). Strategy processes have been studied through a wide variety of theoretical lenses, each of which has emphasized different aspects (Hart and Banbury, 1994; Lechner, 2006) from an organizational or metaorganizational point of view (Hoskisson, 1999).⁴ Given the limited scope of this dissertation and the vast amount of theoretical perspectives, this part briefly touches upon theoretical aspects that are of

⁴ Hoskisson and colleagues (1999) metaphorically draw on a swinging pendulum to illustrate the application of varying (and reoccurring) theoretical perspectives in strategic management research.

major relevance for the investigation of the outlined research questions.⁵ More specifically, the studies conducted as part of this dissertation draw predominantly on evolutionary (Part II) and social lenses (Part III) to investigate IOS.

3.1 Evolutionary Theory

Population Ecology

Nelson and Winter (1982) and Hannan and Freeman (1977) were among the first to draw on evolutionary and ecological perspectives to theorize about organizations. Population ecologists focus on whole populations (aggregates) of firms or industries as a unit of selection, which are “homogeneous in terms of environmental vulnerability” (Hannan and Freeman, 1977: 934). In strategy research, scholars of collective strategy have applied population theorizing to capture strategic dynamics across all firms within a population (Astley and Fombrun, 1983: 577; Bresser and Harl, 1986; Carney, 1987).

From this perspective, environmental selection mechanisms “optimize” strategy externally, while the managerial impact is of negligible relevance. More specifically, strong organizational inertial forces prevent top management from making a rational adaptation when environmental change occurs.⁶ Population ecology research outlines two fundamental selection mechanisms: legitimacy and competition. While small scale populations struggle for legitimacy, large populations seem to predominantly face fierce competition. Donald Campbell (1965) first transferred concepts from the Darwinian theory to sociocultural systems to explain the evolution of strategy by drawing on three fundamental dynamics:

⁵ Van de Ven and Poole (1995) found 20 different process theories that applied across disciplines. By examining their epistemological and intellectual roots, they derived four overarching theoretical schools: life-cycle, teleology, dialectics, and evolution theories. For a more detailed account of these theoretical paradigms, see also Aldrich (1999); Barnett and Burgelman (1996); Campbell (1965); Donaldson (2001); Hoskisson (1999); Nelson (1982), and Wood and Gray (1991).

⁶ Organizational inertia may arise from internal arrangements (e.g., sunk costs in plant, equipment, and personnel, political coalitions, entrenched social structures, escalated commitments, decision heuristics, and normative standards) or external arrangements (e.g., legal and other barriers, exchange relations with other organizations). They also prevent timely adaptation of organizations to environmental changes Hannan and Freeman (1984). Inertial forces are, however, also a source of opportunities, fostering product delivery reliability, economies of efficiency, and the accumulation of tacit knowledge, all of which lead to competitive advantage (Lewin and Volberda, 1999).

Variation happens when existing organizational attributes are altered or innovated, creating new norms, routines, competencies, and organizational forms. The variation process occurs intentionally (e.g., seeking solutions to problems), or randomly (e.g., mistakes or experimentation), generating choice for the subsequent selection process.

The *selection* process eliminates certain variations that do not fulfill environmental requirements. Selective forces may reside within (e.g., persistence of past selection), or outside (e.g., competitive pressure, institutionalization), organizations. A selection takes place when rare organizational resources are allocated to support a variation (e.g., strategic initiative) (Bower, 1970; Noda and Bower, 1996).

During the *retention* process, selected variations are preserved, duplicated, or otherwise reproduced. Within organizations, this happens through the specialization and the standardization of roles that limit discretion, while practices, beliefs, and values are institutionalized between organizations (Nelson, 1982). Successful practices and routines are subsequently diffused throughout the population (Aldrich, 1999: 22). In essence, the retention process embodies the organizational effort to perpetuate selected positions and sustain the status quo, which eventually tilts towards *inertia*, a key evolutionary theory construct. Thus, retention processes involve the accumulation of procedural and structural “baggage,” which renders firms inert to timely adaption when environmental change occurs.

Organizational Ecology

Departing from the purely deterministic view that population ecologists propose, scholars recognize the explanatory power of evolutionary theory for intraorganizational processes – referred to as intraorganizational ecology (e.g., Burgelman, 1983b, 1991; Chakravarthy *et al.*, 2003; Floyd and Wooldridge, 2000; Lovas and Ghoshal, 2000; Quinn, 1980). Evolutionary theory builds on the premise that internal selection mechanisms reflect environmental selection pressures, and, to some extent, internal selection even replaces the external one. In effect, intraorganizational ecologies enforce the external viability of strategic choices, which are internally selected and retained (Barnett and Burgelman, 1996).

In evolutionary theory, managers crucially shape the organizational arenas in which evolutionary processes unfold. While top management's direct influence on the content is rather limited, it may exert significant influence through conscious intervention by setting structural contexts and administrative systems (Burgelman, 1983a; Lovas and Ghoshal, 2000). Strategy is seen as emerging incrementally (Quinn, 1978) and randomly, with top management playing a limited role; thus, rather than shaping strategy, they only post-rationalize it after implementation (Weick, 1979).

In his study on the strategic position of *Intel's* microprocessor business, Burgelman (1994) provides insight into the inertial forces that may arise as a consequence of retentive processes. Aiming to preserve Intel's distinctive competence, the management focused the company's available resources on its core microprocessor businesses, gradually de-coupling from its markets and losing its competitive position. Hence, similar to firms' struggle for survival on the population level, the intrafirm ecological view suggests that firm initiatives compete for scarce internal resources and for key decision makers' limited attention. Ultimately, the most promising initiatives are selected, which then grow to finally reinforce, or alter, the current strategy concept.

To regain the fit between organizations and markets, the autonomous activities and diverging strategic actions that middle-level managers take are pivotal. This essential finding is a result of numerous studies on evolutionary theory, conceptualizing strategy making as the ecology of initiatives arising primarily from lower levels or middle management activities (Bower, 1970; Burgelman, 1991; Floyd and Wooldridge, 2000; Noda and Bower, 1996).

3.2 Social Exchange Theory

One of the basic tenets of social exchange theory is that the exchange of social and material resources develops more trusting relationships over time and creates mutual commitments. While different views of social exchange have emerged over time, theorists agree on the premise that social exchange involves a series of interactions that generate obligations (Emerson, 1976; Homans, 1958a). Based on this premise, exchange theorists argue that societies pursue common goals and aspirations in their interactions with others.

Principles and rules that emerge, or are negotiated to guide the interaction process, frame the exchange. This exchange activity has been differentiated along two dimensions. First, social exchange can be restricted, or generalized, depending on the number of involved parties. Restricted exchange occurs when two parties engage in direct exchange, while generalized exchange takes place between at least three parties and direct exchange does not necessarily happen (Ekeh, 1974). Second, Emerson (1976) specified exchange activity as either reciprocal or negotiated. While reciprocal exchange is associated with relational interaction based on unspecified terms and obligations, negotiated exchange is based on binding transactional agreements with specified terms and obligations (Lawler and Thye, 1999).

Although, reciprocity is not the only principle or rule in social exchange theory, management scholars have found it most interesting (Cropanzano and Mitchell, 2005). It has been shown to have an explanatory value for interpersonal (e.g., leader-member relationships), as well as firm and interfirm phenomena (e.g., organizational behavior, network formation) (for a review, see Cropanzano and Mitchell, 2005). Equally, the social exchange perspective fits this dissertation's empirical phenomenon well. First, because it offers a major rationale for firms entering collaborations by arguing that exchange allows for overcoming resource scarcity (Das and Teng, 2002a). This scarcity prompts partners (and competitors) to engage in an ongoing exchange and intensifies social relationships to receive critical inputs (Blau, 1964). Second, the social exchange perspective offers guidance on the nature of exchange activity, which is at the heart of all collaborations between firms.

3.3 Implications for this Dissertation

The introduced perspectives provide the foundation for the theorizing and embedding of empirical insights within this dissertation, and will therefore resonate in the theoretical arguments that I make. It is important to note that these perspectives provide the major lenses through which the outlined phenomenon will be investigated; however, other theoretical explanations may be used as a complement to increase the explanatory power. For instance, social exchange theory neglects opportunistic behavior, which is an inherent threat in multipartner initiatives. To account for this

limitation, I draw on transaction cost theoretical reasoning as a complementary perspective to better explain the dynamics at play.

Evolutionary theory is a dominating perspective in strategy process research. The rich insight it has produced in previous studies provides an important reference point for this study. Taking an evolutionary perspective allows building on well-acknowledged intraorganizational strategy concepts (e.g., strategic and structural context). Moreover, following an established theoretical path allows me to compare my findings to prior literature and to generate insights that connect to what has previously been found. Finally, evolutionary theory underlines the dynamic and emerging nature of strategy, which relates more to the observed empirical IOS phenomenon, than more static approaches, which classical strategic choice suggests (Child, 1972). Thus, by inducing this research to deviate from static strategy spaces and allowing for the emergence of new strategic attributes (Barnett and Burgelman, 1996), more insightful research is likely.

Conversely, social exchange theory has enjoyed far less attention among strategy scholar. Drawing on this less exhausted theoretical reasoning to explore strategy processes appears to be a promising path to generate new, or contrasting, insights by applying a new lens. In the last part of this dissertation, I follow Kogut's (1988) advice to treat the presented theoretical perspectives as complementary rather than as substitutes to theoretically underpin my results.

4 Review of Strategy Process Research

Throughout the past five decades, a substantial body of theoretical and empirical knowledge has been produced in the strategy process field.⁷ These partly disconnected and partly overlapping publications emphasize the research foci (formulation or implementation), purposes (normative or descriptive), levels of analyses (individual or organizational), and the underlying rationality assumptions (degree of rationality) to a varying degree (Huff and Reger, 1987). Based on an encompassing review of the

⁷ For comprehensive reviews, see Chakravarthy and Doz (1992); Hart (1992); Hart and Banbury (1994); Huff and Reger (1987); Lechner (2006); Pettigrew (1992).

varying research threads, this section synthesizes existing IOS knowledge by taking a processual point of view. In doing so, this section provides an overview of the key *strategic dynamics*; — that is, the interplay of activity by which advantage is created and sustained (Burgelman and Grove, 2007; Porter, 1991: 96) —, which allows IOS to emerge and evolve. In presenting the current state of the literature, the section also develops a sounding board for the subsequent empirical investigations.

The final part of this section provides a more detailed view of the most acknowledged strategy process models in intra- and interorganizational research.⁸ This is important for the following reasons: first, to better understand how the strategic dynamics interact to form a strategy; second, to sharpen the research gap and work more thoroughly towards closing it; and, third, to receive guidance in embedding the findings into the broader research context.

4.1 Review Approach

I followed a systematic data base survey procedure when locating the relevant literature and deriving a comprehensive review of strategy processes. The literature for this review had to meet three inclusion criteria: research fields, journals, and keywords.

In respect of the research fields, this review focused on literature from strategic management and organization science, since these domains explicitly focus on processes related to strategic themes. A limited number of studies outside the pre-defined research field criteria were included, which were deemed to have insightful findings, for example, studies from public management and human resources.

In terms of journals, I drew on outlets with the highest impact factor over an extend period of time, as suggested by the Social Science Citation Index (SSCI). Accordingly, I included six journals: Academy of Management Review (AMR), Academy of Management Journal (AMJ), Administrative Science Quarterly (ASQ), Management Science (MS), Organization Science (OS), and Strategic Management

⁸ Numerous process models have been developed with each highlighting a specific attribute of strategy making (see e.g., Lechner (2006); Lechner and Müller-Stewens (2000)). Given this vast number of studies, I will limit my review to the most relevant models with regard to my research purpose.

Journal (SMJ). I subsequently performed a keyword search in the Thomson Reuters Database (Web of Knowledge) by applying a “topics” search parameter, which scans abstracts, titles, and outlined keywords for the search terms employed. This stepwise search yielded the following results from relevant articles:

Figure 1: Results of Keyword Search

Keywords applied	Results
Strategy AND Process AND Model	255
Strategy Making	491
Strategy AND Process AND Framework	72
Interorganizational AND Strateg* AND Process	41
Cooperative AND Strateg* AND Process	13
Collaborative AND Strateg* AND Process	17
Inter-firm AND Strateg* AND Process	2
Total	891

Subsequently, I excluded results with multiple occurrences (239 articles excluded) and studies with no immediate relevance to my focus, such as those aiming to explain content, rather than the strategy process. I further excluded the many studies focusing on specific themes, such as merger, restructuring, effectiveness, production, ethics, and innovation, rather than on the general formation of strategy. Finally, less recognized studies, as indicated by low citation ranks (evaluated against the maturity of the article), were omitted. I further narrowed the number of potentially relevant articles by screening the titles in a first step (472 articles excluded) and by evaluating the abstracts in the second step (110 articles excluded). A total of 70 articles remained and were analyzed in detail to extract the explicitly, or implicitly, described strategic dynamics in this literature.

I organized the review along five overarching phases derived from the initial literature review to structure the identified strategic dynamics. This provided a primary orientation and facilitated the comparability between the intra- versus interfirm insights in the subsequent study. These phases facilitated the initial structuring of the literature in this study. The insights were organized as follows: (1) initiation, (2) selection, (3) co-alignment, (4) structuring, and (5) stabilization. Table 4 provides an

overview of the strategic dynamics addressed in intrafirm studies, while Table 5 presents the interorganizational strategic dynamics. Further information about the reviewed articles can be found in Appendix 1.

Table 4: Intraorganizational Strategic Dynamics

Process Phase	Strategic Dynamic	Exemplary evidence
Initiation	Match firm capabilities and technologies to market needs	Bower (1970), Brown and Eisenhardt (1998)
	Deliberate or emergent initiatives	Mintzberg (1978)
	Contexts to manipulate the evaluation of business opportunities	Noda and Bower (1996)
	Autonomous entrepreneurial behavior and induced behavior based on outlined strategy	Burgelman (1983), Burgelman (1983), Burgelman (1991),
Selection	Experience of middle managers	Bower (1970), Burgelman (1983), Burgelman (1991), Floyd and Woolridge (1997)
	Sociopolitical means (e.g. lobbying) to convince top management	Bower (1970), Burgelman (1983), Burgelman (1991),
	Escalation/de-escalation of commitment	Noda and Bower (1996)
	Structural context - reconciliation of communicated strategy with autonomous activity	Burgelman (1983), Burgelman (1991)
	Top management approval and project managers commitment	Lovas and Ghoshal (2000)
Co-Alignment	Vague intentions or “primitive assertions” providing some strategic direction	Noda and Bower (1996)
	Visionary goals: unambiguous, stable, and long-range objectives	Lovas and Ghoshal (2000)
	Strategic context to link autonomous initiatives to the present strategy	Burgelman (1983), Burgelman (1991)
	Experimentation to re-align strategic paths to alternative futures	Brown and Eisenhardt (1998), Dougherty and Dunne (2011)
Structuring	Institutionalization of structures	Noda and Bower (1996)
	Structural constraints set by top management to co-align lower-level activities with outlined strategy	Bower (1970), Burgelman (1983), (1991), Covin and Slevin (1997), Dougherty and Dunne (2011),
	Administrative systems embed all organizational layers and sources of knowledge in the process of strategy making. Management intervention (guidance)	Lovas and Ghoshal (2000)
Stabilization	Incremental and iterated accumulation of allocated resources	Bower (1970), Noda and Bower (1996), Quinn (1978)
	Building structures (e.g. budgets, hierarchies)	Bower (1970)
	Formulation of master strategy, market testing, and commercialization and aggregation of activities	Burgelman (1983)
	Rationalizing of deviant activities	
	Human and social capital (e.g., knowledge, capabilities, values, relations) as facilitators of activities.	Lovas and Ghoshal (2000)

Table 5: Interorganizational Strategic Dynamics

Process Phase	Strategic Dynamic	Exemplary evidence
Initiation	Complex problem that creates interdependencies. Overlapping interests and shared goals (Emergent)	Astley (1984), (1983), Doz et al. (2000), Gray (1985) Gulati (1998), Ring and Van de Ven (1994), Dyer and Singh (1998), Zajac and Olsen (1993)
	Projecting value of exchange relationships into the future	Oliver (1990), Provan (1983), Doz et al. (2000)
	Third party initiation (Triggered)	Stuart (1998), Larson (1992)
Selection	Network position, Ties	Oliver (1990)
	Legitimacy of actors and actions	Larson (1992)
	Organizational reputation to achieve product-quality benefits	Ring and Van de Ven (1994)
	Negotiation: Formal bargaining (persuasion) and informal socio-psychological process (sense-making)	Zajac and Olsen (1993)
Co-Alignment	Testing commitment and learning about the expected behavior of partners	Ring and Van de Ven (1994), Dyer and Singh (1998), Gulati (1995)
	Repetitive and relational interaction to build mutuality and agreement on obligations and rules for action	Barnett et al. (2000)
	Herding behavior and ambiguity	Ring and Van de Ven (1994)
	Informal agreements and legal contracts	Barnett et al. (2000)
	Setting general objectives to increase accessibility	Gray (1985)
Structuring	Multiple perspectives and rival interpretations of the problem's specific dimensions	Barnett et al. (2000)
	Interdependencies pressure collectives to formalize and build structures	Westley and Vredenburg (1997)
	Principles guide the design and operation of initiatives	Ring and Van de Ven (1994), Weick (1979)
	Competence based task distribution (no turf issues)	Phillips et al. (2000)
	Collective sensemaking and unwritten agreements about obligations and strategic direction	
Stabilization	Institutional context resulting from the interplay of rules and resources of actors	Dyer and Singh (1998)
	Visibility of collaborative advantage	Dougherty and Dunne (2011), Dollinger (1990), Larson (1992)
	Institutionalization of aggregated activity over time. Reciprocity and ecology-level business models.	Zajac and Olsen (1993)
	Process redefinition	Ring and Van de Ven (1994), Westley and Vredenburg (1997), Doz (1996), Larson (1992)
	Establishment of interpersonal relationships promotes informal commitment (linked individuals)	Gulati and Nickerson (2008), Zaheer and Venkatraman (1995), Zajac and Olsen (1993)
	Trust	Ring and Van de Ven (1994)
	Positive outcomes drive commitment	
	Learning and recurrent renegotiations	
	Central units, standard-setting activities and development of dominant designs	Dhanaraj and Parkhe (2006), Dougherty and Dunne (2011)
	Search for mutually benefitting outcomes	Zajac and Olsen (1993)
Assessment	Ring and Van de Ven (1994), Zajac and Olsen (1993)	

The reviewed articles draw on various theoretical perspectives (i.e. evolutionary theory, complexity theory, transaction cost economics, agency theory, and a resource-based view) and on levels of inquiry (i.e. interpersonal, firm, interfirm, and network). The next section provides deeper insights into the strategic dynamics at play in the selected process models.

4.2 Intraorganizational Strategy Process Models

4.2.1 Strategy Process as Formation of Patterns

Challenging the idea that strategies evolve as rationally formulated a-priori plans, Mintzberg and fellow researchers found that unintended strategies significantly shaped the ultimately executed strategies (Mintzberg, 1978; Mintzberg and Waters, 1982, 1982, 1985). In their view, the classical conceptualization of strategy as a purposefully developed and clearly delineated plan (Ansoff, 1965; Chandler, 1962) is insufficient to explain the strategy process. Departing from what was known as strategy at that time, Mintzberg and colleagues conceptualized strategy as a “pattern in a stream of decisions and actions”.⁹ Hence, strategies form when actions collapse into a coherent pattern of activities over time – and not when managers and planning departments formulate strategies at their desk. This interpretation allows the extension of the deliberate view of strategy formation through two fundamental processes: the emergence of unplanned strategies and the existence of intended, but unrealized, strategies (Figure 2).

Figure 2: Types of Strategies (Source: Mintzberg, 1978)



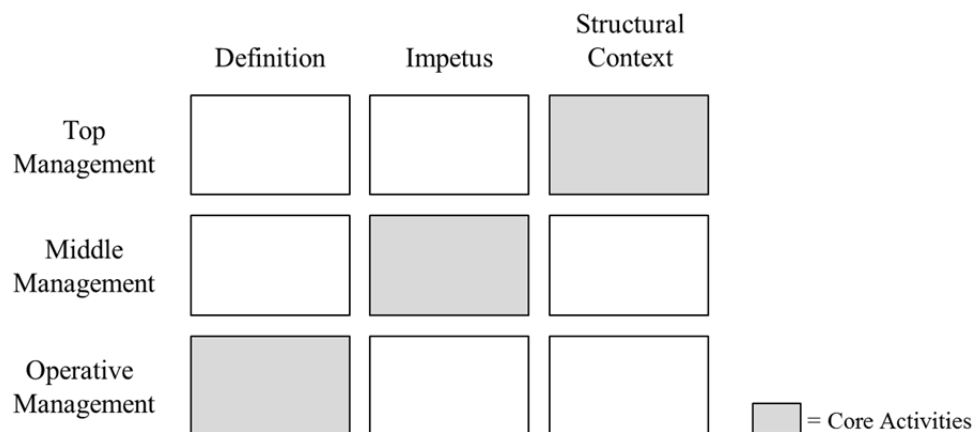
⁹ The authors initially interpreted strategies as “a pattern in a stream of decisions” meaning “a decision [...] defined as a commitment to action, usually a commitment of resources” Mintzberg (1978); Mintzberg and Waters (1982). In their subsequent work, this definition was revised to strategies as “a pattern in a stream of *decisions and actions*,” since actions capture intentions, as well as unrealized and emergent strategies.

Classical strategy models illustrate *intended strategies* as a long-range, analytical formulation of steps to take directed towards clearly outlined goals. A formulation is followed by the implementation process to *realize strategies*, while intended strategies that have been realized, are *deliberate strategies*. The underlying assumption here is that environments are fully predictable or controllable, and that a firm can clearly outline its specific intentions to all the actors. These assumptions are, however, unlikely to mirror reality. Therefore, Mintzberg and colleagues introduced *emergent* and *unrealized strategies* as two further constructs into the model. Emergent strategies explain strategic activities that were never intended, but gradually evolved to ultimately become part of the realized strategies. Unrealized strategies are those initially intended, but cancelled for various reasons.

4.2.2 Strategy Process as Resource Commitment

A key finding of Bower's (1970) studies on large and complex organizations is that although firms codify or plan strategies, their implementation can be very different.¹⁰ He observed that strategies are shaped less by strategic planning departments, than by investment departments, where decisions about the actual allocations of resources are made. His conclusion was that strategies are formed through resource commitments, rather than through statements of strategy – an assumption that also corresponds with Mintzberg's idea of strategy as a patterned action. Bower's model (1970) proposes a multilevel resource allocation process, which interlocks simultaneously and sequentially, in order to run managerial activities (Figure 3).

¹⁰ Bower conducted his dissertation in the late 1960s on the strategic investment decisions of National Products, a large and diversified corporation. His ethnographic study revealed a large gap between the design of a strategy and its execution – and paved the way for his resource allocation assumption as a major determinant of strategy formation. These initial insights created momentum for more than 30 years of subsequent research and refinement of the Bower-Burgelman Model Bower and Gilbert (2005); Burgelman (1983a, 1983b, 1983c, 1991, 1994); Noda and Bower (1996).

Figure 3: Resource Allocation Process Model (Source: Bower, 1970)

During the *definition process*, first-level operative managers collaborate with various functional representatives to define new business opportunities by collecting and linking internal and external knowledge from various functional fields (e.g., engineering, manufacturing, and sales). This initial step explores unmet needs by coupling technological possibilities and market demands to define new opportunities.

The *impetus process* involves middle managers' resource acquisition efforts in terms of the most promising projects, which are based on their experience and which they undertake by pre-selecting and brokering ideas that can be market to the top management. Making the right choice is critical to middle managers, as this choice will determine their future career prospects. Keeping this in mind, middle managers apply sociopolitical means to pretest, or lobby, top decision makers. Major impetus is given when projects build organizational structures (e.g., budgets and hierarchies) and receive major attention from business development departments.

Top management draws on the *structural context* to manipulate strategic action at the lower levels by shaping organizational and administrative properties – a view borrowed from the early strategy making models (Andrews, 1971; Chandler, 1962). Attempting to guidepost the firm activities at the operative front-line, the top management configures the planning, information, incentive, and evaluation systems. Hence, the structural context serves as a selection mechanism that narrows the activity variation, thereby reinforcing the formulated strategy concept. By institutionalizing structural contexts, top management endeavors to streamline the lower-level activities with the outlined strategy concept and to establish predictability. Middle managers, on

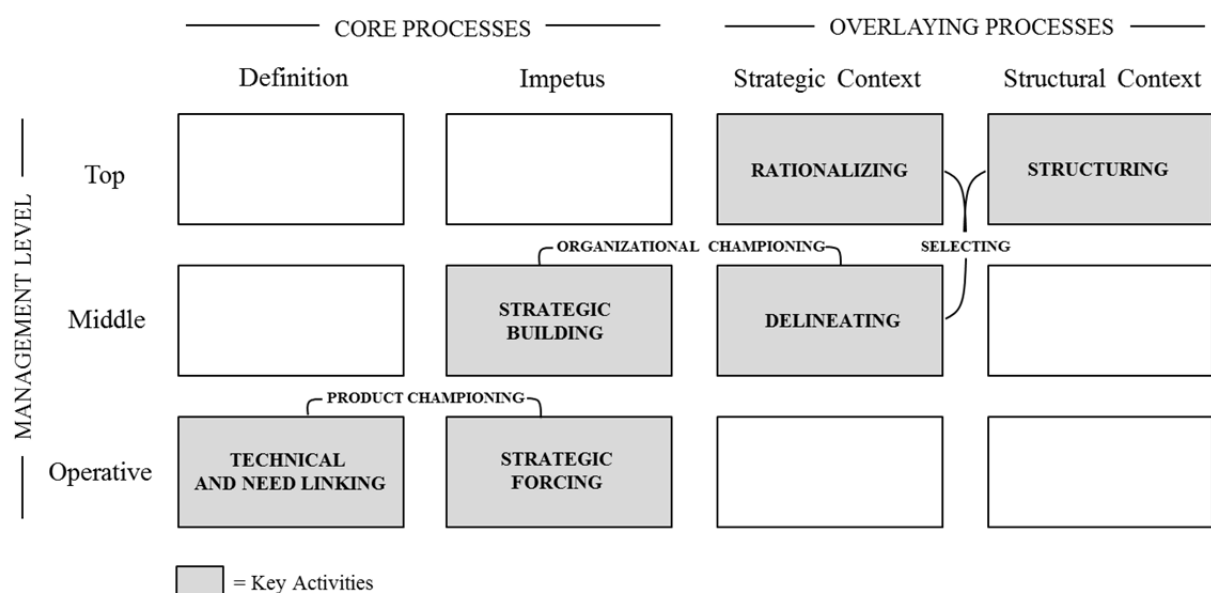
the other hand, draw on structural contexts as indicators of the top management's priorities and business model needs.

Bower's work illuminates that strategic processes are not restricted to the top management, but rather permeate all organizational hierarchy levels. He argues that the knowledge required for making strategic decisions is dispersed throughout all levels of an organization, while, simultaneously, not taking into account that it might be spread across multiple firms.

4.2.3 Strategy Process as Context and Behavior Outcome

Building on Bower's work, Burgelman paved the way for a "less heroic view of top management" (Burgelman, 1983a: 64) by illuminating sub-processes at lower levels that lead to strategy formation. Burgelman observed that some strategic activities fall outside the scope of the current strategy concept. He argues that strategy processes emerge through "a somewhat haphazard process" (Burgelman, 1983a: 62), that entrepreneurial activity at operative levels shapes them, and that structural contexts are manipulated at the top. His major contribution is the introduction of additional selection mechanisms to explain the resource allocation process, i.e. the induced and autonomous behavior, as well as the strategic context (Figure 4).

Figure 4: Strategy Process as Context and Behavior Outcome
(Source: Burgelman, 1983b: 230)



Induced behavior: The management's current concept of strategy affects a major part of strategic activities in a firm. The strategy concept is based on the top management's experience and perception of how objectives can be best achieved. Defined structural contexts are used to co-align (*structuring*) strategic activities at the lower firm levels with the outlined strategy concept. Structural contexts (i.e. reporting structures, incentive systems, degree of formalization, human resource practices, and other administrative configurations) also serve as selective mechanisms by reconciling autonomous behavior with the strategy concept (*selecting*).

Autonomous behavior: Initiatives emerge through a less centralized process and are largely driven by lower levels that link the internal technical capabilities to the external market demand (*technical and need linking*). Besides the outlined corporate strategy, autonomous behavior is therefore a complementary strategy making force. The definition process fades when ideas (initiated at operative levels) find sponsors in middle management and turns into projects (*product championing*). These product champions activate additional resources and advocate the project's feasibility, thus acting as a lynch pin between the definition and the impetus process.

During the adjacent *impetus process*, internal championing activity shifts increasingly towards the market testing and commercialization of newly developed products (*strategic forcing*), thereby turning projects into "embryonic new business organization[s]" (Burgelman, 1983b: 233). Finally, an explicit master strategy is formulated and additional business activities are added through the internal transfer of projects, or through external firm acquisitions (*strategic building*).

Strategic context: Middle managers attempt to link autonomous initiatives to the current strategy concept. To do so, they make use of sociopolitical processes (i.e. lobbying) to mold the strategic context in organizations and to legitimize their deviant activities. By selecting and aggregating the most promising initiatives (*delineating*) and emphasizing the underlying strategic importance (*organizational championing*), middle management achieve top-level acceptance. Top management, on the other hand, absorbs these unplanned and autonomous initiatives from the lower levels to retroactively legitimize new strategic directions (*rationalizing*).

4.2.4 Strategy Process as Iterations of Resource Allocation

Capitalizing on Bower-Burgelman's process models, Noda and Bower (1996) sought an explanation for firms with similar opportunities evolving towards different strategies. Investigating the factors that caused divergent business decisions in comparable firms, they contrasted the experiences of two telephone operating companies, *BellSouth* and *US WEST*. Their study demonstrates that strategy making in large and complex firms may be modeled as an iterated process of resource allocation. These authors thus extended prior theorizing by the following central insights:

(1) They show that the context may have a significant impact on the evaluation of business opportunities, and may thus explain a major part of diverging resource allocation patterns in firms. Beyond this, Noda and Bower's study highlights that institutionalized structural contexts may exert detrimental inertial forces (Hannan and Freeman, 1984), posing an unwanted hurdle for new business activity – even to those who installed it in the first place.

(2) Firms' strategic commitment may be described as an escalation/de-escalation process. An early operational success in new businesses that exceeds the management expectations may significantly amplify support (escalation). In turn, negative results in an early phase of new businesses may quickly lead to a loss of credibility, a withdrawal of commitment, or even to the termination of projects (de-escalation).

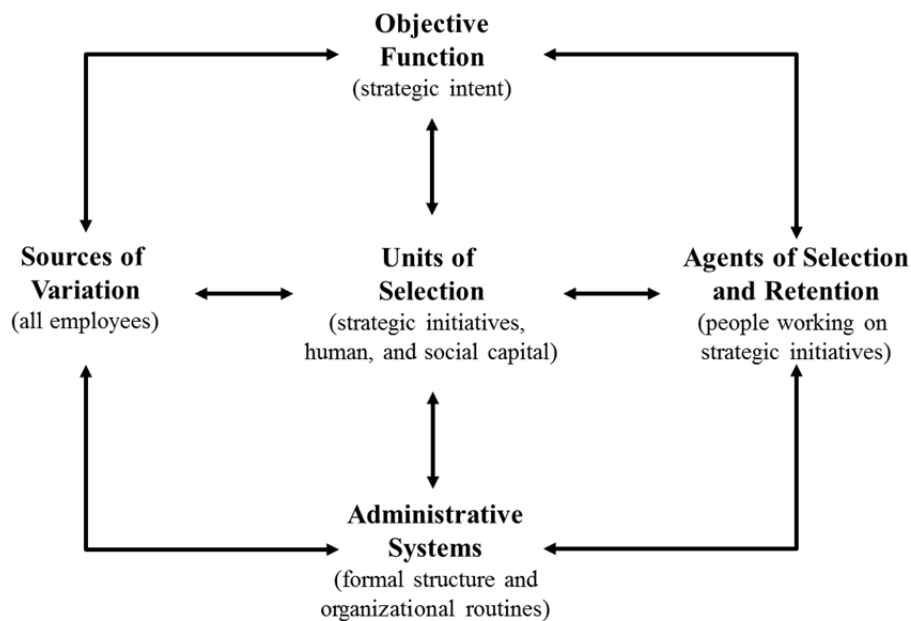
(3) In an iterated process of resource distribution, top management changes its attitude towards business and alters the strategic context. Learning is a critical process that reduces uncertainty in new businesses, thereby stimulating managers' subsequent commitment. In line with prior literature, this view suggests that strategies are seen as accumulating incrementally over time (Quinn, 1978) through resource allocations, rather than through top managers' bold decisions.

(4) By contrasting prior models, Noda and Bower suggest that management may not suggest a predefined strategy concept, but rather "crude strategic intentions" or "primitive assertions," which at best provide some strategic direction (Noda and Bower, 1996: 188–189).

4.2.5 Strategy Process as Guided Evolution

Drawing on evolutionary perspectives (Burgelman, 1991, 1994), Lovas and Ghoshal develop a more realistic and active top management role in the strategy process and reduce the “deterministic flavor of evolutionary models” that prior studies proposed (Lovas and Ghoshal, 2000: 893). Hence, management may strategically interfere to moderate a firm’s course of action, rather than higher-order forces rendering them helpless (Nelson, 1982). Organizations are conceptualized as intentionally designed systems to guide the evolutionary development of strategies. Their model is based on five central elements (Figure 5):

Figure 5: The Five Elements of Guided Evolution (Source: Lovas and Ghoshal, 2000: 876)



First, two units of selection shape the strategies and outcomes in evolutionary processes: *Human capital*, such as knowledge, capabilities and values, while *social capital*, such as networks and relations, represent units of intraorganizational ecologies’ selection.

Second, the *strategic intent* concept defines the objective function (Hamel and Prahalad, 1989). This concept embodies visionary goals set in a top-down process. A strategic intent provides a single (unambiguous), stable (valid), and long-range (durable) objective that helps top managers guide the evolutionary process at acceptable costs. In line with prior findings, Lovas and Ghoshal underscore the

relevance of autonomous strategic processes as an additional source of variation, which is driven by the re-combination of human and social capital in lower-level initiatives.

Third, administrative systems, such as *formal structures* and *organizational routines*, substitute traditional coordination mechanisms, such as command and control. In contrast to the structural context, which transports top managements' predefined strategies to operative levels and controls their retention, administrative systems serve a more supportive purpose. Administrative systems help include all the organizational layers and local knowledge sources into strategic initiative and strategic process management.

The sources of variation and the agents of selection and retention comprise the fourth and fifth model elements. These evolutionary dimensions focus on the agents initiating (variation), choosing (selection), and perpetuating (retention) a strategic course of action. Similar to prior studies, Lovas and Ghoshal find that strategic initiatives require top management approval and funding, as well project manager commitment to be launched. These actors invest their reputation, as well as their human and social capital through their project participation, thereby signaling their support and conviction that the resources have been well deployed.

4.3 Interorganizational Strategy Process Models

The assertion that firms are much more intertwined with their environments than initially acknowledged spurred initial research on interfirm collaboration (Aldrich and Pfeffer, 1976). This early research was largely conducted conceptually, with a focus on etiological explanations, typological differentiation, and on the contingencies of relationship formation (for comprehensive overviews see Oliver, 1990; Whetten, 1981). More recently, the focus was shifted towards the process dynamics and the development of models that uncover the evolution of interorganizational collaboration (Doz, 1996b; Doz, Olk, and Ring, 2000; Ring and Van de Ven, 1994). However, while the trend is increasingly towards processual studies on interorganizational relationship formation (i.e. negotiation, commitment, and coordination), an explicit link to strategy

process theorizing is missing (Parmigiani, 2011). This section provides an overview of the interorganizational models that investigate IOS and contribute insights that relate to this dissertation's topic.

4.3.1 Strategy as Emergent and Engineered Process

Emphasizing the need for more research on the strategic issues of firm networks, Doz, Olk, and Ring (2000) take an evolutionary perspective on IOS formation. Their results indicate three major conditions that help explain the process of strategy formation in R&D consortia: environmental interdependence, similar interests, and triggering entities (Doz *et al.*, 2000: 242–243). Moreover, Doz and colleagues explicate two major paths that lead to the emergence of IOS:

(1) *Emergent* paths prevail when interdependency is high, spurring the recognition of common interests and the consensus of the parties involved. In line with prior studies, the authors argue that the existence of shared challenges and interests facilitates consensus between the involved actors and is thus a strong predictor of collaboration formation. While emergent processes are serendipitous and informal in collaborations' initial phases, they tend to gain stability over time and develop increasingly formalized structures (e.g., membership criteria) to forestall detrimental behavior over time.

(2) *Engineered* pathways dominate when dissimilar interests and low interdependency discourages collective action. A shared interest basis is critical to gather independent actors around a problem. Given their absence and environments with low interdependency, collaborative processes are engineered and require champions if they are to be initiated. Governmental bodies, or strongly embedded individuals from relatively weak organizations, frequently take championing positions to curb opportunism and bridge egocentric motives (Westley, 1991). However, this role can also be taken by powerful industry players. *Toyota*, for instance, frequently acts as an engineer of collaborative processes by co-aligning interests and building networks between competing automobile suppliers (Dyer, 2000).

Networks that form as a result of engineered processes are more robust, as the purposefully chosen firms appear to be well-aligned and geared towards

complementarity (Milgrom, 1995), rather than competition. However, networks that build on both engineered and emergent processes are more likely to thrive, as they balance efficiency (emergent) with innovation (engineered). In the course of time, engineered processes meld into emergent processes, as champions tend not to remain in their position for extended periods. The repetitive interaction builds a sufficiently stable base of mutuality over time (Ring and Van de Ven, 1994) and the collaborative advantage (Dyer and Singh, 1998; Huxham, 1993) becomes more visible. Beyond that, increasing coordination costs gradually push engineered processes towards an emergent path associated with reduced transaction costs.

4.3.2 Strategy Process as Systemic Collective Approach

Collective strategy scholars regard traditional approaches that are limited to corporate and business-level investigation (Hofer, 1978; Learned *et al.*, 1965) as a “somewhat myopic point of view” (Astley and Fombrun, 1983: 577). These scholars expand the strategy research scope beyond single focal organizations (Bresser and Harl, 1986; Carney, 1987). They argue that a third-level strategy between firm-level strategies and ecological approaches, allows for strategically taking dynamics at the population level into account.¹¹ Firms are viewed as “constituent members of an overarching interorganizational collectivity” (Astley and Fombrun, 1983: 577) with individual strategies that migrate into collectively shaped ones.

Collective strategy is understood as a joint mobilization of activities and resources to pursue shared goals and absorb variation in interorganizational environments (Astley and Fombrun, 1983; Bresser and Harl, 1986). It is a systematic reaction of an aggregated interorganizational behavior (Dollinger, 1990). This interpretation largely builds on a social ecological approach, advocating a collectively

¹¹ This research ties into a long-standing debate between proponents of choice, arguing that organizational adaptations reflect a process of deliberate managerial selection (Child, 1972) versus proponents of determinism interpreting change as a necessary reaction imposed by constraining environmental forces (Aldrich and Pfeffer, 1976; Hannan and Freeman, 1977). Research of collective strategists aims to bridge these opposing views to overcome critiques of unidirectional causation (Weick, 1979: 52) and to study the interactions and interdependencies of both voluntaristic and deterministic views (Astley and Van de Ven, 1983: 267).

constructed and managed environment (Emery, 1973). A shared problem appreciation develops an identity and common boundaries, erects structures, and co-aligns strategies. Collective views suggest that firms view problems and interpret themselves collectively as part of the solution.

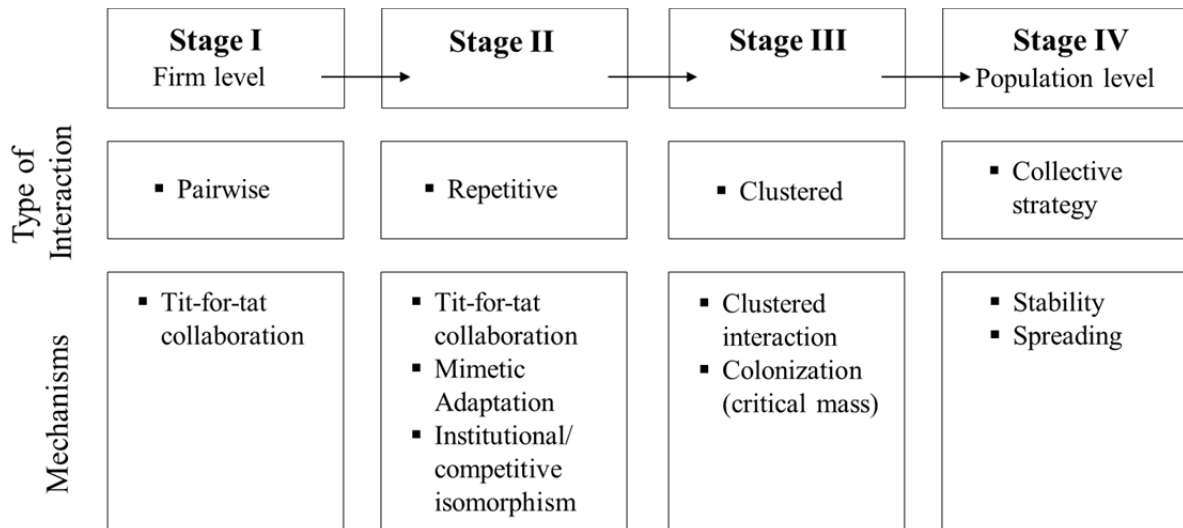
Barnett, Mischke, and Ocasio (2000) take a systemic perspective to explain the formation of strategies. Their empirical study on R&D consortia delivers three important insights: First, collective strategy formation is conceptualized as a social matching process, where partnerships with higher, more general, objectives are likely to grow faster than those with specifically defined ones, as they initially offer more accessible conditions for joining. Second, the process of collective strategy formation is contagious, because the decision to join a collectivity is highly ambiguous as the effects and expectations are uncertain. Some organizations' decision to participate also leads to herding behavior in others. Similarly, the increasing network externalities are contagious, as the value increases for the individual, depending on the number of other organizations that join (Shapiro, 1999). Finally, Barnett, Mischke, and Ocasio argue that resource dependencies urge members of collectives to formalize relations and establish more structure over time.

4.3.3 Strategy Process as Collaboration Stages

Building collective strategy domains, Dollinger (1990) develops an evolutionary stage model of collective strategy with a particular focus on fragmented industries. He conceptualizes collective strategy as an aggregation of repetitive patterns in dyadic interorganizational interactions. Specifically, he suggests that collective strategies emerge, when ongoing firm-level interactions between two loosely coupled organizations occurs repeatedly over time. Ongoing firm-level interactions form an aggregated pattern of activity at higher-order levels, defined as collective strategic interaction (Dollinger, 1990: 269). Collective strategies, however, will not emerge until a critical mass is formed through pairwise interactions, which eventually

multiplies and transcends into a network of interactions.¹² Dollinger draws on institutional (DiMaggio and Powell, 1983) and game theoretical (Axelrod, 1984) rationales to explain the underlying mechanisms of collective strategy formation. He conceptualizes a four-stage process (Figure 6).

Figure 6: Stage Model of Collective Strategy Evolution (Source: adapted from Dollinger 1990: 273–275)



During the initial phase (Stage I), the individual actors are inclined to cooperate by following a *tit-for-tat* rule.¹³ Put simply, the rule suggests that firms facing trade-off situations between competition and cooperation are better off cooperating in the first round, and copying the counterpart's behavior in the subsequent rounds. If cooperative behavior between dyads pays off, institutional forces will create *coercive pressures* (i.e. mimetic adaptation and isomorphism) on other firms to cooperate (Stage II). Repetitive interaction between pairs of firms over time will lead to the formation of cooperative clusters once a critical mass is reached (Stage III) – a process similar to

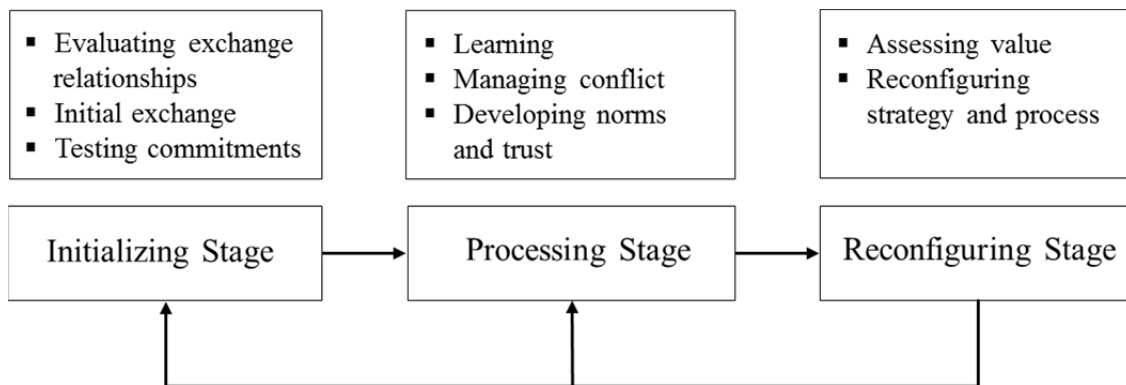
¹²The term *critical mass* is not precisely defined in Dollinger's (1990) work. He refers to a rather vague definition by Schelling, specifying *critical mass* as a certain number of actors forming a coalition, who are willing to choose a minor cooperative reward over a higher individual reward (preferred choice) (Dollinger, 1990: 275; Schelling, 1978: 218).

¹³This rule has been derived from the prisoner's dilemma games – that is, an application of game theoretical models of strategic decision-making to the prison context. It simulates a situation in which two prisoners make interdependent decisions on crime confession with the outcomes affecting both of them (for an extended discussion see Rapoport (1965)). In essence, the model predicts that, contrary to cooperative behavior, opportunistic behavior for individual rewards leads to inferior results. Empirically, it represents a naturally inclined behavior observed in human decision making (Axelrod, 1984).

that Axelrod (1984: 158) describes as *colonization*. Finally, collective strategies emerge, gain stability, and spread to the population level if they are successful (Stage IV).

Zajac and Olsen's (1993) study offers another stage model that builds on a value generating motive (transactional) – as opposed to a transaction cost minimization motive – to explain the emergence of interorganizational strategies.¹⁴ Their study outlines a set of strategic dynamics to explain the creation and appropriation of value in interorganizational exchange relationships, as well as the emergence of IOS that proceed in three stages:

Figure 7: Stage Model of Interorganizational Processes (Source: adapted from Zajac and Olsen, 1993: 142)



(1) The *initializing stage* involves an evaluation of potential partnerships and their behavior through a projection of the potential exchange value into the future, the first exchanges, and testing of the commitments to determine their credibility. (2) During the *processing stage*, partners participate in learning, the management of conflict, the creation of norms to cope with diverse interests, and the development of trust. (3) In the *reconfiguring stage*, firms assess the value of interorganizational strategies to reconfigure or terminate them. This last stage finally loops back, depending on the outcomes achieved and the degree of change required in cooperative relationships.

¹⁴ Zajac and Olsen's (1993) prepared the ground for what later became known as the relational view and a fundamental explanation of how cooperation may produce rents through exchange relationships (Dyer and Singh, 1998).

4.3.4 Strategy Process as Repetitive Interaction

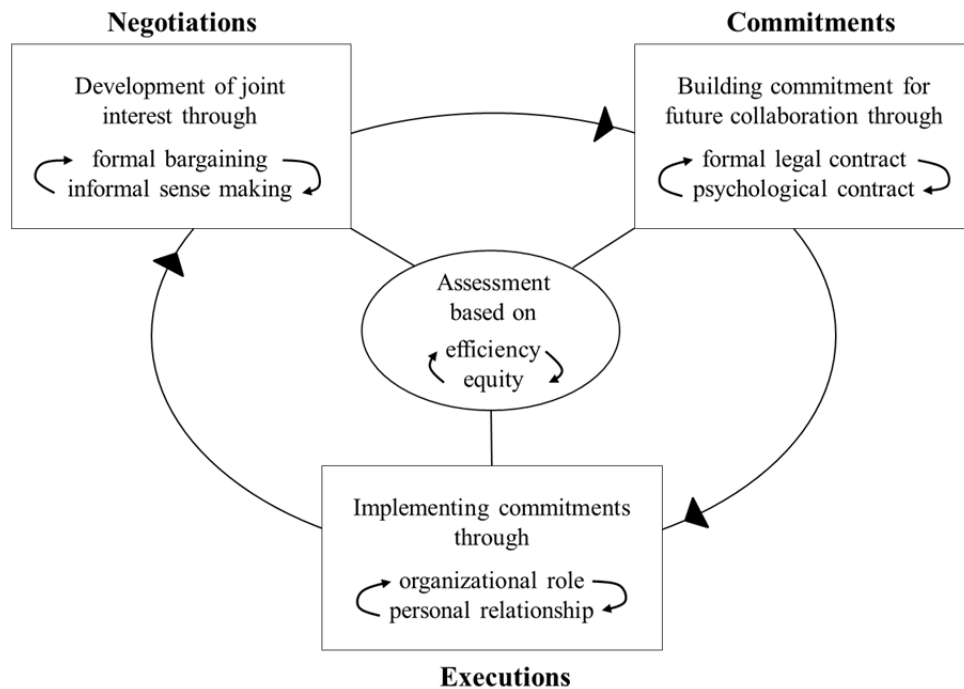
Scholars of interorganizational relationships offer another perspective on strategy processes across organizations. Numerous theoretical lenses from organization economics, negotiation science, and organization theory have been applied to study interorganizational relationships (for a review, see Oliver, 1990; Parmigiani, 2011). One thread is concerned with problems that introduce a scope and complexity that single firms cannot manage (Gray, 1985: 913; Westley and Vredenburg, 1997: 381). Such problems have been described as problem domains (Trist, 1983), messes (Ackoff, 1974), or meta-problems (Huxham, 1993; Selsky and Parker, 2005). They involve societal challenges rather than organizational issues (Trist, 1983) and therefore require an analysis of the interorganizational relationship level rather than an intraorganizational perspective (Gray, 1985).

Early studies investigated phase-specific aspects (e.g., initiation, the conditions) and built on stage models of collaboration (i.e. problem-setting, direction-setting, and structuring) (Gray, 1985: 918; McCann, 1983: 179). Subsequent research introduced the institutional context (Phillips, Lawrence, and Hardy, 2000) illustrating how the interplay of the rules and resources of the diverging interorganizational parties shapes a context, in which collaborative strategies unfold. Ring and Van de Ven were among the few taking a process view of interorganizational relationships' development. Specifically, they introduced a cyclical framework to "provide a temporal explanation for the emergence, evolution and dissolution" (Ring and Van de Ven, 1994: 96) of cross-organizational relationships. While their study does not specifically address the strategy process, it provides noteworthy insights into the overarching mechanisms of how relationships form.

Ring and Van de Ven mention a major departure from prior concepts rather parenthetically in a footnote: their interpretation of exchanges as relational – as opposed to transactional in prior studies (Ring and Van de Ven, 1994: 92). While transactional exchange considers each interaction as a separate event, relational exchange conceives cooperation as dynamic, ongoing, and inter-temporal, connecting past, present and future (Dyer and Singh, 1998). Based on this premise, Ring and Van

de Ven argue for a cyclical, rather than a linear, model based on three iteratively occurring stages: negotiation, commitment, and execution (Figure 8).

Figure 8: Collaboration Process Framework (Source: adapted from Ring and Van de Ven, 1994)



The negotiations stage involves a process with the individual parties *developing joint interests* – a meeting of minds (Ring and Van de Ven, 1994: 100) – during which formal bargaining and informal sense-making operates simultaneously. Once minimal consensus has been reached on the rules, responsibilities, and the direction of action, commitments follow. *Commitment* to future collaboration is based on formal legal agreements and on informal psychological agreements, which, in turn, depend on the degree of risk and trust. In the final execution stage, the commitments are implemented. Lastly, the collaboration is evaluated and renegotiated when conflicts occur. If collaboration is executed in a value-generating manner (i.e. efficiently and equitably), escalating commitment (Staw, 1976) is likely to result. In contrast, a lack of reciprocity in the interaction may lead to adjustments to the contractual forms, reduced commitment, and even to the termination of the relationships.

Firms' repetitive collaboration alters interactions over time by jointly creating rules and structures that govern relationships. Ring and Van de Ven (1994) observe that, in certain situations, the negotiating parties reach informal consensus and

commitment prior to their organizations' official negotiation of formal contracts. They subsequently reason that intensified relationships between members of different organizations tend to increase the non-formal interactions beyond formalized agreements. Hence, with the advancement of collaboration, relational elements, such as psychological contracts (i.e. non-verbalized congruency), informal understanding, commitment, and personal relationships, increasingly act as a substitute of contractual elements (Ring and Van de Ven, 1994). As the interaction intensifies and gradually becomes more strategic, formal institutionalization within organizations appears to become less important.

4.4 Critical Reflection and Research Implications

This review is not exhaustive and thus does not cover all the process models developed in the management literature. Rather, it presents the most relevant models, as the preliminary literature review suggested. The selected models provide important insights into the genesis and evolution of strategy by extending the early, rather deterministic work. By applying new theoretical perspectives, new definitions of strategy, multiple levels of analysis, and process-oriented methods, these models progressively enhanced our knowledge of how strategy emerges, evolves, and discontinues over time.

These contributions notwithstanding, several critical reflections must be noted. Their firm-centric view on a firm-spanning phenomenon is a major point of critique of intraorganizational process models. None of these models intends or can provide sufficient explanation of how strategic interaction occurs between organizations. For instance, initiatives may be 'induced' by internal structures, as the original Bower framework suggests, and by external contexts (Bower and Gilbert, 2005: 405). Nevertheless, the identified strategic dynamics derived from this review serve as an important reference point for my further inquiry.

Three major shortcomings of interorganizational strategy process research should be noted: First, some models — particularly systemic approaches — suffer from insufficient empirical grounding, with most being conceptually developed.

Second, while the current models contribute to the understanding of the overarching process patterns as stages, repetition, or cyclicity, most of the studies lack granularity in the process dimensions. Most models remain a rather rough conception illuminating a discrete and narrow set of attributes. Owing to systemic and ecology perspectives, these studies fail to shed sufficient light on the micro-processes and dynamics of strategy making – comparable to approaches in intraorganizational studies. Third, while intraorganizational studies on strategy process suffer from their oversimplifying restrictions to single-firm boundaries, interorganizational studies take an overly aggregated view of strategy formation. Thus far, IOSs are portrayed as socially constructed (Gray, 1989; Strauss, 1978), collectively imposed (Astley and Fombrun, 1983), objectively given (Doz, Olk, and Ring, 2000), and institutionally induced (Ring and Van de Ven, 1994), implying that strategic management is largely irrelevant. This result may, however, be due to the nature of the research design, which examines mechanisms, on a high research level thus aggregating the role and impact of managers away. To add to the confusion, other influential studies argue the opposite, namely that collaborations can be purposefully managed towards relational value between firms (Dyer and Singh, 1998; Zaheer and Venkatraman, 1995). Hence, resolving this contradiction seems to be an interesting and important objective for this study.

On the whole, this review confirms that, specifically, the impact of external contingencies on, and the incorporation of external actors into, the strategy process have received very little attention. Surprisingly, all the selected models indicate the importance of extra-organizational processes. The model of Bower and Burgelman, as well as the iterated resource allocation model of Noda and Bower, for instance, highlight the importance of internal and external knowledge that link processes as crucial for the definition of strategic initiatives. Similarly, the concept of guided evolution points towards social capital (external networks and relations) and strategic initiatives as an essential means of establishing links to the external environment. In addition, Mintzberg's model of intended and emergent strategies underlines the importance of external forces (e.g., market, technological, and political) (Mintzberg and Waters, 1985) for the unintended processes in strategy making. While a modest

number of interorganizational publications indicates the importance of studying the strategy formation process in inter-firm domains, granularity and empirically grounded process studies are clearly missing.

Nonetheless, recent studies call for more effort to leverage existing ideas to theorize on inter-firm strategizing (Dougherty and Dunne, 2011: 1219). The comparison of research findings (i.e. emergent concepts) with the extant literature is a crucial feature of the theory building process (Eisenhardt, 1989a: 544). Therefore, this review of strategy models serves as an important starting point for my subsequent empirical investigation of strategy processes across organizations.

Part II: QUALITATIVE EMPIRICAL STUDY

5 When Multiple Partners Ally: A Study on the Formation of Interorganizational Strategy

5.1 Introduction

The strategy process, as portrayed today, develops across various levels within single firm boundaries. In stark empirical contrast, organizations increasingly engage in interorganizational strategizing for co-development and mutual benefits. Emerging platforms, such as *Amazon* and *Walmart*, for instance, develop common strategies and integrate with partners (e.g., suppliers or service providers) to create joint value beyond that each firm can achieve individually. *Daimler's* recently launched *Mercedes Me Platform* shows how traditional car production melds into public transport and retail services to create an intermodal service hub. Most strikingly, interorganizational strategies (IOSs) allow focusing on the core, while not neglecting the periphery – not by doing it all, but rather through strategically embedded partners in varying industries.

Coping with integrated solutions' increasing complexity requires extensive collaboration with parties, each of whom has a piece of the knowledge needed to construct a solution. But also those who have different perspectives on a problem and can jointly explore their differences and search for solutions that “go beyond their own limited vision of what is possible” (Gray, 1985: 5). Therefore, it is clear that the importance of IOSs has increased over last decades. Interorganizational collaboration has become instrumental for the innovation performance of firm and vital to those that struggle for a competitive edge in our dynamically changing business landscapes. Unsurprising most leading firms currently strategize increasingly with their partners.

Prior literature emphasizes that IOS allows for tackling meta-problems (Huxham and Macdonald, 1992) and reaping interorganizational advantages (Dyer and Singh, 1998; Gulati, Nohria, and Zaheer, 2000) single firms cannot access. More recent studies stress that firms increasingly rely on more inclusive and open strategy making

(Chesbrough and Appleyard, 2007; Whittington, Caillaet, and Yakis-Douglas, 2011) to deliver integrated solutions and to provide complex innovation (Dougherty and Dunne, 2011). Further, on the one hand, organization scholars underscore the mounting complexity that exceeds single organizations' capacities and, on the other, the technological means that facilitate interaction and joint value creation (Zammuto *et al.*, 2007).

Taken together, these trends have notable implications for the scope and inclusiveness of our current conceptualization of the strategy process. A more encompassing understanding of the strategy process will be critical to accommodate the dispersed nature of innovation and the increasingly observed openness of firms. This study attempts to challenge current concepts and extend the scope of multiple strategy making entities by developing a holistic process model of IOSs. I therefore take organizations' increasing interdependence, which technological advances and increasingly complex demands drive, into account. This dissertation study seeks to extend current research by building on the premise that structural and strategic contexts external to a firm are becoming increasingly important (Bower and Gilbert, 2005).

More broadly, this study corresponds to the increasingly shifting strategic interaction in collaborative designs, which involve multiple independent actors, such as ecosystems (Adner and Kapoor, 2010), collaborative architectures (Fjeldstad *et al.*, 2012), platforms (Gawer, 2009), and meta-organizations (Gulati, Puranam, and Tushman, 2012; Lechner and Hettich, 2014). It intends to contribute to the well-established process research stream in the strategy literature (for a review, see Hart and Banbury, 1994) by capturing the strategic dynamics that emerge across firms.

Previous studies provide a comprehensive picture of how firm strategies emerge and evolve inside a single firm's organizational boundaries. These studies highlighted the various facets of strategy processes, such as its incremental, emergent, non-rational, political, conflicting, or adaptive nature (e.g., Burgelman, 1983b, 1991, 2002; Mintzberg and Waters, 1985; Narayanan and Fahey, 1982; Pfeffer, 1981; Quinn, 1978).

However, strategy making happens across organizational boundaries. It is therefore important to complement and contrast existing intrafirm process models on strategic dynamics with studies on IOS. How does strategy emerge and transcend across organizational boundaries appears to be an underexplored question. The underlying study was conducted to address this question.

This study proceeds as follows: I briefly review the dominant streams of literature on interorganizational strategy making. Next, I outline the methodological approach, including data collected for my study. In the following step, I introduce the process framework, which is inductively derived from the data, and explain the key activities and dynamics at play. I end the study by discussing the major contributions and limitations.

5.2 Background

The need for a more encompassing view on the strategy process is not new, as studies on collective strategy (Astley and Fombrun, 1983; Bresser and Harl, 1986), interorganizational strategy (Zajac and Olsen, 1993), and meta-strategies (Huxham, 1993; Selsky and Parker, 2005) have shown. While their insights and proposed models are informative, they are conceptual in nature or take an overly aggregated point of view on how interorganizational strategies emerge and evolve. Based on population or industry-level research, these studies lack more intrusive methodological access (e.g., surveys, field studies, or action research), which would allow detailed process observations (Chakravarthy and Doz, 1992).

On the firm and interfirm level, an encompassing stream of research on alliances, networks, and consortia offers guidance on how multiple firms interact. Formation studies predominantly focus on structure (Doz, Olk, and Ring, 2000; Eisenhardt and Schoonhoven, 1996; Gulati, 1995; Gulati, Khanna, and Nohria, 1994; Uzzi, 1997), context (Das and Teng, 2002b; Gulati and Singh, 1998), or specific outcomes (e.g., learning, routines, or fairness) (Ariño and Ring, 2010; Doz, 1996b; Hamel, 1991; Khanna, Gulati, and Nohria, 1998; Zollo, Reuer, and Singh, 2002). Generally, the efforts made have been to understand strategic dynamics, which have

been found to determine intra-firm strategy making (Burgelman, 1991) and lead to actual IOS formation.

Doz and colleagues (2000) provide a notable exception by applying a structural equation modeling approach to capture the cross-organizational dynamics of strategy formation. They conclude by stating that other research “may benefit from taking a more narrow [*sic*] and deeper approach to the analysis” and that further studies matter because “there may be no ‘one best path’ of the formation process” (2000:256). The main purpose of this study is to further explore and extend their insights.

5.3 Methodological Basis and Research Approach

5.3.1 Paradigmatic Positioning

Given that research in social sciences may produce different answers to a question, depending on the presupposed paradigm, providing the rationale for choosing my research strategy is important. This rationale is bound to our understanding of the nature of the social world, which determines the methods of our inquiry into a domain of interest (Morgan and Smircich, 1980). The basic set of beliefs influences the way we conduct research significantly. This set of beliefs with which we understand the social world, is formed by the ontological and epistemological positions taken. The *ontological position* informs us about the structure and nature of reality. The *epistemological position* states how knowledge can be acquired and which methods¹⁵ may be employed (Guba and Lincoln, 1994: 108).

Based on these philosophical underpinnings, this study takes a postpositivistic research approach. I thus follow a proven path in organization science and management literature (cf. Eisenhardt, 1989a). A postpositivistic view suggests that realities “exist...[are]...only imperfectly comprehensible because of basically flawed human intellectual mechanisms and the fundamentally intractable nature of phenomena” (Guba and Lincoln, 1994: 110). Hence, reality can only be approximated,

¹⁵ Guba and Lincoln (1994) formerly developed a third foundation denoted as “methodological position.” Here, I follow Hirschheim et al.’s (1995: 21) suggestion to collapse the epistemological and the methodological foundations.

rather than predicted, putting falsification, not verification, of hypotheses in the foreground of research endeavors (Popper, 2002).

This study's primary motivation is to fill a theoretical void by drawing on preexisting knowledge, such as sensitizing principles (Glaser and Strauss, 1967) and a-priori concepts (Eisenhardt, 1989a), in the subsequent empirical investigations (i.e. evolutionary concepts). A postpositivistic approach thus fits my research strategy well, as it aims to uncover facts by comparing them to existing knowledge (i.e. strategy process models). Postpositivistic research allows for synergistically drawing on, or switching between, multiple data sources and methods to capture complex strategy processes phenomena (Denzin, 1994). While I acknowledge that research ultimately allows verifiable causalities and generalizations in a positivistic sense, I am convinced that realities and scientific findings are generalizable to some degree – and that the continuous building, testing, and refining of theories may contribute to a better understanding of our social reality.

5.3.2 Research Method

A research method is a structured process to build, test, and refine theories through empirical inquiries. Grounded theory is a research method for the discovery of theory through an iterative inductive and deductive data analysis cycle (Glaser and Strauss, 1967), evolving gradually through the ongoing interplay between data collection and analysis (Pettigrew, 1992; Strauss and Corbin, 1994: 273; Van de Ven, 1992). I follow the less rigid grounded theory approach, which allows the emergence of theory not only from data (Glaser, 1992), but also from gaining an initial understanding through existing findings that “may be elaborated and modified as incoming data are meticulously played against them” (Strauss and Corbin, 1994: 273).

In line with the dictum that researchers have to settle for a method that best fits the research problem (Yin, 2009), I select a grounded-theory approach, which advocates that theory should accompany research by using literature cautiously and by

not forcing it on data (Thornberg, 2012).¹⁶ Being informed about the literature on similar findings is important, because this can guide exploratory inquiries (Yin, 2003) and facilitate the linking of potentially interrelated phenomena – thus, allowing for a “stronger internal validity, wider generalizability, and higher conceptual level” (Eisenhardt, 1989a: 544).

In sum, this study builds on the premises that starting empirical work with “an open mind is good [while] an empty mind is not” (Siggelkow, 2007: 21). My preliminary theoretical considerations, as outlined above, serve as a frame of reference to increase theoretical sensitivity, organize, and inspire my work, which is ultimately to challenge and enhance existing research.

5.3.3 Research Approach

The study of strategy process brings “how” and “why” questions to the foreground. Case studies are a preferred approach to finding appropriate answers to these questions and to mapping a holistic and context-sensitive picture of complex social phenomena (Yin, 2009: 18). Case studies are a particularly salient approach where theory is non-existent, incomplete, or not useful (Eisenhardt, 1989a; Punch, 2005).

Appendix 1 provides an overview of a selected list of publications (highly cited) in the field of strategy process and their methodological approaches. I focus on the most influential studies and purposefully leave the few recent studies with less impact in the management field aside. Appendix 1 shows that most intraorganizational studies focus on single firms employing unilevel or multilevel approaches. It further shows that studies taking an interfirm perspective on the strategy process target the development of conceptual models. Only one survey-based study applies quantitative methods (Doz, Olk, and Ring, 2000).

¹⁶ The informed grounded theory approach rejects “naïve empiricism” and pure induction, arguing that it is impossible and disadvantageous for researchers to stay ‘theoretically decontaminated’. Thornberg (2012) mentions several reasons for this: (1) because research cannot start from a blank sheet and unreflecting virginity; (2) because it implies a potential deficit in knowledge, arguing that “[a] dwarf standing on the shoulders of a giant may see further than the giant himself” (Burton, 1621); (3) because it underestimates a researcher’s ability to abstract from the case.

Table 6: Methodological Approaches of selected Strategy Process Studies

Model	Theoretical Perspective	Research Approach	Level of Analysis	Unit of Analysis
Astley & Fombrun (1983)	Social Ecology	Conceptual	Population level	Collective activity
Bower (1970)	N/A	Single firm in-depth case study	Firm (multilevel)	Resource commitments
Brown & Eisenhardt (1997)	Grounded Theory	Comparative case study (6 firms)	Firm (multilevel)	Change activities
Burgelman (1983)	Evolutionary Theory	Single firm in-depth case study	Firm (multilevel)	Strategic initiatives
Dollinger (1990)	Social Ecology Game Theory	Conceptual	Interfirm and population level	Strategic activity
Doz, Olk & Ring (2000)	Network Theory	Survey (53 R&D consortia)	Interfirm (metalevel)	Formation activities
Lovas & Ghoshal (2000)	Evolutionary Theory Population Ecology	Single firm in-depth case study	Firm (unilevel)	Strategic initiatives
Mintzberg (1978)	N/A	Comparative case study (2 organizations)	Firm (unilevel)	Decisions
Mintzberg & Waters (1982)	N/A	Single firm in-depth case study	Firm (unilevel)	Decisions
Noda & Bower (1996)	N/A	Comparative case study (2 firms)	Firm (multilevel)	Resource commitments Strategic activity
Ring & Van de Ven (1994)	Exchange Theory	Conceptual	Interfirm (metalevel)	Recurrent activity
Zajac & Olsen (1993)	Transaction Cost Exchange Theory	Conceptual	Interfirm (metalevel)	Transactional activity

By applying a case-based research approach to an interfirm level of analysis, this study deviates from the methodological paths taken in previous research. It thereby attempts to uncover what the methodological means have, thus far, disclosed. Case-study-based research fits the research goals particularly well for the following reasons:

Lack of theory: Only a few studies have been carried out on the IOS-making process. While research on strategy making inside single firms has produced a solid theoretical foundation, there is no strong theoretical base for interfirm studies, or they suffer from a lack of empirical substantiation. Multiple case studies are deemed appropriate where researchers have less a-priori knowledge of the object of analysis,

aim to build novel theory, and to extend existing theory (Benbasat, Goldstein, and Mead, 1987).

Complexity and novelty of phenomenon: Strategy processes are inherently complex, calling for an exploratory research approach to capture and comprehend the dynamics across multiple organizations and levels without losing the contextual idiosyncrasies. Yin argues that “the distinctive need for case studies arises out of the desire to understand complex social phenomena” (2003: 2). Siggelkow, on the other hand, makes a strong plea to use case studies to identify gaps and to start filling them, as they are an appealing means and are motivated by novel real-life phenomena (2007: 21).

5.3.4 Research Design

The research design outlines the research process, aiming to link the initial research questions to the empirical data by specifying the research object (Yin, 2003). The chosen case-based design requires ex-ante decisions on the research endeavor’s boundaries in terms of three dimensions:

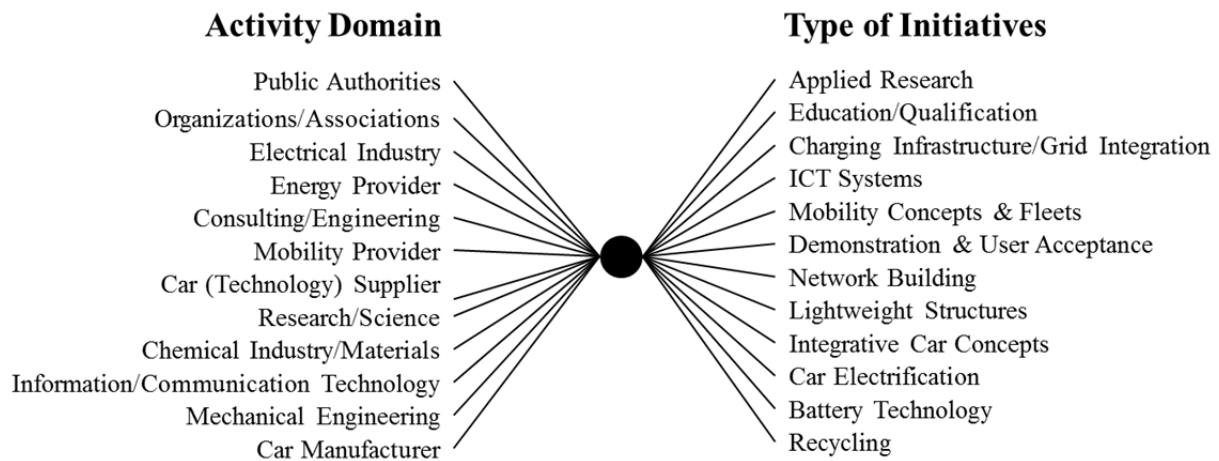
First, the *object of analysis* defines the contextual boundaries of the focal phenomenon to be examined (Stake, 1995: 103). This dissertation explores the IOS phenomenon. The investigation of strategy processes is my object of analysis.

Second, the *unit of analysis* specifies what the actual case is, thus allowing researchers to separate the data relevant for further inquiry (phenomenon) and the data external to the case (context) (Yin, 2003). The units of analyses are multipartner initiatives, or alliances¹⁷, of formally independent, yet strategically interdependent, organizational entities (subunits) involved in joint action. Strategic initiatives have been used as units of analysis and deemed appropriate in previous strategy process studies (cf. Table 6). Within the eMobility sector, these initiatives have been formed

¹⁷ I use these denominations (abbreviated as “initiatives”) concurrently, arguing that their only difference is in a temporal sense. While multipartner initiatives represent multiple organizations’ joint action during the initial phase, they may grow into more formally organized (structurally and contractually) multipartner alliances (MPA) over time.

across varying (industrial) activity domains to establish initiatives with different thematic priorities (Figure 9).

Figure 9: Initiative Domains and Types in the Electric Mobility Sector



Third, case study approaches require decisions on the *number of cases* to be explored. Single-case studies are preferred when special or extreme cases¹⁸ promise valuable insight into unexplored phenomena, or provide new perspectives on existent theories (Siggelkow, 2007). Comparative case designs (multiple case studies) allow for contrasting cases to maximize “variations among concepts and to densify categories in terms of their properties and dimensions” (Strauss, 1998: 201). Multiple case study designs challenge (literal replication) and substantiate (theoretical replication) initial findings, as well as build more robust theoretical assumptions (Yin, 2003). They are often considered more reliable and convincing than single-case approaches (Eisenhardt, 1989a: 541; Miles and Huberman, 1994: 29). Consequently, I choose a comparative case design.

This study expands on the perspective of ecologies organized for complex innovation (Dougherty and Dunne, 2011; Lakhani *et al.*, 2011). I follow the assertion that the “knowledge to innovate is dispersed across ecologies, so no single firm or small group of firms can innovate alone,” and, therefore “new products and services

¹⁸ In his work on persuasive case studies, Siggelkow (2007) provides compelling arguments on how and why small sample research can be a valuable and insight-provoking contribution to extant literature. His analogy portrays a scenario where a pig starts talking on command, providing an extraordinary case that would certainly be an unthinkable contribution to scientific research without further replication.

are generated by an ecology of business firms, nonprofit foundations, public institutions, and other agents” (Dougherty and Dunne, 2011: 1214). I applied a nested approach to account for the complex nature of the chosen research setting, but also to make a study on strategic interaction possible.

More specifically, I drew on embedded initiatives (mini-cases) (Eisenhardt, 1989a: 545) within the chosen case ecologies (compare Doz, 1996b for a similar application). To do so, I first selected the two case ecologies, namely the historically grown and geographically distinct automobile ecologies in Bavaria and Baden-Württemberg. To gain insights into the actual strategy process, I sampled initiatives within these ecologies in a second step. This approach allowed for comparing and validating my insights across the two case ecologies. Further, the nested case design permitted iterating between the ecology-level, initiative-level, and organizational-level of data and analysis (Doz, 1996b). Within the given boundaries of this thesis, I thereby aimed for a thicker level of process tracing detail for each of the outlined ecology cases and to take Eisenhardt’s (1989a) advice to examine four to ten cases.

Case sampling is based on a pragmatic approach directed at generating and developing conceptual theory (theoretical sampling) and is contrary to random selection, which dominates quantitative approaches. Prior research demonstrated that purposeful sampling is an appropriate technique to examine strategy making (e.g., Brown and Eisenhardt, 1997; Burgelman, 1983b; Eisenhardt, 1989b; Mintzberg and McHugh, 1985; Pettigrew, 1990).

5.4 Research Setting

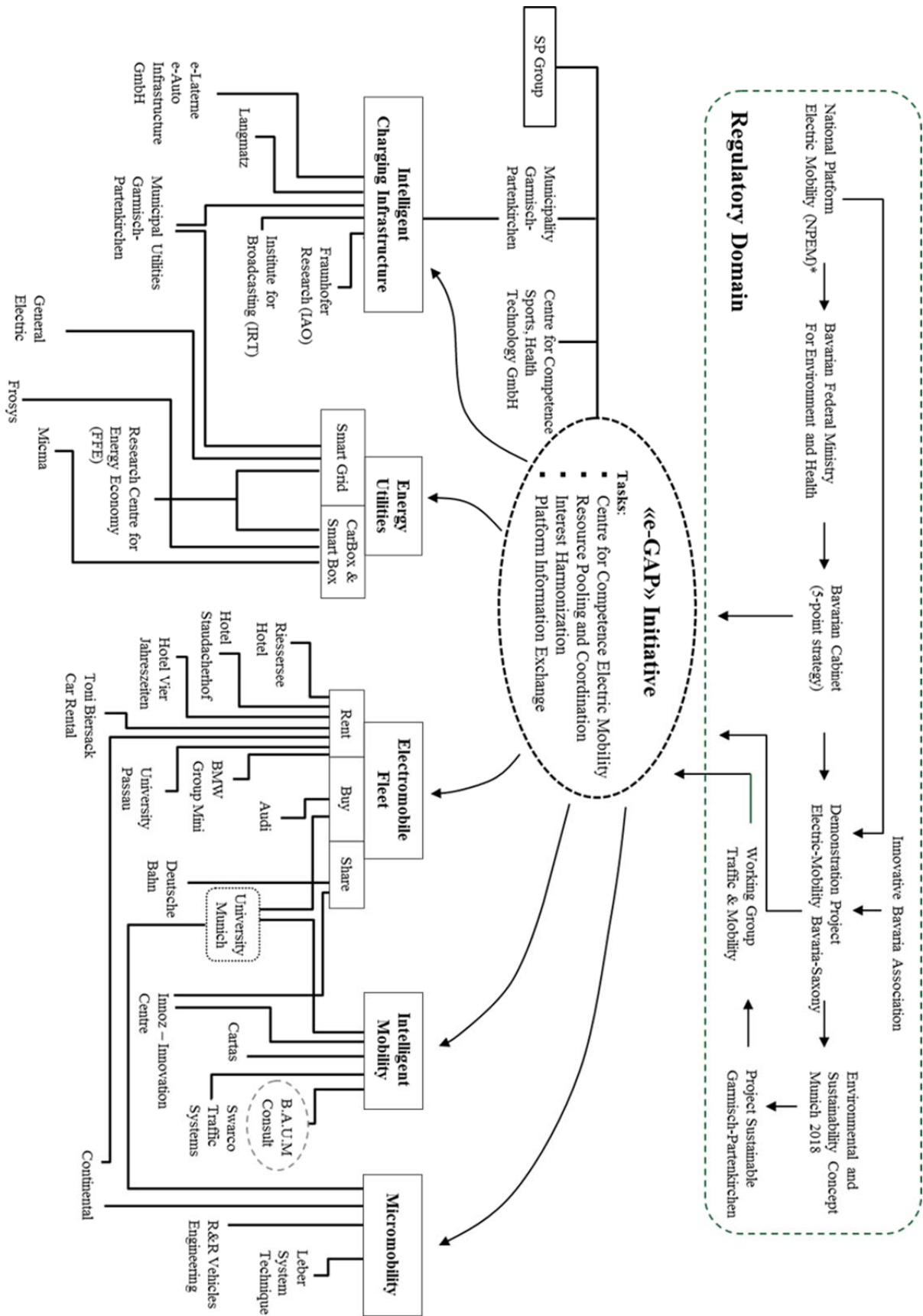
The research setting — that is, the environmental context within which my studies are conducted — is the electric mobility (henceforth denoted as eMobility) sector. While today’s models emphasize producing and selling vehicles, future business concepts will be geared towards creating holistic and far more complex mobility systems. These mobility solutions will demand a larger variety of technologies, products, services, and business models than before. Individual firms are unlikely to possess the required resources and power to cope with the associated

complexity. Thus, inputs from other, previously unrelated, sectors, such as the chemical, electro, information and telecommunications, and energy sectors, will be needed. Multiple firms initiatives across varying industries and the manifestation of metaorganizational designs are increasingly emerging (Gulati, Puranam, and Tushman, 2012).

The formation of the *e-GAP* initiative is an illustrative example of my research setting (Figure 10). Varying industries, associations, research institutions, and frame-setting public organizations gathered in an attempt to transform the mobility within the Garmisch-Partenkirchen region (Bavaria) and to create an intermodal platform. While this initiative started off with vaguely pre-defined goals in 2010, the recurrent strategic interaction between its members led to a sophisticated organizational structure and a cohesively developing strategic path (Lechner and Hettich, 2014).

I chose the eMobility sector, because change in this sector evolves at a great magnitude. It is important to note, however, that this change is not idiosyncratic to the eMobility sector, but is rather a general trend towards meeting customer demands for integrated and complex solutions.

Figure 10: e-GAP Initiative (Source: Lechner and Hettich, 2014: 335)



The eMobility sector introduces multiple public and private actors, which collectively contribute to the development of the field. The following chapters briefly outline the key public and private institutions involved.

Key public institutions

National Government: The German government and its federal states promote eMobility by various means as a political commitment, formulate the system-level goals, create favorable legal and regulatory frame conditions, and non-monetary and financial incentives. The German government's first involvement in eMobility dates back to 2007 when its activities were part of its strategy to reduce climate change (Federal Ministry for the Environment, 2007). The formulation of a "National Electromobility Development Plan" in 2009 was the starting point of a more coordinated effort in the eMobility field. This plan, which several federal ministries drew up, is based on the vision of having one million electric vehicles on German roads by 2020, with Germany becoming a lead market.¹⁹ The majority of the EUR 1 billion euro in funding is allocated to infrastructural developments, such as smart grids, energy storage, and charging technologies. Beyond this, the regulatory measures, market preparation, technology ramp-up, and the incentive programs will form the key foci until 2020.

National Electric Mobility Platform (NPE)²⁰: It seemed clear from the outset that the implementation of the National Electromobility Development Plan would require close consultation between all the stakeholders. In 2010, the German government initiated the NPE, which consists of representatives from politics, industry, academia, local authorities, and consumers. The NPE aims to map out and coordinate a roadmap to realize the objectives that the National Electromobility Development Plan outlines. The NPE consists of the following seven working groups identified as critical for the successful realization of the defined objectives: drive technology, battery technology, charging infrastructure and network integration,

¹⁹ Federal Ministry of Economics and Technology (BMWt); the Federal Ministry of Transport, Building and Urban Affairs (BMVBS); the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU); and the Federal Ministry for Education and Research (BMBWF).

²⁰ NPE: Nationale Plattform für Elektromobilität.

standardization and certification, materials and recycling, qualification and training, and framework conditions. Within these working groups, 16 research and development initiatives were selected as *lighthouse projects* in 2012 “for their ability to advance technological progress or reduce costs” (GGEMO, 2013).

*Joint Agency for Electric Mobility (GGEMO)*²¹: The GGEMO is a ministerial initiative set up in 2010 to bundle and coordinate the government's eMobility tasks. It supports the government and the NPE to implement and further develop the National Electromobility Development Plan.

Pilot regions and showcases: Since 2009, the German government has invested EUR 500 million to fund the research and commercialization of eMobility. Much of this funding has been allocated to eight “Electric Mobility Pilot Regions” across Germany (EUR 130 million), which were nominated to prepare the market through testing and demonstrating, but also to coordinate the car manufacturers, utilities, national and federal state ministries, and research institutes’ significant number of activities. In 2012, the four most promising regions received a further EUR 180 million to develop “showcases” aimed at perpetuating and focusing prior efforts in the field of eMobility.²² These showcases were also set up to demonstrate the eMobility technology’s viability by making it more tangible to potential customers. The following showcases were selected in a nationwide competition:²³

- *Living Lab BW Electric Mobility* (Baden-Württemberg)
- *International Showcase Electric Mobility* (Berlin/Brandenburg)
- *We are Switching to Electric Horsepower* (Lower Saxony)
- *Electric Mobility connects* (Bavaria/Saxony)

²¹ GGEMO: Gemeinsame Geschäftsstelle Elektromobilität.

²² To be eligible for a showcase project funding, firms need to finance at least 50 percent of the overall invested sum. Established model regions and projects, which are not part of the showcase projects, are continued, but the scope of their development is limited.

²³ Interestingly, all the showcases are located at major car manufacturers, which mirrors that historically grown manufacturer-supplier constellations provide the most promising regions for future mobility technologies. An exception is Berlin/Brandenburg, which was mainly chosen for its international visibility as the capital city. Note: The slogans have been translated into English.

The *National Organization for Hydrogen and Fuel Cell Technology (NOW)*²⁴ organizes the management of model regions and showcases, as well as the initiation of projects, on a national level, while the project coordination offices are housed on the federal state level.

National Organization for Hydrogen and Fuel Cell Technology (NOW): NOW was originally founded to develop hydrogen and fuel cell technology as outlined by the National Innovation Program. The associated industries, science fields, and governments, tried to replicate NOW's success in the field of hydrogen and fuel cell technology in the eMobility showcases and model regions. NOW also became a critical actor at the interface of policymakers, businessmen, scientists, and public relations. Finally, NOW oversees and integrates the federal level activities that the project coordination offices organize.

Project coordination offices: Project coordination offices organize the actual realization of outlined and funded projects by integrating all the critical eMobility value chain actors required implementing the showcases. Besides multi-project management, their core responsibility is to offer diverse stakeholders from the economic, scientific, and public authority sectors an interactive platform. Project coordination offices initiate and monitor projects, mediate between the initiative partners, build interdisciplinary networks (e.g., conferences, network meetings), provide technical support (i.e. IT platforms), training, and spread information to increase awareness.

Key private actors

The technological shift that eMobility introduced, prompted new actors from hitherto unrelated industries to become involved in the mobility domain that the automobile industry traditionally dominated. Table 7 classifies the exemplary activities and key actors in the eMobility field into five overarching domains. The emerging eMobility sector requires applied research institutes, industry, and science to provide basic research, experimentation, and conceptual work. Moreover, these actors become involved in the market preparation by demonstrating projects, providing training, and

²⁴ NOW: Nationale Organisation für Wasserstoff- und Brennstoffzellentechnologie.

setting standards for more efficient collaboration. In addition, a significant number of institutions are involved in competence building and in networking domains, which are very important for connecting and bridging the interests of the diverse set of new actors involved in this field. For instance, privately organized institutions, such as as “*eNOVA Strategiekreis Elektromobilität*” and “*Forum Elektromobilität e.V.*” developed platforms to stimulate interdisciplinary projects among the automotive, battery, electronics, and lightweight construction industries. Electric vehicles are also in critical need of a corresponding infrastructure to support the charging, operation, and maintenance processes. This is the predominant domain of utility providers, car park operators, as well as engineering and IT firms. Finally, specialized service firms provide prototypes and test mobility concepts, as well as business models to complement technologies with services, such as payment systems, which are critical for a market introduction.

Table 7: Activity Domains within the eMobility Sector

Domain	Exemplary activities	Actors
Research and Development	<ul style="list-style-type: none"> ▪ Basic and accompanying research ▪ Infrastructural technologies, Mobility concepts ▪ Organizational concepts ▪ Market research, Training ▪ Norming, Standardization 	<ul style="list-style-type: none"> ▪ Research institutions ▪ Industry ▪ Science ▪ Standardization authorities
Funding, Organizing, and Networking	<ul style="list-style-type: none"> ▪ Funding ▪ Prepare initiatives ▪ Building networks ▪ Organizing platforms – connect and exchange 	<ul style="list-style-type: none"> ▪ Financial institutions, Investors ▪ Strategic circles (of firms) ▪ Private initiatives ▪ Associations, Boards of trade
Infrastructure	<ul style="list-style-type: none"> ▪ Energy infrastructure (Smart Grid) ▪ Charging infrastructure ▪ Traffic infrastructure (Parking, Driving, Paying) 	<ul style="list-style-type: none"> ▪ Energy utilities ▪ Engineering, IT ▪ Services
Mobility concepts	<ul style="list-style-type: none"> ▪ Information- and Communication Technologies ▪ Marketing and sales ▪ Prototyping 	<ul style="list-style-type: none"> ▪ ITC ▪ Trade ▪ Project development
Manufacturing	<ul style="list-style-type: none"> ▪ Car manufacturing ▪ Traditional components ▪ New components (i.e., battery technology, lightweight construction, electronic control systems, software) 	<ul style="list-style-type: none"> ▪ OEMs ▪ 1st/2nd tier suppliers ▪ Unrelated industries (i.e., chemical, electrical, software/IT, energy)

5.4.1 Case Selection

IOS processes that span beyond single firm boundaries are at the core of this research study. As stressed in the previous chapter, I investigate multipartner initiatives that involve complex innovation across ecologies (Dougherty and Dunne, 2011), rather than in single firms. It is challenging, if not impossible, to delineate a clear boundary for firm ecologies. To do so, the ecological approach suggests that the boundaries of ecologies should be drawn by focusing on their common fate in respect of their environmental vulnerability (Hannan and Freeman, 1977). Based on this criterion, I argue that this study's two defined ecologies, namely Bavaria (BA) and Baden-Württemberg (BW), are an appropriate choice for the following reasons:

First, both ecologies are *geographically* distinct. Much of today's competitive advantage lies within companies and institutions' embeddedness in geographically concentrated sectors (Uzzi, 1997). Porter (1998) argues that geographically clustered and interconnected firms and institutions are likely to thrive by taking advantage of the local knowledge, available personnel and information flows, the linked industries, and the higher degree of specialization. Second, I delineate the boundaries via the *historically* grown relationships, which resulted from repeated interactions over extended periods of time. For instance, a thriving supplier industry emerged around the key automobile manufacturers in both ecologies, accounting for more than 30 percent of the R&D value-added (VDA, 2012). Third, the selected eMobility ecologies' activities take place within distinct arenas, which are framed by *political* representatives. Business and institutional interests are intertwined, providing a stronger sense of mutual dependence within the respective ecologies.

However, these criteria allow only for an indicative delineation of the boundaries between the two ecology cases. In fact, many globally oriented firms operate across and contribute to multiple ecologies, making a classification impossible. In this study, these cases are sufficiently distinct as the subsequent case outline shows.

5.4.2 Background: Ecology of Baden-Württemberg

Baden-Württemberg (BW) builds on a long car manufacturing tradition with more than 240,000 people employed in this industry and accounting for 28 percent of

the state's overall industrial output. More than 1,000 suppliers are closely linked to the automakers, thus contributing to the overall innovativeness of this ecology (e-Mobil BW, 2011).

BW's first public involvement in eMobility activities dates back to the state-wide initiative "Landesinitiative Elektromobilität I" in 2009. An initial investment of EUR 28,5 million was allocated to facilitate the development of a research network, to promote training and qualifications, and to launch public-private projects. At the same time, *e-mobil BW* was installed, which was a central point of contact for all activities related to eMobility within BW. *e-mobil BW*'s main objective is to promote and coordinate the intersectoral collaboration spanning the automobile, energy, IT, and research domains (e-Mobil BW, 2011). Moreover, *e-mobil BW* is actively concerned with market preparation activities, conducting studies for users, testing early prototypes, and demonstrating the viability of the developed technology.

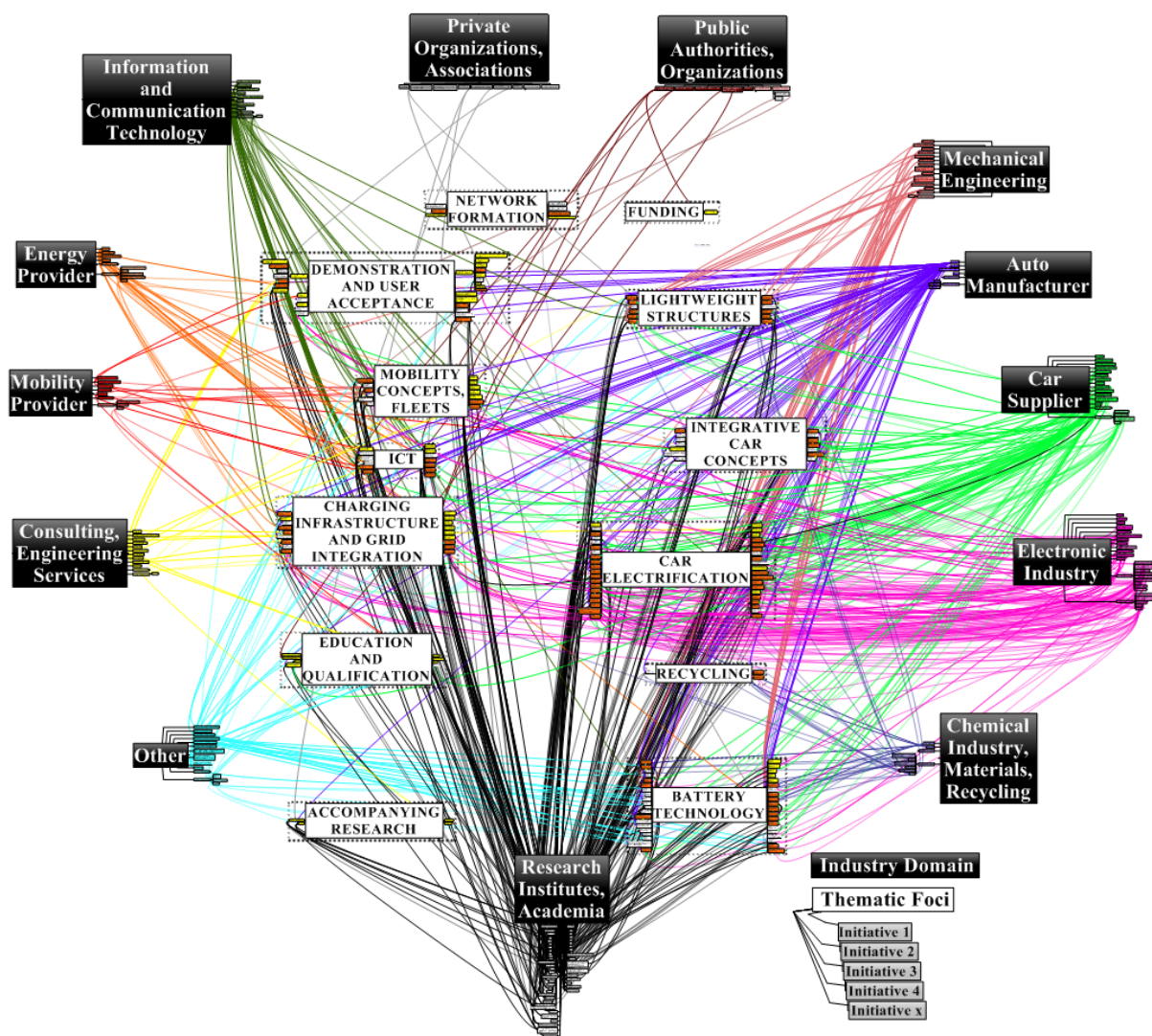
Since 2010, *e-mobil BW* has managed the *Spitzencluster Elektromobilität Süd-West*, the largest eMobility cluster in BW, which has more than 80 members. In 2012, it was nominated as a "cluster of excellence," thereby receiving an additional EUR 40 million in state funding to drive the regional eMobility projects and to link the small and large-scale firms across BW. In early 2012, *e-mobil BW* was selected as one of the four showcase regions, building on 40 projects with more than 100 partners involved. The *Living Lab BWe mobil* was founded to develop and test electromobility under real-life conditions and build customer acceptance (Living Lab BWe mobil, 2012).

LivingLab approaches capture product consumption and user experiences, and subsequently model the adaptation of lead users' innovations (Hippel, 1986). These approaches constitute a contextual, social, user-centered design directed at early prototyping and testing in an open innovation and co-creation environment. There are also other regional networks, such as the *eMobilitätszentrum Karlsruhe*, which has 13 members, and the innovation cluster *Regional Eco Mobility 2030 (REM 2030)* initiated by the *Karlsruher Institut für Technologie (KIT)* and the *Fraunhofer Institute*. They are, however, smaller in scale, focusing on specific issues and regions, as opposed to

the systemic (i.e. state-wide) and intermodal concepts (i.e. e-bus, e-bike, and e-car), which are pursued by the e-mobil BW.

While public organizations support and organize much activity within the BW eMobility ecology, privately owned firms initiate and coordinate just as much activity. Figure 11 displays the eMobility initiatives and interconnections of the various participants that contribute to the BW ecology²⁵:

Figure 11: Ecology View of Electric Mobility Initiatives and Actors in Baden-Württemberg



²⁵ The subsequent case accounts build on an extensive database developed throughout the period 2012 to 2015. This database captures the project names and specifications, the duration, participants, objectives, foci, project and funding volumes of eMobility initiatives in both case ecologies. This information was retrieved from publicly accessible sources via desk research. Despite the collected encompassing data set, it is important to note that a considerable amount of activity in both eMobility ecologies remained hidden. It was not always possible to clearly distinguish the ecology-related activities from other, national or international, activities.

A total of 146 initiatives were documented, with the earliest starting in 2007 and some scheduled until 2016. Many initiatives build on each other and are spread evenly across the entire period (Appendix 2). Actors within the ecology were grouped into 13 activity domains (black boxes) and 13 initiative types (white boxes). 40 percent of all the initiatives were launched within the field of car electrification (i.e. drivetrain technology) and battery technology. A total of 27 initiatives (or 14 percent) are demonstration or user acceptance projects. Almost 10 percent of all the documented initiatives are concerned with the charging infrastructure and grid integration. The average initiative comprised six private or public organizations or firms.

A significant number of the involved organizations are publicly owned, research-oriented organizations, contributing to almost all of the identified initiatives. Less surprising, auto manufacturers and suppliers predominantly cover traditional turfs, such as integrative car concepts, demonstration initiatives, and car electrification. Figure 11 also highlights the involvement of players that are traditionally not related to the field, such as the chemical industry (including lightweight technology providers), energy suppliers, and ICT firms. Finally, networks, organizations, associations, and public institutions take a rather network-building role by identifying, coordinating, and connecting actors and their activities across the entire ecology.

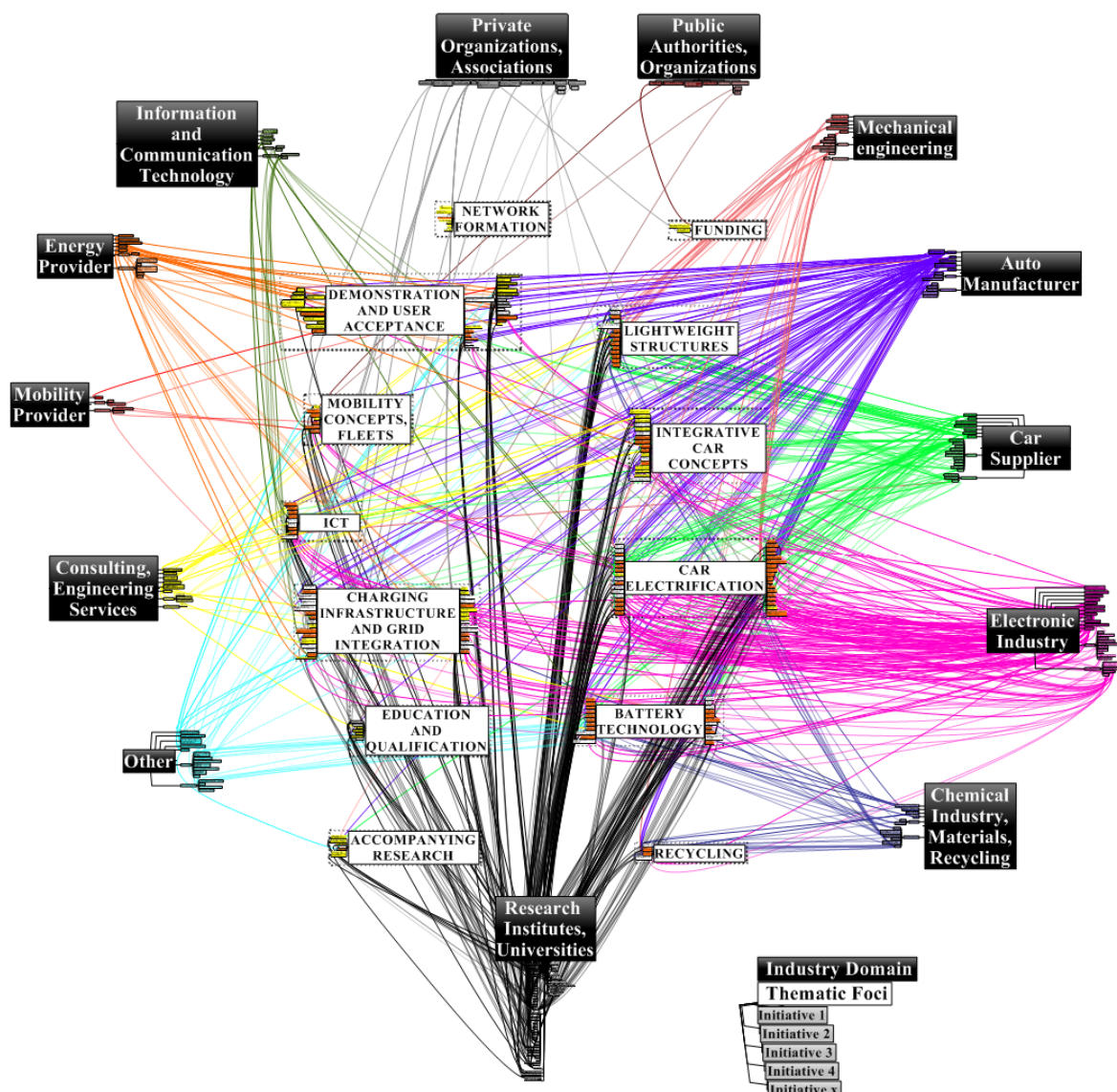
5.4.3 Background: Ecology of Bavaria

With 167,000 employed people, the automobile sector is a vital industrial basis in Bavaria (BA) (VDA, 2011). Overall, 1,100 firms are active in the automobile sector, with approximately 230 constituting key suppliers falling into Tier 1-4 categories (Niggel, 2013). The state authorities and business representatives give the eMobility sector in BA, high priority, driving their ambitious plan to introduce 220,000 electric vehicles to its roads by 2020 (Bayerische Staatsregierung, 2010).

The BA government's involvement started in November 2008 with a program called "Zukunftsoffensive Elektromobilität" (future offensive electromobility) worth EUR 5 million (Rudolph, 2010). This program aims to position BA as an eMobility technology pioneer, to spur innovativeness, and to interconnect science and industry to

raise the overall competitiveness. The government focuses its commitment on six central themes: battery, car electrification and drivetrain, control systems, security, standardization, and car concepts. All state activity follows an outlined plan that the government published in May 2010. The execution of this strategy and the management of the state activities in the field of eMobility are the core responsibility of *Bayern Innovativ*. promotes trade and economic development in various industrial fields on behalf of the BA state government. Its key foci are nurturing cooperative platforms and networks in pre-defined and promising industries, and the initiation of innovative collaborations between firms, research institutes, and governmental authorities. Figure 12 displays the eMobility initiatives and the interconnections of the various participants contributing to the BA ecology:

Figure 12: Ecology View of Electric Mobility Initiatives and Actors in Bavaria



A total of 145 initiatives were documented within the BA eMobility ecology. *BMW* was one of the first-movers by launching “Project I” in 2007. In September 2013, this initiative resulted in one of the first mass-produced electricity-powered vehicles. The vast majority of initiatives were started between 2011 and 2012. Analogous to the first case, the activities were grouped into 13 domains (black boxes) and 13 initiatives types (white boxes).

Similar to the previous case, the majority of initiatives were launched within the field of car electrification and battery technology (30 percent), followed by demonstration or user acceptance projects (17 percent). In contrast to the previous case, BA actors pursue almost double as many to charging infrastructure and grid integration (16 percent) initiatives. In addition, actors within the BA ecology only pursue half as many mobility initiatives (4 percent). Overall, 149 actors are registered within my BA database. The average initiative comprises five actors.

Interestingly, when comparing the ecological landscapes, it is notable that both cases show a remarkable similarity in terms of structure, temporal distribution, and type of initiatives launched. Both cases underscore the significance of the scientific domains in shaping the field by involving most of the documented initiatives.

5.5 Research Process

To achieve optimal results, a straightforward research process was neither possible, nor desirable in this qualitative case-based study. While a research process was drafted at the outset of this study, periodical adjustments were made. I followed the experience of other scholars by applying a more pragmatic (Pan and Tan, 2011), (Eisenhardt, 1989a), and opportunistic (Pettigrew, 1990) approach and by iterating between theory, data, and analysis (Pettigrew, 1992). Being distinct with regard to the methodology and multiple-case approach, but simultaneously open in terms of the process (e.g., methods or data sources), allowed me to correct and change my initial pre-considerations where necessary. I developed my research in the following phases: (1) the preparatory phase, (2) the explorative phase, and (3) the corroborative phase. Table 8 depicts my research path.

Table 8: Structured Research Process

	① Sep '12 – March '13	② March '13 – March '14	③ March '14 – Sep '14
Phase	Preparation	Exploration	Corroboration
	Data Analysis		
Key Objectives	<ul style="list-style-type: none"> ▪ Increase theoretical sensitivity ▪ Conceptualize phenomenon ▪ Develop research question 	<ul style="list-style-type: none"> ▪ Collect and organize initial data ▪ Preliminary theoretical framework ▪ Identify key process dynamics 	<ul style="list-style-type: none"> ▪ Shape propositions ▪ Build internal validity ▪ Analyze and make contribution
Core Activities	<ul style="list-style-type: none"> ▪ Review strategy process literature ▪ Develop initiatives database ▪ Definition of research question ▪ Theoretical sampling of relevant cases ▪ Initial fieldwork 	<ul style="list-style-type: none"> ▪ 1 exploratory interview ▪ 15 semi-structured interviews (in both cases) ▪ Coding (Atlas.ti) ▪ Within-case and cross-case analyses ▪ Identify emergent constructs and theoretical embedding ▪ Academic exposure 	<ul style="list-style-type: none"> ▪ 4 semi-structured interviews (within defined initiatives) ▪ Revisit and re-code data ▪ Develop second- and third-order constructs ▪ Secondary data validation ▪ Embed in extant literature
Data Sources	<ul style="list-style-type: none"> ▪ Journal articles ▪ 25 interview-based short cases ▪ Business press 	<ul style="list-style-type: none"> ▪ Interviews ▪ Company reports, releases ▪ Business press 	<ul style="list-style-type: none"> ▪ Deep-dive interviews ▪ Company reports, releases ▪ Business press

(1) The *preparatory phase* aimed to understand IOS making (phenomenon) by reviewing extant literature on the strategy process in the management discipline. The major goal was to receive guidance for the subsequent data collection and interpretation process and for the formulation of a relevant research question. I entered the field with 25 short cases based on interviews that were conducted by students, and guided by pre-defined questions. This allowed a rough understanding of the context and structure for my initial questionnaire. I analyzed the case material and re-phrased the research question.²⁶ Finally, following advice from previous studies, I deliberately sampled the most insightful cases (Eisenhardt, 1989a: 537; Pettigrew, 1990: 274) and negotiated access to interviewees.

(2) The *explorative phase* involved collecting and structuring the initial data, the development of a preliminary theoretical framework, and the identification of key process dynamics, which were corroborated in the next phase. I conducted an exploratory interview with a key informant, followed by 19 semi-structured interviews

²⁶My research question was redrafted several times, as a response to insights from the literature review, the data accessibility, and the peer feedback during the research process.

from both case ecologies. The objective was to understand the roles and activities of the diverse actors involved in the IOS process. The interviews focused on collaboration and IOS making in the eMobility sector in general, without focusing on a specific initiative. To generate themes and collapse them into first-order constructs, both cases were analyzed individually (within case patterns) and combined (cross-case patterns) by means of axial coding techniques to refine and interpret the data. Through an iterative approach of abstracting and matching patterns, I inductively derived higher-order constructs that I found to be prevalent across the data (Strauss and Corbin, 1994). The developed framework was revealed at workshops and conferences to gain peer feedback and refine the model.

(3) During the *corroboration phase*, four further interviews were conducted to gain in-depth insights and collect evidence on the preliminary model. Based on a better understanding of the identified constructs and mechanisms, the questionnaire was adapted to re-focus the data collection. In this phase, I began by deductively applying the theory, by comparing the theory to the data and the constructs. Initially, I drew on diverse lenses to allow for competing interpretations. I followed the qualitative pattern matching approach, which previous studies suggest (Yin, 2009), in order to pursue the earlier outlined research goal of theoretical replication. To enhance the internal validity I shifted the focus from *how* to understand *why* certain IOS process dynamics unfold (Eisenhardt, 1989a). I also revisited and recoded the data, where necessary, to ensure no evidence was omitted during first round of coding. Finally, I developed propositions and embedded the gained insights into a broader context of existing theory.

On the whole, this study stretched over 24 months. Throughout this process, the data collection overlapped significantly with the data analysis activity. This allowed a close fit with the research goal and allowed to re-align the research when necessary to finally achieve an empirically grounded and theoretically valuable contribution.

5.5.1 Data Collection

The field was approached with a temporal bracketing strategy (Langley, 1999) by structuring the data in the distinct strategy process phases. In doing so, I sought guidance from the initial literature review (see Table 4) and early insights from the cases and the exploratory interview. The data disclosed three overarching phases: (1) initiation, (2) negotiation, and (3) execution. While these phases did not have any particular theoretical significance, they helped structure my subsequent data collection chronologically, compare strategic dynamics across the two cases, and improve the interview guide.

Data sources. This study drew on archival data (i.e. reports, newspaper articles, studies, press releases) and on interviews with the strategy process participants. The interviews were conducted from September 2012 to July 2014. I favored a retrospective analysis of the recent collaborations rather than a real time process study for the following reasons: First, a retrospective analysis allowed for covering the entire IOS process since its initiation, which in some cases dates back to 2007. Second, I thereby facilitated data access, building on a rich base of information and experience that had accumulated over time. Third, I intended to retrieve unbiased data on the process evolutions, which an ongoing field presence may not guarantee (Doz, 1996b).

Informants. I sought to capture the full diversity of the actors involved in the strategy process by interviewing representatives from various industries, science, public institutions on the national, federal, and municipal levels. Within these organizations, I aimed to balance the sample between top-level decision-makers and actors, who had been operationally involved in the strategy execution, to offset potential biases. The archival written material helped identify those who had played a key role. The increasing familiarity with the field during the research process, allowed me to locate the most knowledgeable interview partners. I focused on respondents who had been directly involved in the interaction with the various partners. By applying the snowballing technique (cross-referencing), further access to interviews was facilitated, particularly to higher-ranked informants (Huber and Power, 1985).

Interviews. All field visits were preceded by an extensive review of the archival data to prepare the interviews, challenge the interviewees' memories, and confront their perception with the outcomes and other opinions in the field. Initially, this helped me to swiftly dive into the field and understand its nuances. Being well-informed about the case was also crucial to counter the respondents' selective perceptions and to re-establish the respondents' temporal and contextual frame of reference (Doz, 1996a; Van de Ven, 1992). To ensure that the original question was understood and the answer was complete, I drew on pre-defined probes when necessary. The interview guide targeted the data in five clusters (Appendix 4). Prompts were used to support the questions in the interview process where necessary. The average interview lasted 75 minutes (a total of 24 hours). All the interviews were tape-recorded and transcribed verbatim. Notes were taken throughout the course of the interviews, and transcribed in the hours following the interviews (Table 9).

Table 9: Overview of Interviews

No.	Date	Informant(s)	Domain	Duration	Processed	Case(s)
1	20130301	Project office, Director	Public, Coordination	115 min	taped, transcribed	BW
2	20130321	Consulting, Project leader	Private, Networking	55 min	taped, transcribed	BA/BW
3	20130410	Energy, Project manager - Strategy	Private	65 min	taped, transcribed	BA
4	20130417	Project office, Director	Public, Coordination	65 min	taped, transcribed	BA/BW
5	20130502	Supplier, Head	Private, ICT/Car supplier	80 min	taped, transcribed	BW
6	20130515	Consulting, Senior	Private, Market research	45 min	taped, transcribed	BA/BW
7	20130516	Mobility concepts, Project leader	Private, Fleets	30 min	taped, transcribed	BW
8	20130605	Urban development, Director	Public, Mobility concepts	45 min	transcribed	BA
9	20130610	Urban development, Director	Public, Mobility concepts	45 min	transcribed	BA
10	20130613	Project office, Director	Public, Coordination	120 min	taped, transcribed	BA
11	20130613	Urban development, Project leader	Public Municipality, Mobility concepts	115 min	taped, transcribed	BA
12	20130614	Research institute, Project leader	Private research	90 min	taped, transcribed	BW
13	20130618	Supplier, Project leader	Private, ICT	65 min	taped, transcribed	BW
14	20130715	Automobile, Head of Strategy	Private, Auto manufacturer	75 min	taped, transcribed	BW
15	20130715	Corp. headquarters, Head of regulatory strategy, Project manager	Private, Auto manufacturer	75 min	taped, transcribed	BW
16	20130717	Corp. research, Project leader	Private, Supplier	75 min	taped, transcribed	BW
17	20130717	Urban development, Project leader	Public, Mobility concepts	65 min	taped, transcribed	BW
18	20130911	Mobility concepts, CEO	Private, Engineering services	90 min	taped, transcribed	BW
19	20131008	Corp. research, Head	Private, Auto manufacturer	120 min	taped, transcribed	BA
Total				24 hrs		

5.5.2 Analysis and Data Coding

Analysis. The sheer volume of accumulated data demanded considerable effort to prevent me drowning “in a shapeless mass of information” and to move from the “data spaghetti” towards parsimonious theoretical formulations (Langley, 1999: 694). To do so, an initial distancing was necessary to differentiate between what was important and what was mere noise (Pettigrew, 1990). To make sense of the data, I followed the temporal bracketing strategy, as outlined by Langley (Langley, 1999).

More specifically, I initially started to structure the data and events into successive, adjacent periods that indicated a certain recurrence in the activities within each period. These periods, however, did not necessarily “presume any progressive developmental logic” (Langley, 1999: 703). Beyond its mere structuring utility, the bracketing approach also facilitated developing units of analysis that were useful for the intended literal replication of prior research’s theoretical ideas. For instance, it allowed me to compare the IOS initiation process with what has been found in intraorganizational strategy process models. In a subsequent step, I connected the distinct periods and collected further empirical evidence by replicating the emerging model in other cases. Any discontinuities were reviewed and evaluated against the respective context.

Data reduction. The initial stage in the analysis involved structuring data into phase-specific themes. When coding the data, I applied an inductive thematic analysis to identify and report the patterns (themes) (Boyatzis, 1998; Braun and Clarke, 2006). I coded and embedded initiatives within the BW case ecology to generate the initial framework in a theory-building mode (Glaser and Strauss, 1967). Other cases from the BA ecology were subsequently coded for theoretical replication and extension (Yin, 2009) to challenge and refine the initial framework (Doz, 1996b). The initial review of the transcripts and secondary data suggested the existence of three temporally distinct IOS phases. When talking about events and activities, the interview partners repeatedly referred to three prevalent and chronologically ‘bracketed’ IOS phases: 1)

initiation, 2) negotiation, and 3) execution.²⁷ The coding process started with ‘close to data’ coding and gradually progressed towards greater theoretical abstraction. The data was carefully reviewed and all the statements relating to the identified strategy process in were coded (810 quotes). By coding the data transcripts with Atlas.ti in detail, and staying close to the respondents’ language (open coding), a comprehensive list of phase-specific semantic and latent themes was developed.

Data sensemaking. To organize raw data into conceptual categories, I developed first- and second-order abstractions within the phases. Specifically, I reread the qualitative data across varying cases. This step allowed me to build linkages and develop more abstract and aggregated categories across the concepts (Strauss, 1998). This is generally referred to as axial coding. I then started tracing patterns and explanations in the initial codes. I collapsed and reorganized the codes towards higher-order themes, which allowed first- and second-order themes to emerge. The latter, more abstract coding step was aimed at verbally capturing the essence of the strategic dynamics or activities:

- *External triggering, internal triggering, and the adjacent mobilizing activity* determined the initiation phase;
- *Bridging and matching activities* essentially shaped the negotiation phase;
- *De-coupling, re-coupling, and the stabilizing activity* marked the execution.

I finally undertook selective coding by looking for contradictory and confirmatory evidence in data. After a four-step process of structuring the patterns/themes, 357 quotes and 108 codes remained, supporting the underlying IOS framework.²⁸ Table 10 outlines the coding path and data aggregation.

²⁷ A fourth phase (harmonization) was dropped from the execution phase, as the interview partners seemed to make no particular distinction between the two phases.

²⁸ I followed Miles and Huberman’s (1994) coding criteria here: All codes should be 1) valid; that is, they should accurately reflect what is being researched; 2) mutually exclusive, in that they should be distinct, with no overlap; 3) exhaustive; that is, all relevant data should fit into a code

Table 10: Coding Structure – Aggregation of Themes

Phase	Semantic and Latent Themes (aggregated)	1st-Order Theme	2nd-Order Theme
INTIATION	Experts understand the problem better Problem is part of a more complex issue Need for organized change Beyond our scope	Complex meta-problem (Problem centered)	EXTERNAL TRIGGERING
	No business case here Too much risk involved Insufficient resources Smallness / Lack of legitimacy Inertial forces inside (path-dependence)	Insufficient momentum (Organization centered)	
	Window of opportunity Projecting future Missing future business	Sense of opportunity	INTERNAL TRIGGERING
	Acknowledging interdependence Fear of being left behind by technological change Not our core competency	Sense of urgency	
	Developing joint platforms If one participates the other also wants to (pull) Talking across boundaries Systematically scouting the market for partners Filling gaps of competency	Filling gaps	MOBILIZING
	Boundary-spanners that connect across firms Signalling from the top Give the endeavor a face Multiplying publicity	Enhancing visibility	
NEGOTIATION	Top-level resolution necessary / Paving way Moderating and speeding decisions Building trust	Neutral clearing	STRATEGIC BRIDGING
	Spanning the bargaining leeway Providing neutral space for strategic dialog Organizing / Structuring change Meeting on interests not positions / Meta-goals	Consensus finding	
	Pooling resources and needs Many eyeballs on one problem Finding consensus on non-competitive ground Building a sense of interdependence	Framing problems	MATCHING
	Seeking strategic lockstep Co-alignment of interests Thinking outside industry box Developing joint business models Developing future scenarios	Framing future	
EXECUTION	Need to reduce complexity to manageable units Reintegration of activity Impose familiar structures	Decomposing subsystems	DE-COUPLING RE-COUPLING
	Decomposition of tasks into phases	Phasing	
	Intensified relations Scaling of activities Intense communication	Enforcing and Scaling	STABILIZING

5.5.3 Trustworthiness of Research Design

Throughout the data collection and analysis phases, several measures were taken to promote confidence in the research design (Ariño and Ring, 2010; Eisenhardt, 1989a). In particular, I intended to establish the correct operational measures (construct validity), causal relationships (internal validity), generalizability (external validity), and repeatability of the study (reliability).

Construct validity. First, I developed a good understanding of the field by reviewing 25 interview-based short cases and secondary data. Second, I developed thick case descriptions of the IOS process as documented in audio filed interviews, transcripts, field notes, and in the extensively compiled secondary data. Third, to ensure construct validity, I drew on multiple sources of evidence. This approach allowed triangulation, the development of converging lines of inquiry, and a stronger substantiation of the themes and the propositions.

Internal validity. I reviewed the existing theory that relates to the strategy process in order to receive a-priori guidance for the analysis following an informed grounded theory technique. Further, I followed well-established research methods to develop and apply the questionnaire, the methodological procedures, and the analyses in order to ensure credibility.

External validity. I applied replication logic by using a multiple-case design of embedded initiatives. Moreover, I studied and compared the results of two case ecologies to corroborate the framework and to test the context's potential implications.

Reliability. I meticulously and chronologically documented the research process, as outlined in Table 8. I taped and transcribed the interviews, developed an initiative database, and kept all documents relating to the research project. Beyond this, memo writing helped me document the coding process and increase the transparency of the developed higher-order themes (Strauss and Corbin, 1994).

5.6 A Process Model

I entered the field well-sensitized by extant strategy models. As the research progressed, the interviews repeatedly indicated the existence of distinct phases in interorganizational collaboration. Based on this observation three salient phases were defined to track the emergence of patterns and to guide my subsequent explanations: (1) *Initiation*: A stimulus to start the IOS process by triggering it on the meta- or firm-level, followed by mobilization activities to assemble critical actors and resources. (2) *Negotiation*: Bridging activity to overcome the strategic diversity and a matching process to co-align the goals for coherent activity. (3) *Execution*: Recurrent, cyclical interaction that involved the de-coupling and re-coupling of tasks, stabilization, and the perpetuation of the results and the relationships. Building on the temporal bracketing strategy outlined earlier, I present the case insights along the three phases.

5.6.1 Initiation

Internal triggering. The initiation of IOS can be tracked back to a *sense of opportunity* or *urgency* that permeated firms becoming increasingly aware of imminent change. New players, previously unrelated, or only loosely connected to the automobile industry (e.g., from sectors such as energy, IT, chemical, material, and infrastructure), sensed opportunities to become involved in the emergent eMobility sector. An industry consultant remembered that the “technology was [as] yet immature, but everybody was eager to be part of it somehow” (E/4:20). Long before the eMobility topic experienced a hype, when media coverage and public awareness increased in about 2010, many firms already knew that a radical technological change lies ahead. Some of these firms employed futurists (Brown and Eisenhardt, 1997) who were responsible for the identification of the upcoming change and projecting this into the future (E/4:36). These visionaries are often first to sensitize their firms for future developments. In several cases, such visionaries provided the major impetus that allowed the eMobility topic to be taken up in organizational agendas and in technological roadmaps. For instance, at *BMW*, Ulrich Kranz initiated and developed the eMobility “Project I,” which eventually led to the first zero emission, mass-

produced vehicle in 2013. Kranz's efforts "to reinvent the car" date back to 2007, when he started recruiting an interdisciplinary team and partnering firms (E/4:37). Internal triggering activity is not, however, restricted to focal organizations, but appears to touch upon strategic issues that span firms and industries. An automobile technology supplier's divisional CEO, whom other respondents acknowledged as visionary, stated:

"I first suggested [in my firm] in 2004 that we needed to take care of our ecosystem and manage it deliberately and strategically. Thus, [managing] strategy not only in-house, but also within a group of firms focused on a similar market." (E/4:19)

The repeatedly mentioned perceived urgency, which arose from the fear of being left behind, was the major driving force behind the internal triggering of eMobility projects. Strategies are largely problem-driven. That is, they come into being because a problem needs strategic attention (Miller and Friesen, 1983; Porter, 1996). In the light of the looming technological change, some market players (in particular traditional car manufacturers) became increasingly aware that the established value chains activities might soon be up for re-distribution. However, the projects and products within the eMobility field introduced a complexity that overwhelmed the internal capacities, and tremendous challenges emerged for firms that had hitherto operated largely independently within their respective fields. Most actors acknowledged that it would need more than one partner to create a working system. The director of a regional project office, who had previously served in various leading positions in the automobile industry, summarized these developments:

"...all started with fear. With a major industry's fear that an indispensable technological change would be needed to deal with the future challenges of the ecologization of mobility, which was inevitable. Thus, one can either fight against change, or face it. But I think it was the fear that there would be change and that there was no way, as yet, of meeting it, which then made people from diverging industries meet to ask themselves how to approach this issue." (E/4:35)

The actors were confronted with demands for integrated solutions that required coordinated efforts and inputs from various fields. For instance, compatible solutions,

which had neither been produced nor tested, were required for electric vehicles regarding their battery technology, software, and electronic control systems. The appropriate infrastructure to power and accommodate electric vehicles had not yet been developed, but was critical for the functioning of eMobility. Moreover, there were no industry standards and regulations, employees' qualifications were underdeveloped, and customer acceptance was insufficient to make a business case. The head of research on battery-powered vehicles at a major car producer described the situation as follows:

“You simply cannot do it on your own. And you do neither have the technological capacity, nor the manpower. You may understand many things, but you cannot put them into practice. And this is why we searched for partners.” (36:23)

A senior project manager at the strategy department of an energy supplier reiterated:

“Regarding these comprehensive challenges [of eMobility] – we as an individual firm were far from being able to solve them. Owing to the analysis concerning the [scope of the] charging infrastructure, sales and grids, grid fees, etc., that was all yet unclear. There were still many open questions.”(E/4:46)

While the IOS process can be traced back to intraorganizational sparks of initiative, the complex and interdependent nature of the issue prevented it from unfolding along an intraorganizational strategy pathway. This is where the process abandoned the firm boundaries to form an IOS.

External triggering. The respondents repeatedly stressed the complex and highly interdependent nature of the eMobility sector, which spans several industrial domains to form an integrated solution. This complexity tends to exceed the sensemaking capacities of individual organizations (Weick, 1979), calling for more comprehensive, interorganizational approaches to collectively understand, analyze, and decide on action to solve complex problems. The director of the project office

managing one model region emphasized the challenging nature of eMobility initiatives:

“... we selected specific elements, where we said that ‘we have the necessary clout here to make a change.’ Nobody could manage the energy turnaround [Energiewende], or switch towards eMobility alone. We can only tackle this [change] case by case”. (E/1:46)

Similarly, field research substantiated that a considerable share of the activities were triggered externally by expert rounds, national programs, federal trade agencies, municipal development offices, and, specifically, established federal project offices for eMobility. These institutions organize informal meetings to allow for “more eyes on the problem” through joint sensemaking, as well as the formation of networks allowing collaborative space. The director of a municipal development office, also responsible for the eMobility cluster, stated:

“A really close collaboration and cooperation developed [through their triggering activity], and even partnerships, which substantially advanced the [eMobility] topic. Without this networking, everybody would have worked just for himself. But through the network, we create a continuous impetus. We see this as our task – to provide impetus.”(E/4:29)

Two distinct sources, which hampered the internal initiative, appeared to determine the external triggering. First, several firms faced the challenge of gaining sufficient commitment from critical actors within the field. In particular, small players lacked the legitimacy (Stinchcombe, 1965) to take a lead position in eMobility initiatives. Although, many of these firms understood the need and saw the opportunity to react to the forthcoming changes that the emerging eMobility sector would introduce, they were unable to react. Significant resource investments were required, while the outcomes were simultaneously unpredictable in the near future. Second, structural inertia challenged the incumbents (Hannan and Freeman, 1984). Initially, large players were reluctant to become involved, as they saw no need to be first-movers in an immature and unprofitable supply-side market (E/4:30). Some argued that they were unwilling to prepare the market for competitors, while others referred to

their current technologies' still respectable margins. In this regard, the head of an automobile firm's business unit strategy noted:

"You have an investment that you cannot simply quit and say: 'now I close all of my production facilities for gearboxes and source it externally.' That means, I would have to 100 percent depreciate a huge cost block on my gearbox production. Then we have unions and employees. That means we have to take care of these people and cannot knock down production facilities overnight. This constrains your decision whether to cooperate and your make-or-buy decisions." (E/4:32)

Throughout this phase, governmental funding became a critical means to trigger initiatives in the diverse set of actors. This funding, though relatively small in volume, was intended to leverage initial activity by kick-starting the financing and signaling political commitment. From the outset, public funding was particularly helpful to mobilize and embed financially less well-off actors, such as research institutes and municipalities. In later phases, this funding turned out to be critical for the progress of the entire eMobility sector.

Some industrial actors called on governmental institutions to broker the shared interest and apply a more structured approach to the yet unstructured line of action (E/18:5). The national and federal governments were aware of the threat that the eMobility sector would eventually replace a large part of the current fossil-fuel powered automobile industry – and thus lead to a significant job loss. In response, public agencies were established to stimulate and coordinate future activities. For example, as a regional project office, e-mobil BW initiated and partly funded 40 projects involving over 100 interdisciplinary actors within the state of BW. These agencies were particularly important in raising awareness of the issue among potential contributors and to facilitate the initial projects in a largely homogenous single-industry-based market that the car manufacturing firms dominated. As the initiatives were launched and collaborative relationships were developed and gained stability, the public agencies' role faded increasingly. The head of a car manufacturer's regulatory strategy mentioned:

“... the public agencies cannot protect these actors from the challenges forever. They [public agencies] can initiate, gather everybody around a table, and create framework conditions – however, the more specific the issues become, the less they can contribute.” (E/4:46)

Mobilizing. The acquisition of partnering firms and resources critical for the development of integrative solutions were a major challenge within the field of electric mobility. The external resource acquisition process was problematic for the following reasons: First, resources that resided outside the organizational boundaries involved extensive search efforts. Their location was often unknown and their value often difficult to understand. A major concern was therefore identifying and attracting a sufficiently broad resource pool, which was dispersed across the diverse firms and institutions. Second, unlike the internal resources that the hierarchical authorities commanded and allocated, external resources involved significant activation efforts — even more so when the outcomes were highly uncertain and the relationships were rather weak.

Several respondents stressed the importance of surpassing a certain threshold that would trigger a *pull* or *snowballing effect*, thus significantly reducing the mobilization efforts (E/4:23). First-movers within the field seemed to create a considerable pressure for other industry players to follow. This effect was most salient when highly legitimate actors (i.e. market leaders) entered the field. First, because these actors signaled credibility and continuity of the imminent endeavor, and second, because these actors provoked the urgency of countering these allegedly competitive moves.

Mobilization efforts originate from the firm and interfirm levels. On the firm level, larger firms employed partner *scouting* strategies, where specifically assigned employees, or whole teams, screened the market for suitable partners. For instance, a major car producer, assembled an internal team, consisting of employees from the technical, sales, procurement, and quality departments, to systematically identify, assesses, and select the most qualified partners. Based on this, they concluded that some input critical for building electric vehicles was either not available, or of insufficient quality – and thus decided that these inputs had to be produced in-house.

The head of an automobile firm's corporate research on electrically powered systems of explained:

"We developed our own training and qualification programs, our own certificates for our employees, and our own standards. We have basically screened the whole market and then said: 'Okay, what do we need and how do we proceed?'... If we did not find anybody, we would build our own electrically powered trains." (E/4:6)

Once the resources had been identified, firms frequently drew on specific personnel to establish a link and recruit partners. These individuals played a main role in *spanning boundaries* by linking their firms to more distant resources (Rosenkopf and Nerkar, 2001). Most of these individuals have an extensive networking experience across different fields. They served on various boards of organizations, associations, industry platforms, strategic circles, and public committees. They therefore had good contacts with other representatives in similar functions. An employee involved in boundary-spanning activities reports:

"There were people like me, who were able to establish an internal contact and introduce you to specialists [within their firms] ... everybody had their own interests and tried to push their projects ... the representatives of their firms would go and search for the most competent employees for this topic [eMobility] inside their firms." (E/4:9)

On the interfirm level, various organizations, such as publicly organized project offices, cluster organizations, and municipal initiatives, drew on their networks and local knowledge to identify and *fill the resource gaps* and embed critical actors in collaborative initiatives. Their particular activities had to expand the network and resource pool by exchanging information at fairs, conferences, and workshops. Further, these actors had to develop a shared platform. For instance, one project office reported on its systematic approach to mapping the available resources and its members' capabilities in a network competency matrix. This matrix created transparency for its network members, but also for external actors seeking specific competencies. It also served as a reference point for the further development of then available competencies. The head of a regional cluster explained:

“We also contribute with ideas, where we, for instance, say, ‘If the technological development in this region needs to advance, we need these elements.’ And we point to the things we lack in order to recommend, for example, basic research projects to close these gaps ... In many cases we also take on the role with small firms of searching or thinking about which partners would fit the best here before realizing these projects.” (E/4:89)

Further, the interviews revealed strategic activity to *enhance visibility* and maximize the reach of the resource mobilization on the firm and interfirm level. In contrast to intra-firm behavior, where product champions attempt to remain unseen until the first success is achieved (Burgelman, 1983b), the empirical data on interfirm behavior indicated that the early exposure of ideas to attract sufficient resources might be crucial for resource mobilization and the initiative’s subsequent survival. The initiatives and activities were extensively promoted in applied demonstration projects and in political arenas on the meta-level and in extensive communication on the firm level. The respondents emphasized the need to create transparency in their activities, to visibly experiment with their projects, and to frequently communicate what they do to maximize the initiative’s attractiveness for partners and customers alike. The divisional CEO of a technological firm went as far as communicating its strategy to find suitable partners:

“In an introverted firm [as ours] there are only few extroverts. I would not call myself an extrovert, but in my firm I am. That is, I am the outward channel on public events, in speeches, in YouTube videos, and social media. For us, this is also an experiment: developing strategy, but combining it with a communication role.” (E/4:19)

My fieldwork also points towards the salient role that single individuals play in establishing external links and mobilizing partners. Some respondents described these distinct individual as *shining figures* that move and shake the whole field, think in meta rather than single-firm categories, and give “face and voice” to this yet immature field through frequent media exposure. Shining figures seem to be well-connected to representatives of other firms in comparable functions and take a main role in spanning boundaries by linking their firms to more distant resources (Rosenkopf and Nerkar, 2001). Typically, these individuals draw on an extensive networking

experience across different fields by serving on boards, associations, industry platforms, strategic circles, and public committees. One interview partner from the BA ecology highlighted that the existence of such individuals created a considerable advantage for the BW ecology by making their eMobility activity more visible.

Generally, the degree to which actors succeed in identifying and mobilizing a broad pool of resources seem to have implications for the subsequent negotiation phases's success.

5.6.2 Negotiation

Strategic bridging. Much effort was exerted to harmonize the diverse goals and strategic directions for joint action. A key challenge within the multipartner initiatives was to integrate organizations with distinct interests, cultures, industrial backgrounds, and structural properties. Strategic bridging activity was essential to build horizontal linkages between organizations and to overcome strategically disparate directions (Brown, 1991; Westley, 1991). The role of third parties became salient throughout this phase. Several interviews suggested that, in various ways, third parties played an essential role as the lynch pins between diverging strategies. First, they formulated and promoted the *overarching goals*, such as “220,000 electric vehicles by the year of 2020” (BA), or much broader, took the lead in sustainable mobility (BW), which allowed a diverse pool of interests and motivations to be accommodated. These high level goals helped arbitrate the varying positions, which allowed the initiatives to focus on the commonalities in a multiplicity of strategic directions, and to build linkages for mutual enforcement. The director of a public eMobility agency explained why this was important:

“This is certainly formative for the advancement of the entire topic. But we regard this as our mission, because [this agency] tries to assemble all actors along the whole value chain around a table in order to increase understanding. I describe co-aligning the whole scene towards the mainstream as neutralization.”(E/18:20)

Second, as *neutral clearing points*, bridging organizations were instrumental in paving the way for intense collaboration in the subsequent executions phase. All the respondents in organizations that involved bridging activities (i.e. third parties) unanimously stressed the importance of being perceived as objective and trustworthy (E/4:127). Their activity was limited to moderating the collaborative processes and mediating between the involved parties without, however, interfering in the process's content. The director of an organization concerned with bridging activities provided a representative explanation:

“We certainly have a personal opinion, but we don't express it. We moderate a process so that we achieve an agreement between the partners ... It is, however, important that there is a moderator, who is neutral. By the way, it is highly interesting that current state institutions [like ours] take on this role to facilitate a difficult technological change process. We definitely do not conduct state economic policy here, but the industry demands a clearing point at a higher level.” (E/1:66-67)

Third, some bridging organizations organized specific forums, or developed platforms to allow for *strategic dialogs* (E/4:137) and spur the exchange of information. To ensure that strategic issues rather than technical details were discussed, the relevant bridging organization brought top decision-makers from interdisciplinary domains together. The preparation was intense and the process highly structured to ensure that the time-constrained executives achieved general consensus about the strategic direction. In a first step, preparatory one-to-one conversations crystallized the fundamental priorities of all the actors who participated in the dialog. The second step involved the identification of a common ground and highlighted the shared positions. A key guideline here was to “build on interests rather than on individual positions” (E/2:64). Based on these results, more specialized workshops were organized to probe the different options in a series of discussions. The iteration of these workshops revealed incompatible actors or positions. Subsequently, a continued dialog by means of online and offline channels maintained this collaboration. Drawing on offline channels, allowed these bridging organizations to expand the scope of participating actors and to create more trustworthy environments. This enabled the actors to “leave their organization at home for a while” (E/15:22),

helped “save face” when a compromise was necessary (E/18:18), and to “expand the bargaining leeway” (E/2:48). A project leader explained how the bridging activities facilitated the approximation of diverse strategic positions via on- and offline channels:

“We started with theses derived from initial interviews. For example, ‘the introduction of a nationwide eMobility infrastructure is urgently needed’. This thesis was published with short comments on the pros and cons on the platform. It was discussed and evaluated, and [accompanied by our] activating moderation. After the discussion has run for a while, a report on the achieved results was prepared, in which the essential positions and scope of the consensus were summarized. We then, depending on the topic and the thesis, also scheduled an open session — that is, a workshop or something similar. The topic was clarified online, the controversies became clear, and then we took these controversies and proceeded in an offline format.”(E/15:16)

Matching. The following matching process was related to, and yet distinct from, the strategic bridging activity. While bridging is associated with an initial moderated confrontation between diverging strategic positions aimed at locating common ground, the matching activity involved the actual operationalization of a strategic direction towards executable activity. The matching activity thus helped overcome strategic gaps and reach *strategic lockstep* (E/4:152), which subsequently encouraged intensive commitment. Moreover, unlike the bridging activity, which third parties were found to crucially support, the partnering parties directly largely (but not exclusively) managed the matching process. The fieldwork suggested that the matching process can be divided into two stages, in which the actors framed a broadly accepted understanding of “what the problem” is and “what the solution could be.”

During the first stage that focused on *framing the problem*, the initiative members exchanged operational and technical information on the issues at stake. In this phase, a major objective was reaching consensus on what the actual problem was, which, given the complexity of the targeted issues, was not always obvious. Therefore, the initial debates concentrated on framing and building a common understanding of the problem. Information was gathered, synthesized, and interpreted to create a shared

understanding and develop a sense of direction. The matching activity did not necessarily lead to a precise definition of the actual problem, nor was a particular following action triggered. Rather, it developed a common denominator that the majority of the involved parties accepted. This common denominator suggested a preliminary step of collaborative approximation and commitment building that eventually initiated action. The lack of experience and the participation of interdisciplinary players in this newly emerging sector made framing activities a particularly important activity.

The second stage, which involved the *framing of the future*, was almost inseparable from the first. The case data suggests that all the initiatives involved some kind of future planning and projecting the exchange value into the future, which the partnering firms' emphasized activities regarding making case calculations, developing scenarios, and outlining detailed roadmaps reflected. The process seemed to be particularly challenging, where a large diversity of partnering firms was present in terms of their backgrounds and priorities. The divisional CEO of a technology provider described the significance of this process:

“That is, because the firms that see it [the future], also want it and consequently shape it. One invents the outlined future in this way. And it doesn't just happen. If you have the imagination for innovation ... it is created by the actors in the market who want it to happen. Then it makes sense to identify partners by following these future projections — those who also want it to happen in order to conquer the world.” (E/19:16)

Throughout the matching phase, the actors continuously struggled to promote and champion their positions and attract other partners' commitment for their issues. The matching activity seemed to enhance the mutual (strategic and operational) understanding of the involved partners and led to a greater appreciation of the value that joint activity produced. In effect, this increased the willingness to initially commit and gradually pushed the partners towards an intensive collaboration (E/30:31). Some players went ahead and others followed. Over time, a collaborative spirit emerged that drove the discussions from visions towards increasingly operationalized tasks. One respondent remembered:

When you manage to jointly develop a feeling, like a sense of 'we,' — a team spirit in a way —, if you manage that, our projects showed that you then do not talk [abstractly] about the electrified world, but about the electric drivetrain, or the battery. You can jointly work on these topics for ages. (E/36:28)

Matching, however, did not occur in a structural void, de-coupled from the involved firms' intraorganizational strategies. Rather, the firm representatives struggled to reconcile their individual intra-firm strategies and the emerging IOS. Discrepancies were often resolved through top management intervention. In one case, the top executives arranged a workshop, which executive board members also attended, to co-align and approve the results from the prior matching activities. The project leader repeatedly emphasized the importance of top management backing to resolve issues:

The cooperation contract was blocked ... A larger firm had a small share of the project but claimed full rights of everything. Of course, the small firms did not want this, but only wanted to collaborate at the interfaces. Then [the disagreement] escalated and the top management became involved [in the disagreement's resolution] ... we were then able to settle [the issue]. (E/33:35)

5.6.3 Execution

While the initiation and negotiation phases triggered, mobilized, and matched actors to harmonize varying strategic directions and build commitment, no immediate operation was undertaken. It was not until the execution phase, when human and financial resources were actually allocated for the implementation of the defined objectives as framed in the matching phase, that an operation was undertaken. It was also the point in time when the IOS spread to the partnering firms' operative levels to develop working solutions in de-coupled sub-systems. The data indicated that the IOS execution progresses cyclically comprising three stages until the integrated solutions were formed.

De-coupling. A characteristic feature of the execution phase was the de-coupling of the encompassing tasks and collaboration in *subsystems*, such as

workgroups, projects, innovation circles, segments, and modules. The most willing, most competent, or simply most powerful organizations in terms of their market position or value contribution led these subsystems. The process of de-coupling followed a distinct pattern. In the first step, the initiatives to target a complex issue were outlined. In a second step, these complex issues were broken down into manageable chunks. The work packages and specific objectives were defined. Unlike in the prior phases, in which no authority was in place, the efficient execution of tasks demanded a minimum hierarchical structuring to allocate responsibility and manage the diverse input. The task allocation, however, did not happen according to traditional logics of authoritative distribution, but was primarily based on the interest, fit, and competency to contribute to the task.

While the process pattern was similar across the investigated cases, the outcome (i.e. organizational set-up) varied, depending on the requirements of particular environments within which the subsystems operated. For instance, some cases maintained an unstructured approach with ad-hoc meetings, an informal exchange of ideas, diluted hierarchies, and a constantly changing leadership. Other initiatives were found to be highly formalized, reflecting traditional organization textures (i.e. hierarchical set-up). These cases established the managing and the operating levels, communicated formally, and were predominantly guided by one or few powerful players. The project leader of several tightly structured initiatives highlighted:

“It was helpful for everybody that we did not depart from known, simple instruments [organizational structuring], because, that would have been an additional level of complexity, which we preferred to eliminate ... We again built matrix structures ... but it was important for the people who worked in this system and for external representation to not [organize] in a wild, organic way, but to give it a familiar image.” (E/1:45)

Both the automobile incumbents provided evidence that the de-coupling process also occurred on the firm level. In one case, the top management decided early on to de-couple the eMobility unit from the rest of the corporation to allow far-reaching “space for experimentation.” Collaborating within differentiated and more focused subsystems not only created more manageable processing units, but seemed to ease the

process of strategic deviation from the boundaries of the intraorganizational strategies (E/36:2).

Beyond this, de-coupling appeared to be temporary, with initiative activity organized in phases and processed step by step until re-integration occurred at a later stage. For instance, several initiatives in the BW case are organized into four phases from 2010 until 2020: individual projects (Phase I), integrated systems within limited project regions (Phase II), integration of project regions (Phase III), and state-wide integration of all the projects (Phase IV) (E/4:4).

Re-coupling. Throughout the execution phase, the initiatives operated largely autonomously. To integrate the solutions, however, re-coupling of the previously partitioned work was necessary. Within the interdisciplinary subsystems, extensive coordination effort was necessary to adjust the activity across the subsystems, and to prevent them drifting from previously negotiated strategic directions. Collaboration was also challenging, because the differing ways of conducting business (i.e. the processes, cultures, and standards) and various industries' paces had to be synchronized. A project leader, who supervised various initiatives on the municipal level, shared her experience:

“Everything is interlinked. You have the automobile industry, and then you have the agile and fast-moving IT. You have to manage to bring those together. And then there is the most un-dynamic industry ever — the energy industry. That is a horror.” (E/26:53)

The “Econnect” initiative provides an illustrative example of the execution phase. In 2009, seven public utility companies, 11 partners from various industries, and four universities expressed their overarching goal to develop “an integrative and affordable business model and solutions for the regional eMobility” (Allgäuer Überlandwerk GmbH, 2013). This initiative drew on earlier results from prior initiatives (e.g., eE-Tour Allgäu). One subsystem developed software that allows for calculating the reach, optimizing routes (eco routing), and connection to consumer devices (e.g., smartphones). A second group developed a concept called “Smart Facility” to integrate smart grids to solar energy system at home. A third subsystem

worked on fleet management systems (e.g., booking, management, and service), while a fourth subsystem established a carsharing system. All the subsystems followed their individual objectives, which were negotiated, flexible, and at times subject to change. Overall, however, these sub-goals followed the determined overarching goal. As the autonomous projects matured, they were gradually integrated into a functioning, integrative solution that eventually led to an integrated and intermodal concept.

This and other cases suggested that IT-based platforms were of particular significance. They reduced the temporal and spatial hurdles that often challenged interdisciplinary collaboration. Moreover, these platforms facilitated a real-time exchange, tracking, and subsequent aggregation of developments across the dispersed activities.

Stabilizing. Several initiative members pointed towards the fragility of IOS during the execution phase. Not only were the initial resource investments due to the implemented IOS, but there were also very real risks of opportunism, unintended knowledge leakage, and misappropriation by partners. Beside this, the ongoing competition for strategic directions and other partners' entry or exit triggered renegotiations, which, in turn, required stabilization measures to support IOS continuity. A large technology supplier's divisional CEO highlighted this challenge:

"... we live in continuous surprise ...We have to re-adjust frequently. The parameters sometimes change. Here a partner comes in, there something else. That means we look at the parameters again as new things come up. I think these partnerships require more interventions just because we are also dependent on others' decisions." (E/19:35)

Two dynamics appeared to be of particular importance for IOS stability. The first dynamic, which was repeatedly mentioned, was the *scaling* of initiatives. As initiatives matured, the value of the joint approaches became increasingly visible. Less successful initiatives were terminated, while others managed to attract even more

resources, as their prospects grew and the risks diminished.²⁹ This process has strong similarities to what Burgelman (1983b) defined as “forcing” or “building” on intra-firm strategy level. In some cases, the initiatives’ scope was expanded to reduce the time to the “industrialization mode,” or they were merged with other initiatives in adjacent fields to accelerate their growth. One initiative focused on building and testing fast-charging infrastructure, was started in Munich (Germany), then gradually increased in scope to expand to Berlin, and, finally, connected with the eMobility initiatives in Slovakia and Austria. Many new partners joined along the scaling process.

Second, IOS is likely to be reinforced by *intensified relationships*. All the initiatives initially started off as a mobilized crowd of unrelated organizations, which then increasingly developed into groups with overlapping perceptions and finally converged through recurrent interaction. Throughout this process, relationships developed by means of formal (e.g., regular meetings) and informal (e.g., “going for a beer”) interactions (E/4:307) between the partners involved in mutual learning, through the management of conflict, the creation of norms and rules to cope with diverse interests and, most importantly, the developed trust. With intensified interaction, some firms expanded and deepened their relationships. In one case, an automobile manufacturer identified “strategic partners” through these initiatives. Some of these partners were even upgraded to top tier supplier positions (E/36:15). A car manufacturer’s head of corporate research on eMobility described this development as follows:

“At the beginning, you don’t understand each other at all. But you get very close to each other through these kinds of projects and we have actually always experienced that one complements the other ... That stimulated the whole thing [process of collaboration]. That made it fast. Very fast. That was interesting.” (E/36:42)

²⁹ To explore the facets behind initiative failures, I specifically identified and contacted those responsible for early terminated initiatives. Most initiative contacts were not available or unwilling to disclose information. The information I received indicates that the majority of the terminated multipartner initiatives within the eMobility sector due to the concerns described above, such as the loss of proprietary knowledge (lack of trust), diverging strategic positions, and insufficient communication (transparency).

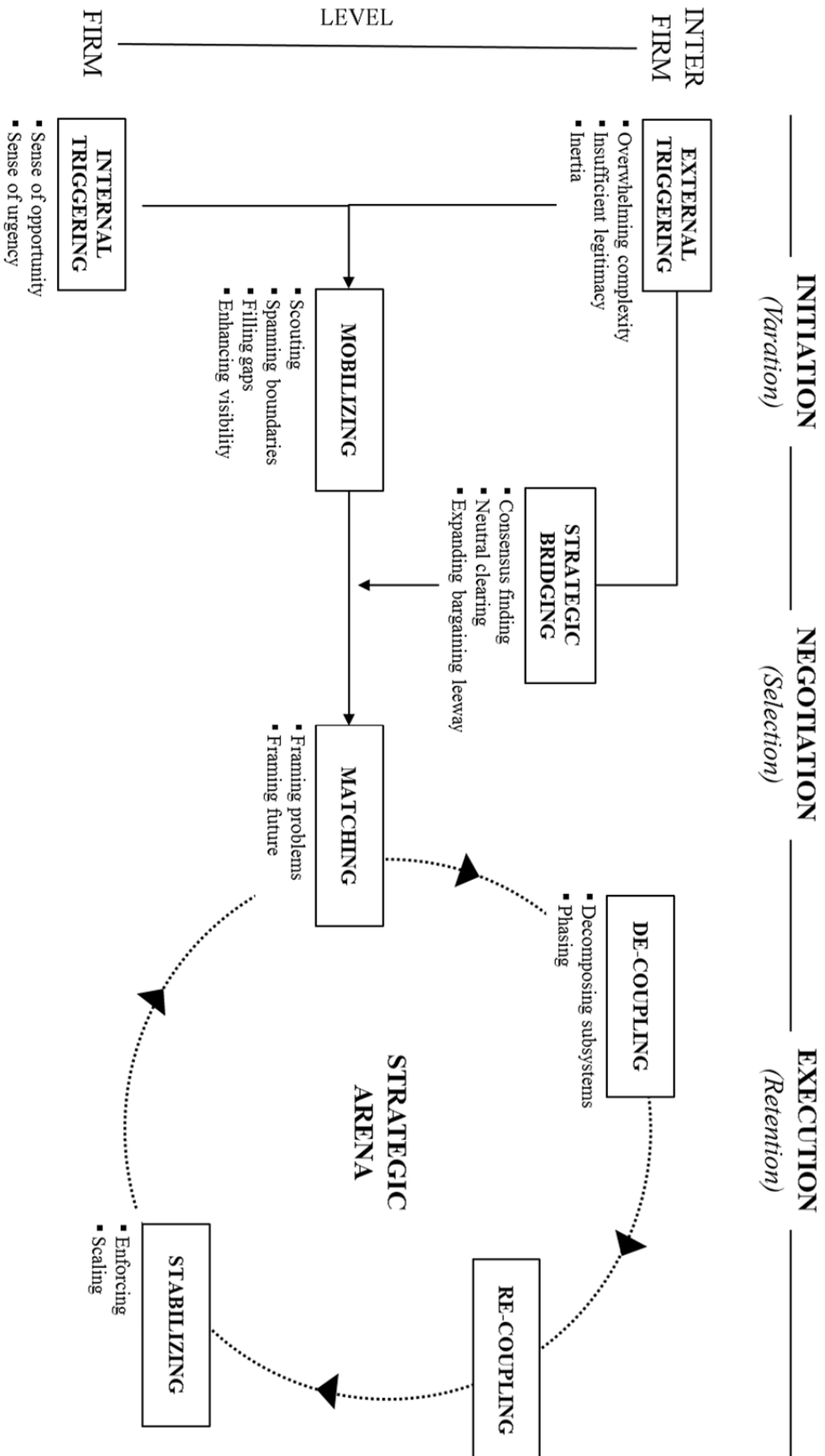
Strategic Arenas

The absence of textures and properties, which are typically present within organizations, was a major challenge to the processes outlined above. Traditional forms of organization have clear boundaries defined through asset ownership and employment contracts (Simon, 1953), specific goals (Stinchcombe, 1965), and routinized processes that stabilize the patterns of interaction (Nelson, 1982). However, few of these properties were present when multiple organizations gathered to pursue initiatives.

This institutional void created unstructuredness during the initial collaboration phase (Phillips, Lawrence, and Hardy, 2000), which demanded intense negotiation. To allow for such negotiation and accommodate strategic interaction, temporal arenas emerged on various levels. These arenas then provided some structure for a hitherto unstructured activity, and contexts (strategic and structural) that were found crucial for IOS to unfold.

For instance, politics, industry, and science established the *National Platform for Electromobility* to set the framework conditions (e.g., legal, regulatory, standards, and government involvement) and “structure the systemic transition.” At a lower level, the model regions were implemented to mobilize the actors, build networks, and stimulate regional activity. Showcases were organized to interact with future clients and provide experimental space. Municipalities, which were considered “laboratories,” were seen as micro-cosmic arenas for experimentation and the application of new technologies, as well as an important user interface. On a more operative level, the actors installed online and offline arenas to mediate the interests (e.g., dialog platforms, strategic circles), build networks (e.g., network meetings), and execute projects (e.g., project coordination centers, initiative workgroups). Figure 13 illustrates the proposed process model of IOS.

Figure 13: A Process Model of IOS



5.7 Discussion

One of this study's explicit objectives was to build theory by applying an empirically grounded research approach. Such an approach is useful when a relatively unexplored phenomenon is studied, within which the "unfolding of events over time plays a key role" (Doz, 1996b: 80). In the tradition of the grounded approach, this study developed arguments inductively from the embedded initiatives to develop a process framework and to reveal the key activities and dynamics that form a strategic pattern across multiple organizations over three phases. This section intends to conceptually embed the findings from the fieldwork and to highlight the parallels to previous strategy process studies. By drawing and elaborating on existing literature on the evolutionary perspective of strategy making, this final section also anchors the underlying IOS mechanisms theoretically.

Triggering Process

Evolutionary theory-based strategy process models highlight autonomous and induced behavior as the key driver of selecting strategic initiatives. These studies portray strategy as a deliberate product of top management planning and inducement on the one hand (Bartlett and Ghoshal, 1993; Bower, 1970), and as originating from operative levels that link internal knowledge to external needs on the other (Burgelman, 1983b).

The insights from this study indicate that more challenging environments, such as multipartner initiatives, seem to pose significant restrictions on these internal selection processes (Miller and Friesen, 1983) to the extent that they seem to overwhelm internal strategy making capacities. The evidence in this study somewhat underscores the role of internal selection mechanisms in sensing threats and opportunities, which is consistent with findings from intrafirm process studies. Simultaneously, however, the findings indicate that internal mechanisms are insufficient to trigger IOSs. Specifically, the encompassing nature of the initiatives, the lack of resources and legitimacy in small firms, and the inertial forces in larger firms seem to demand external triggering to initiate IOSs. In other words, and contrary to intra-firm models in which strategic activities are internally initiated "someone in the

organization” (Lovas and Ghoshal, 2000: 893), triggering IOS may require an external impulse.

Prior studies have highlighted the importance of such an external impulse. For instance, research has shown that external actors, such as public authorities (Porter, 1998), users (Franke and Shah, 2003), and specific individuals or firms (Doz, Olk, and Ring, 2000) provide a critical impetus for innovation, research policy, and the formation of networks. One tentative proposition is that external triggers play a significant substitutional role in the strategy process when internal triggering mechanisms (i.e. autonomous or induced behavior) are inhibited.

Further, the case insights confirm the importance of the linking process in respect of triggering strategies during the initiation phase, as also observed in Burgelman’s (1983b) research. In contrast, the linking process from an interorganizational point of view happens on a larger scale across multiple organizations, rather than in a technical sense across product domains. Here again, support from external actors, such as third parties seems to play a pivotal role.

Mobilizing Process

Mobilizing a critical mass of members and attracting a broad resource base are indispensable in respect of initiating and realizing complex multipartner solutions. This process reflects the evolutionary process of variation, which manifests itself through careerist aspirations (Burgelman, 1991) and recombines the human capital (Lovas and Ghoshal, 2000) inside organizations. Across the multiple organizations, measures for increasing the initiative’s visibility and boundary-spanning activity seem to spur variation. Specifically, the initiatives’ enhanced exposure to prospective partners increases the likelihood of their participation, which, in turn, leads to a broader pool of resources for a subsequent recombination.

In addition, intrafirm studies describe the initial strategy formation phase as a barely noticeable allocation of resources (Bower and Gilbert, 2005), or as consciously concealing championing behavior (Burgelman, 1983b). In stark contrast to this, the IOS in this study, for various reasons, appears to be dependent on enhanced visibility.

Most importantly, visibility is crucial to attract and convince a dispersed set of potential members to participate and contribute their resources. While the authoritative command inside single firms allows for drawing on resources almost instantly once promising strategies have been defined, this is not possible across multiple organizations. Therefore, resources residing outside the organizational boundaries require extensive search efforts and activation costs (Williamson, 1975). To attract sufficient resources and achieve momentum for the IOS, open communication and its visibility are essential.

The importance of enhanced visibility becomes especially obvious in the cases where this was lacking. Several initiatives reported failure due to insufficient mobilization efforts, mentioning that either not enough, or the wrong players had been attracted. Consequently, this insufficient variation produced difficulties in the subsequent phases when non-committed partners declined to provide resource, exited prematurely, or complicated the consensus finding process (E/4:36).

Strategic Bridging Process

Recent accounts of interfirm relationships indicate that intermediaries' compensatory role may be of strategic importance (Lazzarini, 2015) to enhance trust (Mesquita, 2007), facilitate exchange (Zaheer and McEvily, 1999), resolve internal conflict, and stabilize relationships (Heidl, Steensma, and Phelps, 2014). By highlighting the intermediaries' salient role in the IOS process, this study supports these findings.

The outlined strategic bridging mechanism clearly deviates from what has been found in studies on strategy in intraorganizational settings. The case data attributes a significant role to external third parties (e.g., public agencies, associations, research institutions, or intermediaries) regarding building and amplifying IOS. Strategic bridging is crucially important to overcome the tensions that typically arise when diverse strategies require co-alignment towards a coherent direction. Moreover, at this stage of the process, there are no hierarchies to resolve such tensions. This absence calls for a compensatory mechanism to neutrally mediate a multitude of opposing strategic positions. Strategic bridging involves various activities, such as spanning the

bargaining leeway, enabling strategic dialog, moderating, organizing change, and developing overarching goals to fit all interests. At this point, one could posit that the absence of external structural and strategic contexts (Doz, 1996b) prompts external intervention.

Evolutionary dynamics are also in place during this activity. For instance, the formulation of supra-organizational goals, as opposed to specific ones, allows for keeping previously mobilized partners on board until the selection mechanisms take over in the negotiation phase. Similarly, by emphasizing interests over positions in what is called “spanning the bargaining leeway” activity, a large number of partners are retained for the matching stage.

Matching Process

The matching process is a major selection mechanism in IOS building. The formulation of problems and targeted futures allows for finding a compatible set of partners with an adequate fit of their resources and goals. The co-alignment of the objectives and the development of joint business models facilitate the selection of initiative partners that are more likely to execute IOS successfully. Selective dynamics are also in motion when partners compete to influence the direction of the initiatives in strategic arenas. For instance, in one initiative, two automobile supplying firms competed to have their standard used in a large scale initiative involving multiple firms. Eventually, the firm providing the best interfaces was selected, which caused less friction between all the firms.

The examined cases highlight that all the initiatives involve some sort of scenario planning and projecting the exchange value into the future. This observation mirrors the findings documented by Zajac and Olsen, who state that “individual firms estimate the expected value that they see as accompanying an interorganizational strategy” (1993: 139). It is also in line with intrafirm findings on strategy as temporal work, in which “actors resolved differences and linked their interpretations of the past, present, and future so as to construct a strategic account that enabled concrete strategic choice and action” (Kaplan and Orlikowski, 2012: 965). Contrary to these

observations, the IOS framing process occurs across firms in joint activities (i.e. developing future scenarios, joint business models, and assessments of follow-up projects). None of the examined cases progressed to the execution phase without undertaking this activity in some way.

Finally, selection takes place through the iteration of framing workshops, which leads to the deselection of “incompatible” actors or positions (Westley and Vredenburg, 1997) and paves the way for a more intense commitment in the following phase.

De-coupling and Re-coupling Process

The decomposition of tasks into more manageable units through differentiation and integration (Lawrence and Lorsch, 1967), or modularization (Baldwin and Clark, 2003) is an effective means to cope with complexity in organizations. Studies focusing on strategy present a complementary observation contending that effective strategies tend to arise from “strategic subsystems,” each of which targets particular strategic issues (Quinn, 1978: 8). Similarly, collaboration in subsystems facilitates the process of strategic deviation inside firms (Christensen and Bower, 1996; Leonard-Barton, 1992), thereby allowing multiple, and even inconsistent, strategies to be executed in one firm.

The very same argumentation may help explain why the de- and re-coupling processes are necessary in the IOS process. Given the absence of a structural and a strategic context, and the involvement of multiple legally autonomous organizations, the task decomposition process adds tremendous complexity, which can only be managed by sophisticated IT. The evolutionary view provides one explanation for why the de-coupling and re-coupling processes allow for resolving the conflicting selection pressures that arise when organizations face a trade-off between piecemeal and whole adaptation provides an alternative explanation. The organization of comprehensive tasks into chunks stimulates progress in the subsystems and prevents paralysis across an entire system (Barnett and Burgelman, 1996: 11). Not imposing IOS, but instead allowing it to emerge from the interplay between the subsystems, produces the locally best solutions and, ultimately, a more robust IOS.

The consequence, however is that this requires an enormous effort for the subsequent re-coupling. The *e-GAP* initiative (cf. Figure 10) is an illustrative example used before, and is built on five subsystems (infrastructure, utilities, fleets, mobility, and micromobility), which, largely operate autonomously. Throughout the execution phase, the meta-goals provided the basic guidance, while joint experimentation and intense communication across the workgroups prevented too much drift. An integrated IT platform and sophisticated software were necessary to re-couple the subsystems for a working, integrated solution.

Stabilizing Process

The IOS seems to be inherently fragile due to partner misconduct, opportunistic hazards, and sudden dropouts, but also due to its above described challenging management complexity. The fragility of the process is also due to the constant re-negotiation and alignment of strategic interests between the partnering firms. The interviewees referred to increasingly close relationships and intense communication as the key stabilization measures to keep the IOS on track. Previous alliance research supports this observation, arguing that the relationships' increasing socialization creates an overall higher stability in collaborations (Dyer and Singh, 1998; Ring and Van de Ven, 1994; Zaheer and Venkatraman, 1995).

Further, studies that build on evolutionary theory underline the importance of scaling as a mechanism geared towards retention. For instance, scholars illuminate activities, such as strategic building and forcing initiatives (Burgelman, 1983a), sheltering and developing structures (Bower, 1970), empowering and enabling personnel (Hart, 1992), and nourishing social capital (Lovas and Ghoshal, 2000). Thus, from an evolutionary lens, enhancing and scaling activities constitute the retention mechanism that is critically important to stabilize those IOSs that remain after the variation and selection stages.

5.8 Conclusion and Implications

This study started with a specific grounded theory question: How does IOS emerge and evolve in collaborations across multiple organizations? It began by examining the activities that form patterns and strategic dynamics over time, unfolding along three distinct phases. I presented empirical evidence that indicated IOS phases are marked by the three evolutionary dynamics of variation, selection, and retention (Campbell, 1965), as proposed by the evolutionary perspective (Barnett and Burgelman, 1996).

A major difference between intraorganizational strategy and IOS is the location of strategy formation. While firm boundaries and managerial authority contain the former, the latter is dispersed between the participative actors without clear decision-making power. This has far-reaching implications for the process of strategy across organizations, which, instead of being ad-hoc defined, top-down induced, or bottom-up championed (Ansoff, 1965; Bower, 1970; Mintzberg, 1978), is continuously negotiated. Negotiation forms a bridge between intraorganizational commitment and interorganizational collaboration (Gray, 1989; O'Toole, 1980). The case insights suggest that negotiation forms a centerpiece in IOSs that allows divergent strategies to co-align towards a coherent strategic activity. While single firm strategies operate in highly institutionalized modes of governance (i.e. hierarchies, rules), IOSs must be negotiated and, my results suggest, it is this initial unstructuredness that requires substitutional arenas for interaction.

This study deviates from intrafirm studies in the sense that it underscores the important role that strategic and structural contexts external to a firm play in the strategy process (Bower and Gilbert, 2005). In particular, this study provides evidence of external actors' key compensatory function when internal triggering mechanisms are impaired. Third parties seem also to play an instrumental role in strategically bridging gaps, which pose a serious challenge to any multipartner collaboration. In sum, these findings correspond to more recent research that attributes a more strategic importance to external intermediary actors (Heidl, Steensma, and Phelps, 2014; Lazzarini, 2015; Mesquita, 2007).

I conceptualize the IOS as a multilayered and circular process that gradually develops evolving along three distinct phases. While the initiatives initially started off as a mobilized crowd of strategically distant organizations, they over time became (or bridged gaps to form) groups with matching perceptions, to finally converge through recurrent interaction towards a coherent strategic direction. The proposed phase model suggests that an IOS proceeds in a cyclical and iterative manner – following evolutionary cycles (Doz, 1996b) rather than developing in stages (e.g., Dollinger, 1990), or in linear trajectories (e.g., Bower, 1970; Mintzberg, 1978). Partitioned into strategic subsystems, an IOS manifests itself through a constant competitive struggle and negotiation between the dispersed and autonomous strategy making actors. While this study has mirrored findings from intraorganizational studies, it has also revealed important distinctions.

It is important to note at this point, however, that an IOS is not a substitute for intraorganizational strategies but an extension. It seems to operate beyond the theoretically imposed organizational boundaries, and allows for capturing strategic dynamics that arise from the interaction across multiple organizations.

Practical Implications

The increasing demand for integrated and complex solutions requires drawing on a widely diffused knowledge base located beyond the traditional firm boundaries that own restricted resource pools. Collaboration becomes critical and highlights the need to better understand how strategy processes across partnering firms emerge and evolve. This is important, because for the reasons stated before, current trends reshape rivalry by elevating the battle to a level above that of single firms.

In this regard, the underlying study provides two notable insights into managerial value. First, it sheds light on the distinct phases along which an IOS appears to unfold. Understanding how an IOS is shaped may allow intervention to influence its trajectory. It advises managers to prepare for recurrent negotiation, rather than plan stable strategic formulations. A second inference for managers is to appreciate that strategic impetus may come from outside. Given the more complex

business landscapes within which firms currently operate, the initiation and direction of organizational strategies may not be as deliberate as previously portrayed. This study provides some advice on when external strategic impetus may be necessary and valuable. Similarly, it suggests that the role of intermediaries should be rethought and their potential importance in enhancing strategic coherence in collaborative organizational designs acknowledged.

Finally, this study shows that an IOS is not a ‘masterstroke,’ but a recurrent and dispersed activity in need of overarching goals, strategic bridging and matching activity, and constant stabilization. This provides managers with the confidence that although finding coherent strategic directions for a diverse set of organizations is challenging, it is possible if external strategic and structural contexts are developed within which the partners are committed to interact recurrently.

Limitations

The underlying study has some limitations which offer potential sources for future research. Phase models may occasionally deviate from outlined paths, or sometimes fall short of capturing all strategic activities evolving in parallel, rather than in sequence. Future research could illuminate under which conditions that happens. I conducted this study within the emerging sector of eMobility and while a great number of varying organizations participated, this setting may have idiosyncrasies that produce specific outcomes limiting the generalizability. Future studies may explore IOSs in different contexts, such as in more established industries, to add nuance to the process outlined here. Furthermore, future research efforts may take a more in-depth view to explore the different roles of managers in IOSs building on prior intra-firm studies.

Beyond this, this study has found some, yet insufficient, indication for activity, which translates IOSs back into single organizations. This raises, for instance, the question of how IOS internalization and reconciliation occur inside firms. Building on these insights and knowledge from intraorganizational strategy studies, subsequent research could take a closer look into how intra- and interorganizational strategy processes interact and how they complement each other.

The model proposed outlines the entire process running across three observed phases. To take account of the full IOS process as observed in the data, I thus traded granularity and specificity for comprehensiveness. Rather than taking a holistic view to map the IOS process, future studies may delve into the single phases, or specific mechanisms, on multiple levels to add depth to the proposed model. Along this line, the final part of this dissertation draws attention towards two important aspects that have, thus far and despite their salience, received little attention: the tension between concurrent cooperation and competition in an IOS and the role of strategic bridging as a potentially moderating IOS force. This study has relied on qualitative data to elaborate key IOS dynamics and activities. A next logical step is to examine specific aspects of the framework by developing constructs and testable hypotheses – which is the purpose of the second empirical study of this dissertation.

Part III: QUANTITATIVE EMPIRICAL STUDY

6 Strategic Interaction beyond Firm Boundaries: Bridging the Simultaneity of Cooperation and Competition

6.1 Introduction

The growing interconnection of firms across varying business landscapes has spurred strategic interaction across organizations. Therefore, firms increasingly pursue IOSs in initiatives or alliances involving multiple entities. A multipartner alliance (MPA) is a strategically important means to gain access to complementary capabilities, to leverage common knowledge, and reduce costs and risks associated with new product development (Ahuja, 2000; Sampson, 2007). Recent years have witnessed an increased occurrence of MPAs in response to shortened product life cycles, migrating industry technologies, and the need to draw on an encompassing pool of resources (Luo and Park, 2004; Li *et al.*, 2012). Also, competition is increasingly occurring between multiple business groups (e.g., airline alliances), rather than between individual firms (Lazzarini, 2007).

For these reasons, academia has paid increasing attention to the study of MPAs (e.g. Li *et al.*, 2012; Lavie, Lechner, and Singh, 2007; Thorgren, Wincent, and Eriksson, 2011; García-Canal, Valdés-Llaneza, and Ariño, 2003). Theoretically, MPAs are somewhere positioned between dyadic alliances and networks, and have been associated with different forms of organizations, such as R&D consortia (Hagedoorn, 2002; Thorgren, Wincent, and Eriksson, 2011), constellations (Das and Teng, 2002a; Gomes-Casseres, 2003; Lazzarini, 2007), multiparty joint-ventures (García-Canal, Valdés-Llaneza, and Ariño, 2003; Gong *et al.*, 2007; Park and Russo, 1996), multilateral alliances (Sampson, 2007; Zeng and Chen, 2003), and business groups (Guillen, 2000; Khanna and Palepu, 2000; Khanna and Rivkin, 2001).

Although alliances with multiple partners allows firm managers to address complex problems and enhance value creation, they introduce idiosyncratic challenges that deviate from dynamics observed in dyads or networks (Lavie, Lechner, and Singh,

2007; Thorgren, Wincent, and Eriksson, 2011). For instance, triads create opportunities for internal coalitions – to the detriment of other partners – that do not exist in dyads (Gong *et al.*, 2007). Also, Park and Russo (1996) indicate that the management of MPA may be more complex than that of dyads. As yet, however, the antecedents and moderators of this complexity remain sparsely explored (García-Canal, Valdés-Llaneza, and Ariño, 2003).

One of the fundamental problems MPAs face is the inherent tension arising from the simultaneous occurrence of cooperation and competition between interacting partners (Hamel, 1991; Bengtsson and Kock, 2015; Zeng and Chen, 2003). The conflict results from joint value creation on one side and the simultaneous struggle for value appropriation on the other (Khanna, Gulati, and Nohria, 1998; Lavie, 2007; Rai, 2013). The phenomenon of the co-existing of cooperation and competition has become known as *coopetition* (Brandenburger, 1996). Prior studies emphasize that coopetitive tension greatly complicates multifirm collaboration (Doz and Hamel, 1998; Park and Russo, 1996). Understanding the effects of varying levels of cooperation and competition is of critical importance to MPAs, as misbalances may lead to suboptimal performance (Park, Srivastava, and Gnyawali, 2014).

Thus far, little appears to be known about when collaborating with competitors is beneficial and when it is not, but also about the specific contingencies that might impinge upon this relationship (Bengtsson and Kock, 2014). Despite the growing popularity of coopetition in the academic and business arenas, and the recurrently emphasized relevance of exploring the optimal blend between cooperation and competition, research is still very scant (Bengtsson *et al.*, 2010; Ketchen, Snow, and Hoover, 2004; Walley, 2007). Only a few empirical studies on coopetition provide some insights into its implications for a firms' competitive behavior (Gnyawali and He, 2006), or innovation success (Park, Srivastava, and Gnyawali, 2014). However, studies investigating the link between coopetition and performance and their moderating variables are largely missing (Bengtsson and Kock, 2014; Ritala, 2012).

The involvement of intermediaries or third parties is a distinctive characteristic of MPAs (Heidl, Steensma, and Phelps, 2014). Several studies indicate that the

strategic intervention of third-party intermediaries, such as public agencies, research organizations, and regional institutions, can play a pronounced role in creating competitive advantage between firms (Lazzarini, 2015). Research also notes that their participation can facilitate the enforcement of trust to overcome “non-collaborative inertia” (Mesquita, 2007), or can broker knowledge to spur interaction and information exchange (Zaheer and McEvily, 1999). The very same studies emphasize that further exploration is necessary to understand the conditions under which third-party involvement will be more successful. Because predicting a third party’s impact on multipartner collaboration is complex and context specific (Mesquita, 2007), it can lead to competitive advantage under some conditions and disadvantage under others (Lazzarini, 2015).

In this study, I build on the strategic alliance and cooptation literatures to explore the relationship between cooptation and performance in MPAs. Guided by social exchange and transaction cost reasoning a framework is developed. I interpret third-party intermediation as a strategic bridging activity (“*bridging*”), which is defined as a process that establishes links between organizations to address a specific problem domain (Emery and Trist, 1965; Westley, 1991). Based on this, the following major research questions are addressed: First, how does the interplay between cooperative and competitive behavior influence MPA performance? Second, how does bridging moderate this relationship, given the varying degrees of competition and cooperation in cooptative MPAs?

I test my hypotheses on a sample of 153 MPAs in the emerging electric mobility sector, which includes organizations and firms from various industries. I find support for my hypothesis that MPA performance is not only related to cooperative intensity, but also to its interplay with competitive forces. This finding addresses an important gap in cooptation literature by providing empirical verification for the link between cooptation and performance (Walley, 2007).

This paper expands our knowledge on how to enhance MPA performance and cope with the tensions that arise when multiple partners form alliances. More specifically, it makes three contributions. First, I contribute to our understanding of cooptation and its performance implications by providing empirical verification for

the link between coopetition and performance (Walley, 2007). This paper shows that MPA performance is not only related to cooperative intensity, but also to its interplay with competitive forces. Second, I theoretically propose and empirically test the role of bridging in MPAs, namely whether and how their performance implications are contingent on the dynamics of cooperation and competition. My results show when bridging is likely to benefit collaborative performance and when not. These insights add nuance to existing intermediation studies by taking a more contextual view (Howell, 2006). Overall, this study contributes to a better understand of when bridging is likely to benefit collaborative performance, and when it is not.

6.2 Background

To provide initial orientation of the major concepts that are under investigation, a brief review of coopetition and strategic bridging is instructive. The following section will trace their conceptual origins and illuminate their boundaries before the analyses are undertaken.

6.2.1 Coopetition: A Synthesis of Cooperation and Competition

The term coopetition was first introduced by Raymond Noorda, the Chief Executive Officer of Novell, in the 1980s, to describe the business strategy of simultaneous cooperation and competition. In a broader sense, it is defined as the combination of competition and cooperation (Brandenburger, 1996), where independent firms share partial congruence of interests. Coopetitive relationships are prevalent and widespread (Padula and Dagnino, 2007; Benjamin Gomes-Casseres, 1996; Walley, 2007). For example, *BMW* and *Toyota* have collaborated in the carbon fiber and hybrid technologies fields since 2011, *LinkedIn* practices co-opetition by partnering and competing with headhunters, and *Apple* and *Microsoft* teamed up to develop a mobile Operating System. In fact, in sectors such as healthcare, information and communication technologies, food, and aviation (Ritala, 2012), competing collaborators form more than half of interfirm alliances today (Harbison and Pekar Jr, 1998).

Scholars have developed a wide variety of definitions (for an overview, Yami and Nemeh, 2014) and have conceptualized the coopetition from different angles. One view suggests that firms cooperate in some business domains (e.g., R&D or marketing), while competing in others (Bengtsson *et al.*, 2010). A broader, inter-firm perspective holds that coopetition occurs with some competitors to develop strengths to compete against others (Zineldin, 2004). A third view conceives coopetition from a temporal perspective, suggesting that cooperation with the competitors occurs at some time and competition at a different time.

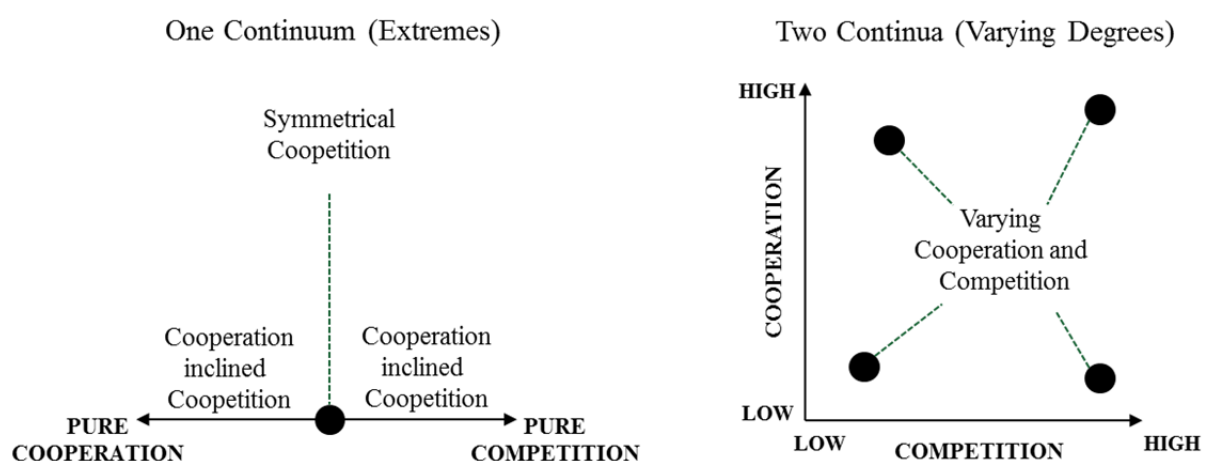
Various theoretical perspectives have been applied to study coopetition. Game-theoretical reasoning provides an explanation for the puzzling simultaneity of cooperative and competitive forces. It shows that classical zero-sum games turn into positive-sum games that create value for all participants, and that thriving together allows multiple winners (Brandenburger, 1996; Lado, Boyd, and Hanlon, 1997; MacDonald and Ryall, 2004; Ritala and Hurmelinna-Laukkanen, 2009). Conversely, a transaction cost perspective assumes that cooperative strategies incorporate considerable risk, because partners may have a strong incentive to behave opportunistically (Park and Russo, 1996; Quintana-Garcia and Benavides-Velasco, 2004). Studies drawing on behavioral perspectives try to explain how firms behave and why they enter into cooperative relationships, given the tensions that occur from these paradoxical forces. Khanna and colleagues (1998), for example, show that external opportunities essentially impinge on collaborative behavior between competitors, while Das and Teng (2002a), building on social exchange theory, argue that resource scarcity incentivizes exchange between competitors, allowing them to access critical inputs.

Initial research on coopetition by Brandenburger and Nalebuff (1996) anchored the concept in academia, based on the argument that separating cooperation from competition offers only a “partial slice of the reality” (Lado, Boyd, and Hanlon, 1997: 111). Similarly, other studies emphasized the need to study both aspects of firm behavior, competition and cooperation, as concurrent (Khanna *et al.*, 1998), compatible (Jarillo, 1988), or complementary forces in alliances (Teece, 1992). Yet other scholars have devoted particular attention to the inherently paradoxical forces

arising from coopetition, such as learning versus protecting knowledge (Kale, Singh, and Perlmutter, 2000), developing private versus common benefits (Baum, Calabrese, and Silverman, 2000), and creating versus appropriating value (Lavie, 2007).

Despite a considerable volume of research on coopetition, its conceptual boundaries and operationalization are still unclear. Traditionally, cooperation and competition have been seen as two mutually exclusive ends of a single continuum (Lado, Boyd, and Hanlon, 1997). On these grounds, studies of cooperation and competition have developed into two well-accepted, but largely disconnected, streams in management literature (Padula and Dagnino, 2007). This development triggered the question whether cooperation and competition should be considered two separate continua, or a single one (Bengtsson *et al.*, 2010; Chen, 2008; Gnyawali and He, 2006; Walley, 2007). A single continuum conceptualization means that coopetition ranges from strong cooperation to strong competition with one extreme excluding the other. In contrast, a two continua perspective permits the co-existence of high and low degrees of cooperation and competition, implying that each dimension interacts with the other independently (Figure 14). Therefore, increased cooperation does not necessarily happen at the expense of reduced competition (Padula and Dagnino, 2007).

Figure 14: One Continuum versus Two Continua Concept of Coopetition
(Source: adapted from Bengtsson *et al.*, 2010: 199)



The recent surge in research output has greatly contributed to a better understanding of the concept. Owing to the conceptual ambiguity outlined above,

current literature provides an inconclusive account of how coopetition affects firm performance. While some findings support a positive relationship between coopetition and firm performance (Park, Srivastava, and Gnyawali, 2014; Luo, Rindfleisch, and Tse, 2007; Quintana-Garcia and Benavides-Velasco, 2004), others have negative implications (Kim and Parkhe, 2009), such as earlier partnership dissolution (Park and Russo, 1996). Progressing towards a more coherent research on coopetition requires the clarification and operationalization of conceptual dimensions. More importantly, Ritala (2012) indicates that some variation in firm performance may stem from certain “types of business environments” (p. 307) and certain types of “contingency factors that have an influence on the potential benefits to a firm of collaborating with its competitors” (p. 308).

Thus far, only two notable studies provide empirical insights into varying coopetitive contexts and contingency factors’ effect, which may have an impact on collaborating competitors’ outcomes. Studying Finnish firms, Ritala (2012) finds that benefits accrue from coopetition when market uncertainty and network externalities are high, while competitive intensity is low. Despite its broad insights into various moderating variables, an aggregated alliance portfolio perspective, rather than individual alliances or firms, limits this study’s results. Further, the broad nature of the study restricts a nuanced view on performance implications in varying coopetitive contexts.

A more recent study by Park and colleagues (2014) examines MPAs to explore the impact of varying degrees of cooperation and competition on firm innovation. Its findings suggest that a balanced coopetition (i.e. when cooperation is high and competition is moderately high) has positive impact on innovation performance. While insights from this study are informative, their focus on innovation performance only provides a limited view of alliance success – particularly, as success is measured only by the number of patents. Therefore, understanding the proposed causal relationship between coopetition and performance thoroughly requires in-depth exploration and further empirical inquiry.

6.2.2 Strategic Bridging

Strategic bridging is a distinct form of third-party involvement to facilitate multipartner interaction (Emery and Trist, 1965; Trist, 1983; Westley and Vredenburg, 1997). It is defined as a process of “establishing cooperative links that help stabilize turbulent environments” (Westley and Vredenburg, 1997: 67). In a broader sense, the term ‘bridging’ has its roots in social network theory (Burt, 1992) and is more generally associated with linking a firm’s internal capabilities to those of its external network (Granovetter, 1983; Zaheer and McEvily, 1999).

In contrast, the notion of strategic bridging implies a more intensified process of ‘interpenetration’ – that is, partners “seeking to collaborate in a problem domain, engage in direct or mutual negotiations, pool resources, and/or create or employ a third party as a linking device” (Westley and Vredenburg, 1997: 68). The concept of ‘strategic bridging’ has been largely applied to the collaboration between nongovernmental organizations (e.g. local governments, grassroots movements, voluntary agencies) and firms targeting societal change by linking firms and other social entities that are traditionally unconnected to, or skeptical about, each other’s activities (Sharma, Vredenburg, and Westley 1994).

The role of bridging organizations, such as third-party intermediaries, public organizations, associations, and universities, has been well-acknowledged in research (Table 11). Despite investigating the same research object, the terminology may vary by identifying bridging entities as bridging organizations, intermediaries, third-parties, brokers, bridge builders, consultants, regional institutions, or boundary organizations (for a review, see Howells, 2006). In this study, my focus is narrowed to one specific type of bridging entity that is most prevalent in MPAs: public research institutions (i.e. universities, research laboratories) and regional agencies (i.e. public associations and state-owned agencies).³⁰

³⁰ For the sake of simplicity, this study uses the terms *strategic bridging* and *bridging* synonymously.

Table 11: Roles of Bridging Organizations

Intermediary Roles		
Type of Activity	Bridging Activity	Exemplary Studies
Formulation	Identifying needs	Callon (1980), Lazzarini (2015), Howells (2006), Heimeriks, Klijn, and Reuer (2002), Zhang and Li (2010)
	Scanning and identifying partners	
	Developing a business case	
	Codifying agenda	
Initiation	Funding	Baum et al. (2005), Brown (1991), Doz et al. (2000), Gulati and Garguilo (1999), Howells (2006), Lazzarini (2015), Porter (1998), Thorgren et al. (2011)
	Mobilizing a critical mass of partners	
	Providing "neutral" space	
	Evaluating and selecting partners	
Communication	Institutionalizing	Fleming and Waguespack (2007), Emery and Trist (1965), McEvily and Zaheer (1999), Provan and Human (1999)
	Advertising	
	Lobbying	
	External representation	
Monitoring	Boundary spanning	Bae and Garguilo (2004), Burt and Knez (1995), Gulati, (1995), Karambayya and Brett (1989), Sheppard (1984), Mesquita
	Regulating	
	IP protecting	
Coordination	Arbitrating	Aldrich and von Glinow (1992), Guston (1999), Howells (2005), Hargadon and Sutton (1997), Hargadon (1998), McEvily and Zaheer (1999), Westley and Vredenburg (1991)
	Orchestrating	
	Network building	
Implementation	Linking and co-aligning	Ahuja, and Mitchell (2011), Bessant and Rush (1993), Braun (1993), Gulati (1998), Heidl et al. (2014), Howells (2006), Labianca et al. (1998), Mantel and Rosegger (1987), Suchman (1994), Tether and Tajar (2008), Updegrove (1995)
	Matchmaking and mediating	
	Diffusing and transferring technology	
	Promoting trust	
	Stabilizing	
	Training	
	Consulting (knowledge repository)	
	Documenting	
Commercializing		
Assessing and evaluating		
	Standard accrediting	

Prior research indicates that bridging activity may be of particular importance in multipartner arrangements due to their inherently instable nature (García-Canal,

Valdés-Llaneza, and Ariño, 2003; Heidl, Steensma, and Phelps, 2014). This research also documents an encompassing set of activities that bridging organizations perform. For example, throughout the initial stage of collaboration, bridging activity can help substitute a lack of knowledge in specific areas, such as contractual agreements or specialist knowledge (Tether and Tajar, 2008). It thereby mitigates search costs incurred through external sources of expertise and capabilities (McEvily, Perrone, and Zaheer, 2003). Many studies report on the facilitative role of bridging organizations, such as coordinating the flow of information, brokering knowledge, and mobilizing partners. Thorgren et al. (2011) highlight the importance of public funding in R&D initiatives to overcome initial uncertainties in cross-industrial collaboration. Lazzarini (2015) describes how public bridging may help explore new applications that reutilize existing technologies in a process he describes as ‘resource churning.’ This interpretation suggests that bridging takes a more technologically informed role by finding new uses and applications in different sectors and industries.

Yet other scholars emphasize bridging’s more participative role beyond mere information exchange and initiation activity (Howells, 2006). Some studies stress that bridging activity incorporates linking value-added chains that span organizations to manage complex and unstable environments, and enable coordinated action (Emery and Trist, 1965; Fleming and Waguespack, 2007). Other studies conceptualize bridging as mediating and governance activity responsible for monitoring and deterring opportunistic behavior and arbitrating between conflictual positions to enhance alliance stability (Gulati, 1998; Heidl, Steensma, and Phelps, 2014). Prior conceptual research suggests that public partners may specifically leverage their reputation and neutrality to help overcome competing collaborators’ gridlocked positions (Mesquita, 2007).

Further, scholars have acknowledged the coordinative role of bridging entities acting as agents by managing and orchestrating activities across organizations (Guston, 1999), by building networks (Provan and Human, 1999), and linking participating actors (Westley and Vredenburg, 1997). In fact, bridging entities are particularly well-positioned to identify new opportunities arising from the needs of

those firms that could be served by skills residing in another firm (Burt, 2009). Finally, research has underlined the significance of bridging during the implementation phase. Bessant and Rush (1995), for instance, document that bridging organizations act as a knowledge repository to bridge the ‘managerial gap’ and to diffuse industrial best practice. Scholars also note that bridging takes a crucial role in turning alliance efforts into value by helping to commercialize technologies, develop common standards, and evaluate collaborative performance (Braun, 1993; Howells, 2006).

Taken together, these studies indicate that the bridging term encompasses various activities aiming at co-aligning a diverse set of strategies, goals, values, and structural peculiarities in multipartner organizations.

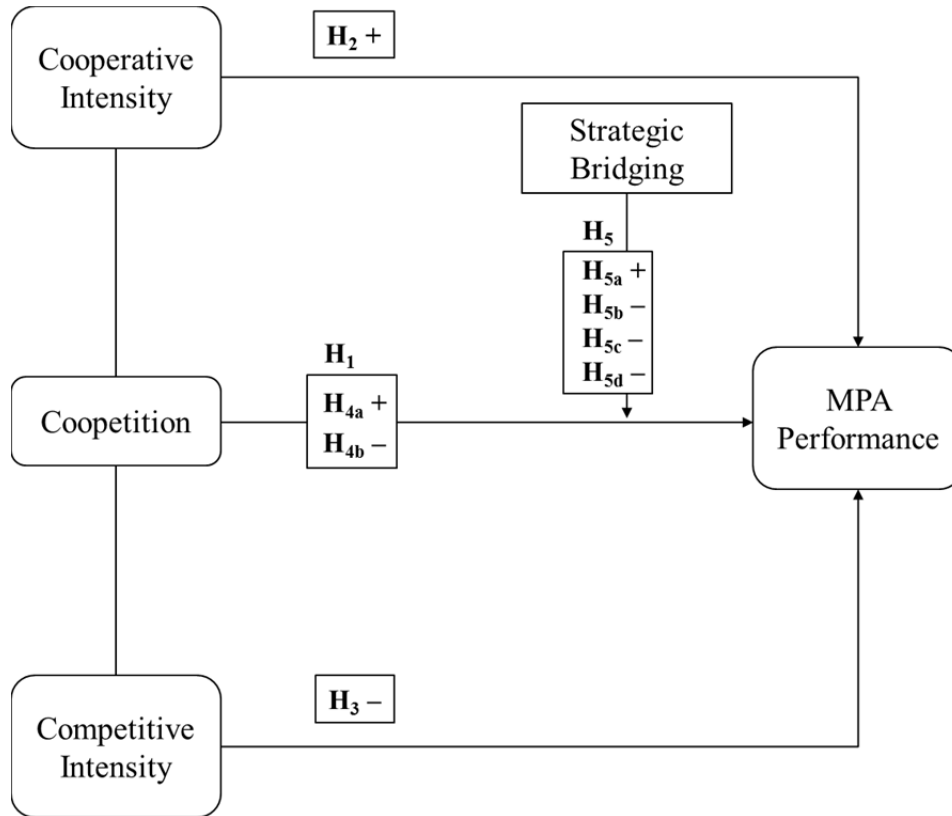
6.3 Theoretical Foundations and Conceptual Model

Social exchange theory delivers an important explanation of why cooperation does not contradict competition, and provides a valuable explanation of the cooperative phenomenon’s occurrence (Homans, 1958b; Blau, 1964). It holds that there is a need for social exchange, which the scarcity of resources creates. And it is this need that incentivizes cooperation with competitors to access critical inputs (Das and Teng, 2002b; Levine and White, 1961). It follows that collaborating competitors maintain relationships with the expectation that doing so will be rewarding (Homans, 1958b; Lambe, Wittmann, and Spekman, 2001). This study draws on social exchange arguments and the mechanism of reciprocity to develop a theoretical framework. Social exchange theory provides a particularly good lens for studies on MPAs, as it addresses reciprocity hazards, which tend to arise “as the number of exchanging parties reaches three [because] social exchanges become generalized” (Das and Teng, 2002a: 446).

Despite this fit, this theory still has a major limitation: The non-consideration of opportunism (Lambe, Wittmann, and Spekman, 2001). Opportunism hazards, however, are inherent in strategic alliances (e.g., Parkhe, 1993). To account for this limitation, I draw on transaction-cost theoretical reasoning as a complementary perspective to better explain cooperative interaction in MPAs. Figure 15 depicts the proposed research model. The model postulates the general relationship between

cooperation and MPA performance. It further specifies the contextualized moderating effect of strategic bridging activity in varying degrees of cooperation and competition.

Figure 15: Proposed Model



6.4 Hypotheses

6.4.1 Cooperation, Competition and Performance

Cooperation and performance. A large volume of interfirm cooperation research and empirical studies document the positive relationship between cooperation (or cooperative attitude) and alliance performance (e.g., Contractor and Lorange, 1992; Dyer and Singh, 1998; Hagedoorn, 1993; Heide and Miner, 1992; Kanter, 1994; Luo, 2002). Theoretically, this paradigm emphasizes the development of collaborative advantage, which has been underpinned by three widely cited perspectives. First, studies based on transaction cost theoretical argumentation assert that cooperation reduces the cost of partner interaction by offering incentives and monitoring systems that are not available in market-based transactions, thus minimizing opportunistic hazards (Williamson, 1975). Second, scholars applying the resource-based view argue

that cooperation expands the pool of resources, allowing for more recombination and value generation (Combs and Ketchen, 1999). Third, game-theory posits that all interacting parties are better off by initially starting with cooperation rather than competing, and by imitating the other parties' reaction in subsequent rounds (Axelrod, 1984).

While much of our current knowledge applies to dyadic forms of alliances, we have some indication that the size of alliances can make a difference. Some scholars argue that, in organizations with multiple partners, the additional coordination and monitoring efforts required increase the costs (García-Canal, Valdés-Llaneza, and Ariño, 2003; Park and Russo, 1996). Gong et al. (2007) provide evidence that an increasing number of partners exert a negative influence on the relationship between cooperation and performance. Here, the underlying argumentation is that a) an increasing number of partners leads to information costs in order to understand and monitor the other partners' strategic intentions, capabilities, and commitments; and b) as the number of partners increases, it is less likely that the partners will sufficiently socialize with each other to establish relational ties (i.e. common values and norms) and generate rents (Ring and Van de Ven, 1994).

Competition and performance. There is far less agreement on the role of competition in alliances for value creation. Compared to individual firm studies, this topic has received far less attention (Rai, 2013). Some studies illustrate how *competitive advantage* arises on interfirm level. For instance, competing partners may increase their overall performance by leveraging common knowledge and scarce skills (Hamel, 1991), accelerating innovation (Jorde and Teece, 1990), setting standards (Luo, 2007), expanding the collective pool of resources (Gnyawali and Park, 2011), and through insights into competitor perspectives (Gnyawali and Madhavan, 2001; Lado, Boyd, and Hanlon, 1997). Some scholars note that competitors with a high degree of overlap may mutually refrain from competitive actions and engage in less intense competition because they fear retaliation (Gimeno and Woo, 1996). Porter (1998), for example, shows that competitive pressure positively affects the performance of collaborating firms in clusters by increasing their productivity and by fueling innovation. Oxley and Sampson (2004) argue for a more nuanced perspective,

taking the degree of competition and the proximity of competitors into consideration. They find that benefits from competitive behavior within an alliance are particularly high if the partners are direct competitors with overlapping markets and interests.

A recent study concludes that competition in MPAs has less positive implications for performance (Heidl, Steensma, and Phelps, 2014). One argument is that joint knowledge creation by close competitors complicates its subsequent application, if the partners are active in the same competitive arena (Gnyawali and Park, 2009). Close competitors tend to compete away their partners' relational rents to increase their private benefits at the expense of the common benefits (Baum, Calabrese, and Silverman, 2000). Another argument raised is that competition can discourage knowledge exchange and diminish the benefits from cooperation, because of alliance partners' natural desire to protect their knowledge stock (Li *et al.*, 2012). Further, competitive activity in MPAs has been found to be a source of alliance instability, due to partner dropouts (Axelrod, 1984) and an impediment to trust building activities (Ring and Van de Ven, 1994), thus thwarting relational rents from intensified cooperation (Dyer and Singh, 1998).

Overall, current evidence on the competition-performance link in MPAs studies is inconclusive, providing insufficient guidance for academic research or praxis. Inter-partner learning studies argue that a reason for this is that individual organizations' appropriation capacity and their ability to internalize skills need more consideration to better assess competition's impact on performance (Doz and Hamel, 1998; Hamel, 1991; Lane and Lubatkin, 1998). Another reason, which this study addresses, is that the simultaneous occurrence and the interplay between competition and cooperation, rather than their individual effects, need to be taken into account to derive solid performance implications (Park, Srivastava, and Gnyawali, 2014).

Coopetition and performance. Coopetition has been viewed as a beneficial, yet risky, strategy for firms participating in MPAs. A few studies have empirically investigated this relationship, arriving at contradicting results, which suggest positive and negative performance implications (Ritala, 2012). A key premise of those scholars asserting a positive relationship is that coopetition allows for generating rents that do

not accrue to relationships, where either cooperation or competition is missing (Bengtsson and Kock, 2000; Gnyawali and He, 2006; Ketchen, Snow, and Hoover, 2004).

Innovation and value creation are a key rationale for competitors to enter cooperative relationships (Brandenburger, 1996; Gnyawali and Park, 2011). Here, several advantages are notable: (1) coepetitive relationships gather diverse and relevant resources, which are required for the novel recombination of knowledge. These expanded pools of resources can lead to more innovative products and higher returns, which are beyond the reach of purely cooperative or purely competitive relationships (Heidl et al., 2014). By leveraging competitors' strengths, cooperative constellations are particularly promising regarding radical innovation, which is "new to the market, rather than new to the firm" (Tether, 2002: 947).

(2) Collaborative interaction between competitors can also lead to an accelerated process of skill internalization, described as 'learning races' (Khanna, Gulati, and Nohria, 1998). Driven by the potential loss of a relative competitive position and by increased interaction, learning races are a major impetus for intensified learning and innovation.

(3) Coepetitive strategies enable the exploring of alternative strategic paths and technologies. As competitors own the most relevant information, accessing competitor knowledge and resources allows for increasing an organization's strategic flexibility and opens up hitherto undiscovered paths (Lado, Boyd, and Hanlon, 1997). Moreover, collaborative-competitive relationships present a temporal advantage by facilitating timely access to information, which is critical to understand industry developments and take favorable market positions (Lavie, Lechner, and Singh, 2007). (4) Finally, partners with significant overlaps in activities and technologies can spread the operation risks (i.e. product failures) and costs (i.e. shared resources) (Sampson, 2007) through coepetition. It thereby allows for increasing the innovation speed, output, and quality (Park, Srivastava, and Gnyawali, 2014).

From an interfirm perspective, cooperation can help contain standard setting costs, which occur in the parallel development of technologies. Coepetition firms may

specifically influence technological trajectories and standards to support the progress and diffusion of their own technologies in emerging industry or product domains (Gomes-Casseres, 1994). By combining forces, competing partners are more likely to succeed in setting the pace in industries and forcing other businesses to follow (Suarez and Utterback, 1995). For example, in 2005, the fierce competitors Sony and Samsung formed a TV business partnership to increase the economies of scale, push their technologies, and win the battle for standards when flat panel TVs entered the mass-market (Gnyawali and Park, 2011). Similarly, cooptition facilitates the representation of joint interests to outside stakeholders (i.e. lobbying) and market players outside the cooperative partnership (Luo, 2007; Tether, 2002).³¹ I therefore submit the following hypothesis:

Hypothesis 1: The interplay between cooperation and competition — that is, the level of cooptition — will be significantly related to multipartner alliance performance.

As argued earlier, a cooperative mindset between partners is critically important for alliance success. It therefore seems reasonable to assert that if the willingness to cooperate is low, MPA success will suffer. I therefore posit that cooperative contexts with lower degrees of cooperation in MPAs will overall lead to lower performance outcomes than contexts with higher degrees of cooperation; no matter how pronounced the competition is. More formally, I hypothesize:

Hypothesis 2: A higher cooperative intensity (high cooperation context) will lead to a higher multipartner alliance performance than a lower cooperative intensity (low cooperation context).

The risk of knowledge leakage and opportunistic behavior in interorganizational partnerships is particularly high if the propensity to cooperate and compete is also high. While cooperative behavior has been shown to be an important source of rent in

³¹ Some scholars suggest that collaboration between rivals may inhibit competition by facilitating collusion, or by shaping industry structure in anticompetitive ways (e.g., Porter and Fuller (1986)).

interorganizational collaboration (Dyer and Singh, 1998), the cost-intensive safeguards needed to protect it against opportunistic hazards arising from competitive behavior might erode it.

First, an increasing competition in cooperative arrangements may lead to additional coordination and monitoring costs, which are expected to increase with a larger number of partners (Li *et al.*, 2012). These transaction costs are partly attributable to the generalized nature of exchange relationships in MPAs. In fact, scholars of social exchange theory argue that generalized social exchange is the essential distinction between dyadic alliances (direct exchange) and MPA (Das and Teng, 2002b). The absence of direct reciprocation between partners increases the incentives to cheat and indulge in free-riding (Williamson, 1975), because non-cooperative behavior is difficult to detect and may be diffused over a large number of partners (Li *et al.*, 2012). This argumentation is in line with Bengtsson and Kock's (2000) empirical observation that firms establish cooperative relationships in activities far from the customer, while competing in those that are close to them. They argue that competing partners often draw a divisive line between cooperation and competition, premised on the closeness of their customer base. For instance, brewery firms cooperate on collecting and processing empty bottle returns, while competing on more important activities, such as beer distribution.

Second, cooperation benefits may be diminished if competing partners act opportunistically by appropriating skills and knowledge for their own advantage (Nakos, Brouthers, and Dimitratos, 2014). By allying with competitors, partners run the risk of their increasing dependency on the other partners (Dussauge, Garrette, and Mitchell, 2000), unintentionally exposing competitive advantage (Luo, Rindfleisch, and Tse, 2007) and, thus, diluting their own competitive positions, while empowering their competitors. I thus propose:

Hypothesis 3: A higher competitive intensity (high competition context) will lead to lower multipartner alliance performance than a lower competitive intensity (low competition context).

The degree of competition in partnerships is dependent on firms' similarity (e.g. their knowledge bases, dominant logics, and overlaps in activities), which critically determines a firm's ability to interpret, internalize, and commercialize its partner's knowledge (Daft and Weick, 1984; Lane and Lubatkin, 1998). Collaborating firms can only assimilate and apply external knowledge that is closely associated with their knowledge basis. Accordingly, competing firms' similarity facilitates knowledge exchange and transfer (Cohen and Levinthal, 1989). On the interfirm level, closely related partners with diverse capabilities and interests are more likely to understand each other and create joint value (common benefits). On the firm level, partners are more likely to benefit from interorganizational learning and expanded knowledge pools (private benefits). Therefore, I argue that learning between competitors will prevail in even less cooperative contexts (Hamel, 1991; Khanna, Gulati, and Nohria, 1998). In sum, while high degrees of competition in alliances involve a high degree of uncertainty and bear a high conflict risk, the potential for payoff is also high (Gnyawali and Park, 2011). I therefore hypothesize:

Hypothesis 4_a: In a high cooperation context, a lower competitive intensity will lead to a higher multipartner alliance performance than a higher competitive intensity.

Hypothesis 4_b: In a high competition context, a higher cooperative intensity will lead to a lower multipartner alliance performance than a lower cooperative intensity.

6.4.2 The Moderating Role of Bridging Activity

The succinct review above indicates that much has been written about the process and purpose of bridging activity, while our understanding of its performance effects remains poorly understood. Given the lack of systematic empirical evidence, most of reviewed studies assume that bridging activity has a, per se, positive implication for joint performance.

In this study, I contrast this general assumption by suggesting that bridging activity's impact on MPA performance is context specific. More precisely, I argue that bridging activity only unfolds positive effects when certain combinations of competitive and cooperative intensity are in place. I follow the assertion that the dynamics of simultaneous cooperation and competition affect MPAs' actions, relationships, and outcomes (Gnyawali and Madhavan, 2001). Therefore, I argue that varying degrees of cooperation and competition require different bridging activities (as outlined above), which, in turn, provides a reasonable ground to expect that bridging's effects on performance will also vary. This argumentation proposes:

Hypothesis 5: Strategic bridging moderates the relationship between cooperation and competition (coopetition) and MPA performance.

Low competition context. MPAs are distinct from dyadic collaboration by involving a large number of partners from varying industries, which introduce their idiosyncratic culture, managerial personalities, priorities, and institutional logics (Thornton and Ocasio, 2008). Because firms operate in dissimilar contexts and do not face similar issues, inter-partner learning is challenging (Hamel, 1991). However, to reap benefits and create joint value, firms need to interpret their partners' knowledge and understand the way they operate. I argue that bridging activity may make an important contribution to overcome such challenges.

When thoroughly exposed to different sectors, bridging entities can help translate industry-specific idiosyncrasies (i.e. logics or terms). Bridging entities constitute a nexus between various knowledge pools spread across industries and regions (Heidl, Steensma, and Phelps, 2014). By pursuing cutting edge innovation, universities, for instance, are experienced in collaborating with firms from diverse backgrounds. This competency facilitates the information flow, compromise, and interaction between multiple partners, and thereby provides common ground for firms that may initially struggle to understand each other.

By connecting unrelated actors, bridging activity allows information to circulate across different domains and build links to new and unconventional sets of information. Social exchange theory suggests that parties will continue collaboration

as long as the rewards are sufficient (e.g., Homans, 1958b; Blau, 1964). Hence, in low competition contexts, when collaborative advantages with competing partners are less obvious, bridging activity may enhance MPA stability by connecting various sets of sources of information and increasing the interaction frequency between partners, thereby opening new opportunities (Tether and Tajar, 2008). Network theory reasoning provides some support for this argumentation by arguing that bridging entities are “ports of access to clusters of people” (Burt, 1992: 23), and that partners “that maintain linkages to diverse information sources gain access to novel information and learn about competitive capabilities to a greater degree than firms without such ties” (Zaheer and McEvily, 1999: 1138).

Low cooperation context. Prior studies have shown that the mere risk of opportunism in partnerships can limit trust and the willingness to cooperate (Das and Teng, 1998; Parkhe, 1993). To safeguard themselves against such a risk, partners may become overprotective and fail to contribute and exchange information, thereby inhibiting the generation of collaborative rents (Zeng and Chen, 2003). Low cooperation is a major reason for alliance failure, because partners are reluctant to invest in specific alliance assets to protect themselves against their counterparts’ hold-up situations (Doz and Hamel, 1998; Williamson, 1981). I argue that, in such contexts, bridging becomes imperative, because, from a social exchange perspective, initial transactions primarily determine whether partners’ relationships will be continued or dissolved in the future (Lambe, Wittmann, and Spekman, 2001).

Moreover, MPAs feature a generalized form of exchange, where a third partner may indirectly reciprocate one partner’s contributions to another – as opposed to dyadic partnerships, which is based on a quid pro quo basis (Li *et al.*, 2012). This is problematic, as alliance partners generally have a tendency to take more than they give and will choose alternatives from which they expect the highest rewards and fewest costs (Homans, 1958b). Since reciprocity (e.g., of information or commitment) is not the best alternative, a lack of reciprocation may lead to conflict (Ariño and La Torre, 1998; Mohr and Spekman, 1994; Powell, 1990). Consequently, partners may be less inclined to cooperate, or even worse, collude with others to pursue their own interests.

Studies suggest that bridging can help overcome the challenges of low cooperation contexts in several ways. For instance, bridging entities can help monitor partner behavior, deter opportunism, arbitrate conflicts, and promote trust (Gulati, 1995; Gulati and Gargiulo, 1999). Bridging entities are particularly well positioned to do so, as they are able to handle conflicts transparently and impartially (Heidl, Steensma, and Phelps, 2014). McEvily and Zaheer (1999) show that bridging activity facilitates the shortening of distances between partners by installing a ‘surrogate tie’ and connecting information dispersed between multiple partners. Mesquita’s (2007) study shows that bridging activities promote the emergence of trust, or rebuild trust in relationships gridlocked in uncooperativeness. In line with this reasoning, I argue that strategic bridging activity may thwart opportunism and foster cooperation in three distinct ways.

First, bridging activity enhances cooperation in alliances by compensating for the lack of reciprocity. Because reciprocity is gradually established through mutual reinforcement — as one partner advances and the other reciprocates (Ekeh, 1974; Ring and Van de Ven, 1994) —, partners may be reluctant to cooperate in alliances’ initial phases. Bridging activity may help overcome such ‘reciprocity traps’ and increase a partner’s propensity to cooperate (Baker and Bulkley, 2014).

Beyond that, if one partner is unable to sanction another partner’s opportunistic behavior, bridging entities may impose a penalty and foster “deterrence-based trust” (Polidoro, Ahuja, and Mitchell, 2011: 206). By giving greater visibility to norm-breaking behavior, the mere presence of bridging entities increases the opportunism costs and deters partners’ free-riding behavior (Burt and Knez, 1995). In this manner, bridging organizations introduce a more forward-looking logic into exchange relationships, where misbehavior can lead to reputational losses beyond a focal alliance’s scope (Zaheer and Harris, 2005). Bridging firms may thus inflict reputational damage due to norm violation and may make future alliances difficult for opportunistic partners (Park and Ungson, 1997). In effect, this social monitoring may discipline partners by revealing opportunistic behavior to potential future partners, thus, amplifying the consequences of misconduct.

Second, repeated interaction and reconciling conflict management is an important catalyst to build relational capital among competing partners (Kale, Singh, and Perlmutter, 2000; Ring and Van de Ven, 1994). By introducing an impartial bridging authority, disputes can be resolved at a single and effective escalation point, which is experienced and jointly mandated to arbitrate conflictual positions. Trust in the bridging entity can substitute a lack of trust between less familiar partners – which, in turn, increases rational behavior and encourages collaboration (Mesquita, 2007; Ross and LaCroix, 1996). Similarly, since bridging entities constitute an impartial point of reference, they may act as a reputation sponsor to build trust and enable resource flows (Young-Ybarra and Wiersema, 1999). By being exposed to a variety of firms and situations with comparable challenges, bridging organizations build repositories of means and solutions to link and bridge gridlocked competitive positions (Zaheer and McEvily, 1999). Public organizations and universities, for instance, frequently mediate opposing positions and provide partners with neutral ground to intensify their information exchange.

Third, bridging organizations can promote an orientation towards common benefits by compensating for the power imbalances between alliance partners, which, according to Emerson (1976), may render exchange relationships unstable. MPAs comprise diverse firms, therefore a disparate power distribution often characterizes them (Thorgren, Wincent, and Eriksson, 2011). Under these circumstances, more powerful firms may exercise control for their own benefit and exploit the less powerful partners. Bridging entities can rebalance the power relations between unequal partners. For one, the incorporation of intermediaries can ensure that the ‘voice’ of less powerful alliance members is heard in committees, on boards, and in other meetings where decision making takes place. Conversely, the others may grant an intermediary far-reaching authority as an initiator, co-financier, or orchestrator, which is frequently observed in MPAs (Howells, 2006). In this case, intermediaries can also help (re-)configure an unbalanced portfolio of alliance partners by admitting new partners, or dismissing existing ones. In sum, I argue that strategic bridging may compensate for a lack of cooperative intensity in MPAs and help overcome non-collaborative inertia. An

MPA facilitates the shift from sporadic transactions towards a long-term-oriented, cooperative exchange, thereby promoting greater rewards for all the partners involved in it (Spekman, Salmond, and Lambe, 1997). In a synthesis of the arguments stated above, I postulate:

Hypothesis 5_a: Strategic bridging positively moderates the relationship between cooperation and MPA performance when the cooperative and competitive intensities are low (low-low cooperation context).

High competition context. While research is divided regarding the bottom-line impact of competition on MPA performance, the notion that highly competitive contexts incentivize non-cooperative behavior and bear the risk of inadvertent knowledge exposure is well acknowledged (Dussauge, Garrette, and Mitchell, 2000; Park, Srivastava, and Gnyawali, 2014; Parkhe, 1993). More specifically, overlaps in end product, or strategic factor markets create high levels of competition between related partners, which, in effect, nurtures opportunism hazards and knowledge leakage (Hoetker and Mellewigt, 2009). Thus, in such contexts, establishing alliance mechanisms that limit unintended knowledge exposure, and thus limit vulnerability to opportunistic behavior, becomes critical. Some studies argue that reducing the scope of alliance activity to avoid unintended leakage is an effective mechanism to curb the potential costs of norm-breaking behavior (Oxley and Sampson, 2004).

Given that bridging organizations interact intensely with all partners involved in alliances, exposing knowledge to such organizations in highly competitive partnerships may lead to the unintended disclosure of confidential information to rival firms (Khanna, Gulati, and Nohria, 1998). I expect bridging activity to amplify this problem, as the bridging process by definition implies the best possible knowledge brokerage and distribution of information between partners. My fieldwork provides some evidence of such concerns about the involuntary transfer of proprietary knowledge into common knowledge, which bridging entities facilitate. An executive notes,

“We would opt for more cooperation [...], if we did not have the feeling that, with the support provided, all research findings become common

property. As they [bridging organizations] also collaborate with other partners, all results will ultimately end up at their desks. And, if you want to obtain a competitive edge, it seems a bad idea for all results to be literally available at the photocopying machine.” (E/4:411)

Hence, all knowledge and expertise developed throughout the collaborative process is prone to become the institution’s stock of knowledge (Zaheer and McEvily, 1999). This is particularly problematic for firms, as their interaction with bridging organizations is often inevitable and sharing a certain amount of information may even be seen as obligatory for alliance participation. Moreover, pooling knowledge is problematic in alliances, as it poses a challenge for knowledge owners to prevent their partners from making use of this to exploit market opportunities outside the alliance (Li *et al.*, 2012).

While these concerns are less pronounced when competition is low, incorporating strategic bridging activity in highly competitive cooperation contexts can be a serious threat to a firm’s strategic advantage. Moreover, in contexts of high relatedness among partners, where a high level of competition among partners can be expected, the need to bridge the varying institutional logics is unimportant, if not detrimental. Based on these arguments, I propose:

Hypothesis 5_b: Strategic bridging negatively moderates the relationship between coopetition and MPA performance when the competitive intensity is high, irrespective of the cooperative intensity (low-high, high-high coopetition contexts).

High cooperation context. Prior studies on alliances with multiple partners indicate that high degrees of cooperation are positively related to technological innovation (Park, Srivastava, and Gnyawali, 2014) and overall performance (Luo and Park, 2004; Luo, 2002). Highly cooperative contexts are characterized by a climate of openness, trustworthiness, and reciprocity, with resources flowing freely and frequently. A major premise of social exchange theory holds that positive experiences increase partners’ trust and commitments in a self-reinforcing manner. These positive

interactions “produce relational exchange norms that govern the exchange relationship” (Lambe, Wittmann, and Spekman, 2001: 6) and stabilize exchange over time. In such contexts, where cooperative environments are in place, further bridging activity becomes redundant.

Further, if cooperation between alliance partners is on a high level, additional bridging activity can motivate the partners to be overly cooperative, or even detrimentally unmindful. This may, in effect, motivate partners to exhibit norm-breaking behavior, which will have negative implications for the overall multipartner success (Moorman, Zaltman, and Deshpande, 1992). Thus, while cooperation is critical for alliance success, “over-trusting can become an easy target for exploitation by its greedy partners” (Zeng and Chen, 2003: 588).

Beyond that, third-party interference may disturb a well-established cooperation between multiple organizations by imposing additional costs. Bridging activity is likely to incur extra costs, due to increasing managerial effort to avoid, or mitigate, the effects of miscommunication and misalignment. These costs arise primarily from the increasing task complexity inherent in the collaborative effort (White and Siu-Yun Lui, 2005). Further, as bridging activity increases, the scope and depth of the interaction between the partners and the speed of the decision making may suffer. It is therefore reasonable to assume that in highly cooperative partnerships, bridging organizations will, in fact, hamper the overall performance. In sum, I maintain that the need for bridging activities diminishes as the level of cooperation increases. In other words, in highly cooperative contexts, bridging is likely to have an adverse impact on MPA success. I therefore submit:

Hypothesis 5_c: Strategic bridging negatively moderates the relationship between coopetition and MPA performance when the cooperative intensity is high, but the competitive intensity is low (high-low coopetition context).

High competition and high cooperation context. Based on the argumentation above strategic bridging involvement will have detrimental effects in contexts, where a high degree of cooperation and competition is present. I suggest:

Hypothesis 5_a: Strategic bridging negatively moderates the relationship between coopetition and MPA performance when the cooperative intensity is high and competitive intensity is high at the same time (high-high coopetition context).

6.5 Methodology

6.5.1 Sample Selection

My research setting was the emerging electric automobility sector in the German-speaking countries. A multitude of actors across various sectors (e.g., energy, automotive, chemical, electro, software, and telecommunications) and public domains (e.g., governmental agencies, regulatory bodies, cities and councils, associations, private initiatives, and research institutes) are vital to jointly contribute towards an integrated solution. Neither single firms, nor single industries, are capable of building electric mobility solutions on their own and of managing this profound technological transition by ‘going it alone.’ I chose this sector, because it resembles the empirical observation of increasingly blurring industry boundaries where change evolves with great speed. This context results in a large number of cross-industry alliances between multiple private and public parties. This sample is appropriate for my study, as public and research institutions are intensely involved in such MPAs, thus allowing me to explore the role of intermediaries (Thorgren, Wincent, and Eriksson, 2011). Given the technologically demanding and emerging nature of this sector, this empirical setting is also well suited to investigate the simultaneous cooperation phenomenon and competition in MPAs. Finally, in selecting the sample, the accessibility of data was also taken into consideration. Electric mobility activity receives extensive media coverage, and therefore offered abundant archival information to enrich my survey data.

6.5.2 Data Collection

To generate the sample and test my hypotheses, I surveyed firms involved in MPAs online. The data were collected in 2014 by means of a structured, web-based

survey questionnaire. I launched individual surveys for each of the selected regions on the Qualtrics Survey Platform (Appendix 5). This platform was subsequently used for all communication (i.e. survey distribution and reminder) with the respondents. I used data from Germany, Austria, and Switzerland to reduce the potential national selection bias and covered the period between 2007 and 2014. I chose the year 2007, as this was the starting point of large car manufacturers' major initiatives, such as *BMW's Project i*, and of cross-industry initiatives, such as the *Innovation Alliance for Automotive Electronics (e-NOVA)*. Moreover, at this time, governments launched initial programs to pool and link cross-industrial knowledge on electric mobility, such as the *Integrated Energy and Climate Programme (IECP)*. The period of seven years was considered sufficient to cover the longest running MPAs, but also to include short-term alliances. I enriched my sample by adding information from my comprehensive secondary sources database, which covers the entire population of largely publicly funded electric mobility initiatives in the target area.

The survey respondents were key informants who held positions, such as project leader, managing director, or spokesman, indicating their senior role and key position in MPAs or consortia (Poppo and Zenger, 2002). If no leader or spokesman was nominated, I sent surveys to project members, who were asked to forward the survey to the most informed person involved in the formation and management of the firm's most important alliance (Hoetker and Mellewigt, 2009). I also assessed the appropriateness of the respondents and found that 85 percent had higher management roles in the respective MPAs and had superior access to information (Huber and Power, 1985).

Using the key informant technique provided the most reasonable way of receiving information on the interplay between MPAs' competition, cooperation, and performance, given the confidential nature of such data and the lack of secondary sources. Owing to the still relatively rare occurrence of MPAs and the effort required to obtain organizational informants, survey research in respect of interorganizational research very often uses single key informants (e.g., (Glick *et al.*, 1990; Krishnan, Martin, and Noorderhaven, 2006; Reuer and Lahiri, 2013).

In the sample, a typical MPA set-up consisted of seven partners, was dedicated to a specific goal and lasted for roughly three years. These MPAs featured repeated exchanges between a heterogeneous set of members with varying firm characteristics, alliance experiences, and share of public involvement. For example, in one alliance, firms from five different industries, one applied research institute, one university, and a regionally embedded public agency jointly aimed to test and establish a regional network of electric cars labeled *e-GAP* (Lechner and Hettich, 2014). All the MPAs had clearly o with the vast majority focusing on research and development (77%), while a smaller number also engaged in research, development, and production (22%). Only two MPAs focused on production (1%).

I approached the field by initially contacting associations (*Swiss eMobility*), state-owned development (*Klimafonds*) and innovation agencies (e.g., *e-Mobil BW* and *Bayern Innovativ*), national programs, such as the ‘National Platform for Electric Mobility’ (NPEM), and regional clusters. I subsequently received further contacts in addition to those already in the database. A forward–backward procedure was applied to translate between German and English. Three business academics reviewed and commented on the preliminary versions of the questionnaire. In addition, I approached six national electric mobility federation or national electric mobility platform directors, who oversaw and managed several MPAs in their respective regions, to pre-test the questionnaire and ensure face validity. Based on their responses, slight adaptations to the wording and survey items were made. Confidentiality was emphasized, and a summary of the results, as well as an accompanying workshop on the topic, was promised (Appendix 6).

The questionnaire was e-mailed to 406 potential key informants. The survey was supported by recommendation letters from my research partners, which were distributed via internal newsletters and e-mails (Appendix 7). I followed well-established prescriptions in research, including a follow-up procedure by sending a reminder letter, and making additional phone calls to non-respondents and respondents with incomplete answers (Dillman, 2000). In total, 371 (91%) surveys reached the targeted person after multiple contact attempts (some of the respondents changed jobs

and some firms ceased to exist). A total of 293 (72%) questionnaires were answered. Ultimately, this yielded 232 responses (62%). The purpose of my study, to examine the interplay of cooperation and competition, required an acceptable variation of competitive intensity in MPAs. I therefore deleted 32 cases in which no competition existed (by definition), i.e. MPAs between single firms, public organizations (e.g., universities, associations, regional agencies), and non-competing private organizations (private initiatives, research institutions). I excluded 13 dyadic alliances from the sample. Finally, I eliminated 34 incomplete responses and continued with fully completed questionnaires from 153 MPAs (125 in Germany, 16 in Austria, and 12 in Switzerland), yielding an adjusted response rate of 41% (152/371).

6.5.3 Measures

In measuring the constructs, I largely built on prior studies that have developed and tested reliable measures. An exception was made for the competitive intensity construct in my model, as prior research has not, to the best of my knowledge, developed comparable constructs. Appendix 9 provides an overview of the codebooks, including all the measures used in this study.

Independent Variables

In this study, I conceptualize the cooperation and competition dimensions as two disparate, yet interrelated, continua, which can range from low to high values.

Cooperative intensity. To measure cooperation intensity in MPAs, I drew on Luo and Park's (2004) scale of interfirm cooperation, incorporating items in nine distinct areas (cf. Appendix 9). To better fit the context, I slightly adapted the wording of their original items. Specifically, I substituted equity joint venture with initiative and changed the example provided in the item to "courses of action and priorities." Cooperative intensity was measured on a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' I followed Luo and Park's advice to take the compound mean of all nine items to define cooperation, rather than selecting some high-loading ones, as I received similar results (Luo and Park, 2004: 149) in terms of high estimates of communality (the extent to which an item correlates with all other items) across the nine questions (Cronbach's $\alpha=0.79$).

Competitive intensity. As there is no measure that specifically operationalizes competitive intensity (Barnett, 1997), I developed a competition measure based on three items. The incorporated items attempt to measure the degree of competition within the MPA by capturing the most important dimensions on which firms compete. Initially, I captured a more nuanced understanding of MPA competition by examining the factorability of 10 items in the survey. Principal-component analysis (PCA) showed that 8 of the 10 items correlated at least 0.3 with at least one other item, showing a reasonable factorability. Further, the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.89, above the recommended value of 0.6, and Bartlett's test of sphericity was significant ($\chi^2(45) = 1119.91, p < 0.000$). The varimax rotated PCA revealed that item 1 (power distribution) and item 10 (prior collaboration) load on a single factor, suggesting a latent variable with distinct patterns of responses. The subsequent PCA showed that items 2 to 9 loaded on two factors, explaining 61% of the variance, and exhibited a very high reliability ($\alpha=0.91$). These factors essentially mirrored two equal dimensions on different abstraction levels, known as the concept of resource similarity and market commonality (Chen, 1996). Items 3 to 7 (factor 1) captured competition for resources on a micro level, for example, human (item 3), physical (item 4), financial (item 5), technological (item 6), and network resources (item 7). On a macro view, items 2, 8, and 9 (factor 2) mirrored more general competition between firms (item 2), for customers (item 8), or for markets (item 9). The interrelation of the two latent variables also explained the existing cross-loadings of items 2, 6, 7, and 9. For my subsequent work, I chose the more abstracted measure (factor 2) to capture a broader view and perception of the competitive intensity between MPA members. I retained one variable with the highest factor loading of 0.68 between the cross-loading variables. The final PCA passed both tests, with the Kaiser-Meyer-Olkin measure of sampling adequacy being 0.70 and Bartlett's test of sphericity ($\chi^2(3) = 377.30, p < 0.000$), indicating a high reliability ($\alpha=0.87$).³²

³² A subsequent ANOVA of both measures did not exhibit any fundamental differences in terms of the directionality or the strength of the modelled relationships between the eight- and three-item-based measures outlined above – thus, providing additional confidence in the selected measure's reliability.

Multipartner alliance performance. In line with Brettel et al. (2012), this study relies on a *subjective* measurement approach, relative to expectations, to measure MPA performance. From research by Wall and colleagues (2004), we know that the subjective and the objective measures of company performance are positively associated (convergent validity) and that the relationships of the subjective and the objective company performance, which are measured by a wide range of independent variables, are highly related (construct validity). Moreover, MPAs can have strategically, financially, and temporally different objectives, which, in effect, may lead to false inferences when comparisons are made. By measuring the respondents' relative expectations, I can make performance evaluations across MPAs more comparable.

In the developed measure I account for the three (hard targets) in any project: time, budget, and efficiency. I added three items (soft targets), which capture the extent to which quality, innovativeness, value contribution, as well as to what extent overall project performance objectives, are met. The measurement of performance is in line with prior alliance work, which has identified five success criteria of collaborative performance: technical quality, budget and cost performance, meeting an assigned schedule, value to the company, and overall project performance (Katz, 1982; Katz and Allen, 1985; Keller, 1986, 1992). The measure is also in line with research on strategic initiatives, specifically Lechner and Floyd (2012), who included time, quality, cost, and efficiency in their six-item initiative measure.

The PCA displayed loadings onto two factors that are separable along the distinctions prior literature has drawn: the time, budget, efficiency (factor 1) and quality, innovativeness, value contribution, and the perception of the overall performance (factor 2). To stay in line with prior literature and to capture the overall performance effects on hard and soft performance criteria, I proceed with a composite of all seven items for the performance measurement. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.83, while the Bartlett's test of sphericity was significant ($\chi^2(21) = 478.44, p < 0.000$), yielding a sufficiently high alpha of 0.82.

Strategic bridging. I conceptualized third-party involvement as a proxy for the scope of bridging activity by capturing the extent to which public organizations, such

as regional institutions, public agencies, universities, and research institutes were involved in MPAs. To compute the bridging measure, I first created a dummy variable for each partner in one specific MPA, which was coded as 1 for partners originating from public domains (non-profit orientation) and 0 for partners originating from private domains (profit orientation). I then calculated the share of public organizations by adding the dummy variables and relating the resulting sum to the full number of partners. In the sample, the MPAs had a mean bridging activity ratio of 0.38 with a standard deviation of 0.25.

Control Variables

I controlled for the effect of other variables that may be associated with MPA success. Larger firms tend to have more capacity and financial power to drive multi-partner alliances. In line with prior research, I controlled for *partner size* by computing the mean sales of alliance partners. Scholars have shown that sales turnover is an appropriate size measure and highly correlated with other size control variables in management research, such as total assets or employees (e.g., Hoque and James, 2000; Kogut and Singh, 1988). In addition, I also included the *number of alliance partners* as a size-related control variable (Das and Teng, 2002b; Parkhe, 1993). I controlled for the *alliance experience* of the MPA partners by counting the number of involvements in prior MPAs between 2007 and 2014. Moreover, I introduced *alliance scope* as another control variable to explore for potentially differential effects across varying breadths of MPAs (Li et al. 2008). Prior research shows that the scope of the alliance activity may affect the competition (Oxley and Sampson, 2004) and innovation performance in MPAs (Sampson, 2007). The vertical scope of alliance activities was coded 1 when only R&D activities were covered (narrow scope). Scope equaled 2 when R&D and manufacturing activities were covered, and 3 when R&D, manufacturing, and marketing activities were performed (broad scope). Finally, I controlled for the degree of *exploration* in an MPA to control for varying competitive

behaviors as imposed by varying degrees of knowledge exposure relating to exploration-oriented MPAs (Harryson, Dudkowski, and Stern, 2008).³³

Multiple regression analyses are based on the premise that the distribution of data has to approximate that of a theoretically assumed distribution (e.g., normal distribution). A common research procedure to prevent distorted analyses due to divergent distributions in data and theory is to logarithmize variables before performing the analyses. I logarithmized the mean experience for its positively skewed distribution, and mean sales for its wide distribution to shift data closer towards the normality assumption. In addition, to increase the interpretability and comparability and compare the effects across the predictors, I standardized (z-scored) my three independent variables: bridging, competition, and cooperation (Aiken and Stephen, 1991).

6.5.4 Robustness and Reliability

The best way to test my hypotheses would be to survey respondents from all parties involved in an alliance to assess the overall MPA performance. This is, however, beyond the logistical and temporal feasibility of this dissertation. To compensate for the constraints of this research project, I performed multiple validity checks of the performance measure to ensure its reliability. I also validated the scale to measure competitive intensity, which was developed, because, to the best of my knowledge, there is no measure that specifically operationalizes competitive intensity (Barnett, 1997).

Second respondent validation. I performed an additional validation of my dependent measure, MPA performance, by mailing a shortened version of my questionnaire to other members of the alliances (Appendix 8). I received 50 responses, yielding a response rate of 33% (50/153) with which to cross-validate the performance evaluations through an estimate of the inter-rater reliability. Correlations of the

³³ It is noteworthy that I also included other potentially relevant control variables to explore their impact on my results. For example, prior studies note that the *duration of the alliance* may be related to alliance success as an indicator of a well-functioning partnership Hoetker and Mellewig (2009); Reuer, Zollo, and Singh (2002). Other controls, however, were deemed less important, did not change my results, and were insignificant – and were thus excluded from the final analysis.

perceptual performance assessment between the key informants and other alliance members revealed a high agreement of the performance perceptions, producing an Intraclass correlation (ICC) of .75 ($p < 0.001$).

Guttman split-half reliability. I tested for internal consistency reliability of my self-developed competition scale by evaluating the degree to which different test items, which probe the same construct, produce similar results. Both, the Guttman split-half reliability coefficient ($R=0.77$) and Cronbach's alpha (α between 0.84 and 1) indicated a high reliability. Prior studies note that values above a threshold of 0.60 provide sufficient reliability (Nunnally, 1978).³⁴

6.5.5 Validity

I took several measures to mitigate validity and reliability concerns.³⁵ These robustness checks made me more confident about generalizing the findings.

Common method bias. Common method bias concerns are strongest when the dependent and focal explanatory variables are perceptual measures derived from the same respondent (Podsakoff and Organ, 1986). I used secondary sources of information, where possible, for the dependent and independent variables. Further, I applied procedural remedies by changing the order of the scale types in the questionnaire sent to the second respondents. Finally, I ran a post hoc Harman's

³⁴ Further, I computed a relatedness measure, as the reverse of the entropy measure of business diversity based on three-digit SIC classifications Hitt, Hoskisson, and Kim (1997), Palepu (1985) to cross-validate my survey-based measure of competition. However, I found that both measures were uncorrelated. One explanation for this may be that SIC-based measures of competition may, in fact, not be applied unconditionally to measure competitive intensity. This result is in line with the mixed findings in prior studies on the effects of relatedness (e.g., Hoskisson *et al.* (1993); Lien and Klein (2006); Markides and Williamson (1994); Palich, Cardinal, and Miller (2000)). Relatedness between the alliance partners was measured by the degree of SIC overlaps in MPAs. The relatedness was calculated as follows: P_i is the percentage of partners in a three-digit SIC code category, and m is the total number of 3-digit SIC codes covered by an MPA:

$$\text{Relatedness} = \sum_{i=1}^m P_i * \ln\left(\frac{1}{P_i}\right)$$

³⁵ Generally, four potential sources of bias need attention: First, internal validity refers to how well the study was run (research design, variable measures, etc.), and how positive we are that the independent variable, rather than extraneous ones, caused the change in the dependent variable. Second, external validity refers to the generalizability of the findings outside the sample. Third, construct validity assesses the accurateness of the variable operationalization reflecting a construct. Fourth, reliability is the consistency, or repeatability, of the study results.

single-factor test by exploring all the model variables. The test indicates if a substantial amount of common method bias is present where a single factor accounts for the majority of the covariance in the models' variables. No common latent factor explains more than 22% across all the indicators in the study, offering evidence that this type of bias was not a concern.

Non-response bias. I applied multiple strategies to handle nonresponse issues (Miller and Smith, 1983). My initial strategy was to achieve a high response rate by *pre-testing* the survey with experts, collaborating with major public agencies within the respective regions, carefully planning a follow-up procedure to encourage response (i.e. reminders, follow-up calls, and a workshop). I tested for potential biases regarding the survey responses by comparing the differences in the respondents' characteristics to allow for general inferences from the data. The t-tests of all the controls variables in my model (duration, scope, experience, size, degree of exploration) and of the independent variable (bridging activity) showed that the surveys' respondents are not statistically significant different from the initial set of non-respondents, who were included in the independent samples t-test. The t-tests of alliance duration (measured in months) indicated no significant differences (two-sided $p < 0.05$) between the responding ($M = 33.52$, $SD = 8.59$) and non-responding firms ($M = 32.00$, $SD = 9.09$). At the same significance level, the alliance scope showed no significant difference (two-sided $p < 0.05$) between the two tested groups with the non-responding test group ($M = 6.85$, $SD = 4.45$) exhibiting a comparable scope in its alliance as that of the responding group of roughly seven participating organizations ($M = 6.81$, $SD = 4.66$). There was a significant difference between the respondents and the non-respondents regarding the average experience of their MPA members. On average, the non-respondents had a higher degree of experience through prior MPA involvements within the electric mobility sector ($M = 12.25$, $SD = 9.66$) than the respondents ($M = 9.31$, $SD = 8.32$). I retained this variable in the model for the following reasons: (1) we value experience as an important variable in MPAs and, in particular, with partners involved in walking the fine line between cooperation and competition; (2) although we valued this variable as indispensable, it remains a control, and thus not a key variable in the model. I received a similar result in terms of size by testing for

differences between the compounded and averaged sales, though at a lower significance level (two-sided $p < 0.1$). Further, the t-tests of the differences in bridging activities exhibited no significant difference between the two examined groups (two-sided $p < 0.05$). Finally, the t-tests revealed no statistically significant difference between the two conditions (two-sided $p > 0.05$) in respect of the degree of exploration between both groups. I drew on a SIC-based measure of exploration for a second test of the data independence related to the exploration dimension.³⁶

Late-response bias. In a third validation step, I identified and labelled the MPA early and late respondents to identify a potential late response bias and explore a possibly varying motivation for participation between the informant groups (Miller & Smith, 1983). I examined potential differences in all the completed questionnaires. I performed independent samples t-tests on all the survey answers and on the key dimensions (competitive intensity, cooperative intensity, and perception of performance). With the exception of one, all answers suggested that there were no significant differences (two-sided $p < 0.05$) in respect of early and late responses. Only the MPA performance assessment (question 5), asking whether “[t]he involved parties have relatively equally benefitted from the initiative?” had a statistically significant difference. One explanation for this may be that because this item covers the perception of fairness in MPAs, different experiences with partners may impact the willingness to participate in a survey. Group statistics, however, did not show large discrepancies regarding the median between the early ($M = 4.28$, $SD = 0.61$) and the late respondents ($M = 4.04$, $SD = 6.42$). Finally, the non-respondents were called and asked to explain why they had refused to participate. The answers varied from confidentiality reasons to lack of time. No impediment to participation was shown to be systematic or to relate to either of the variables.

³⁶ I proxied the degree of exploration by capturing the diversity of the participating organizations involved, assuming that a higher diversity in terms of SICs involved in an MPA is likely to lead to a higher degree of exploration. This argument builds on empirical results suggesting that varying sets of resources, capabilities, goals, and operational procedures have been associated with a higher degree of exploration Rothaermel and Deeds (2004). An increasing and more diversified resources base encourages alliance partners to “stretch [...] and strive for more, rather than less, ambitious objectives” Gibson and Birkinshaw (2004). The t-test confirmed the above-stated result of no difference in the two groups.

Sample selection. The sample was taken over an extended period to reduce potential temporal bias. I chose a timeframe between 2007 and 2014 to collect data and performance evaluations unbiased by, for example, temporary events such as economic up- or downswings.

6.6 Analyses and Results

To test my hypotheses, I followed the moderated regression procedures recommended by Aiken and Stephen (1991). In particular, I multiplied the standardized predictor variables to create interaction terms. I then regressed MPA performance on the control variables, the predictor variables, the two-way interaction terms, and finally introduced the three-way interaction terms. The overall effect of multi-way interaction terms is difficult to interpret without understanding the effects of its constituents. I therefore probed these three-way interaction effects using standardized variables and a post-hoc slopes difference test for significance.³⁷

6.6.1 Descriptive Statistics

Table 12 presents descriptive statistics (means and standard deviations) for all the variables and the bivariate correlation coefficients. To identify potential multicollinearity problems, I examined the correlation matrix to see if any predictor variables were highly correlated with each other, but no correlation was excessive; the highest correlation of 0.52 was between the average partner size and the average partner experience of MPAs. Beyond that, I assessed the variance inflation factor (VIF). Collinearity statistics showed that the VIF was lower than 1.50 in all the cases.

³⁷ Scaling parameters (i.e. simple slopes) can be used to assess different change patterns across groups. I used slope analysis to determine whether the gradients of the lines differed from zero, i.e. significantly departed from the horizontal plane. A difference in the slopes is interpreted as a significant change in the growth rates between the groups. The test of the significance of the difference in the simple slopes can be more powerful than the test of the significance of the full interaction term. Therefore, some scholars recommend testing the difference in the simple slopes instead of testing the significance of the interaction term to explore moderated relationships Robinson and Schumacker (2013: 17). I also conducted a subgroup analysis by using a median split. I preferred the above-stated approach for further analyses for the following specific reasons: First, subgroup analysis does not allow for a comparative test of the slopes that do exist across subgroups, as those are treated as if they were separate samples. And second, for this approach's substantial restrictions that create an artificial split and reduce the power of analysis (Dawson and Richter, 2006).

This value is below the rule of thumb threshold ($VIF > 4$) to allay concerns about multicollinearity in my model.

The descriptive figures reveal that a relatively high degree of bridging activity characterizes MPAs, with an average of 37% of bridging entity involvement. Further, they show that MPA size — that is, the number of members involved — ranges from 3 to as many as 28 alliance partners.³⁸ These statistics also highlight that, while there are very successfully performing MPAs (Max=5), none of the MPAs in the sample was rated as very unsuccessful (Min=2.29).

³⁸ It is important to mention that, by definition, MPAs are arrangements involving more than two partners. My data is truncated to exclude dyadic partnerships (two partners only) from my sample for the theoretical reasons outlined above.

Table 12: Descriptive Statistics and Correlations

Variable	Mean	S.D.	Min.	Max.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) MPA size (by members)	7.41	4.44	3.00	28.00	1.000								
(2) MPA scope (by activities)	1.13	0.43	0.00	2.00	-0.076	1.000							
(3) Experience (mean/log)	1.86	1.02	0.00	3.87	0.063	0.018	1.000						
(4) Firm size (mean/log)	20.82	3.44	11.74	27.23	0.203**	-0.011	0.521***	1.000					
(5) Exploration	0.56	0.50	0.00	1.00	-0.016	0.249*	-0.180*	-0.139†	1.000				
(6) Competitive intensity	0.11	1.00	-1.22	2.38	0.280***	-0.061	0.055	0.128	-0.020	1.000			
(7) Cooperative intensity	-0.01	0.87	-2.87	2.02	-0.028	-0.012	0.151†	0.039	-0.116	-0.027	1.000		
(8) Bridging	0.37	0.24	0.00	1.00	-0.160†	0.011	-0.171*	-0.219**	0.016	-0.159†	0.058	1.000	
(9) MPA performance	3.93	0.49	2.29	5.00	-0.036	0.071	0.199*	0.104*	-0.104	-0.057	0.303***	0.037	1.000

† p<0.1, * p<0.05, ** p<0.01, *** p<0.001; n = 153

6.6.2 Coopetition and Multipartner Alliance Performance

The regression results are reported in Table 13. Model 1 presents the base model and only includes the control variables. I recorded a negative and significant relationship between the degree of MPA exploration and the alliance performance ($b = -0.149$; $p < 0.10$). Model 2 adds the coefficients for cooperative and competitive intensity. Model 3 includes the two-way interaction term between cooperative and competitive intensity in the analysis. Model 4 introduces the bridging activity variable into the analysis. Finally, Model 5 tests both two-way interaction terms (cooperative intensity and bridging; competitive intensity and bridging) and, simultaneously, the three-way interaction term between cooperative intensity, competitive intensity, and bridging ratio. To reduce the risk of multicollinearity, I mean-centered the independent variables before calculating the interaction terms (Aiken and Stephen, 1991).

Hypotheses 1 to 4 relate to the implications of coopetition and competition, as well as their interplay, termed cooperation for MPA performance. The baseline Hypothesis 1 suggests that the interplay between cooperation and competition (coopetition) will be related to the MPA performance. Model 3 ($b = -0.079$) has an almost identical coefficient as Model 4 ($b = -0.078$) at acceptable significance ($p < 0.10$). The interaction term is negative at a low significance level, thus providing some support for the hypothesized relationship between coopetition and MPA performance.

Hypothesis 2 predicts that a higher cooperative intensity increases the MPA performance. Model 2 supports this Hypothesis, showing a strong and positive coefficient ($b = 0.144$) at a highly significant level ($p < 0.01$). This effect remains robust and strongly significant throughout Models 2 to 5. Thus, a higher cooperation between the MPA partners is likely to increase the MPA performance.

Hypothesis 3 suggests that a higher competitive intensity leads to a lower MPA performance. If anything, the coefficient points towards a negative direction; however, none of my models attains statistical significance.

Table 13: Results of Hierarchical Regression Analysis

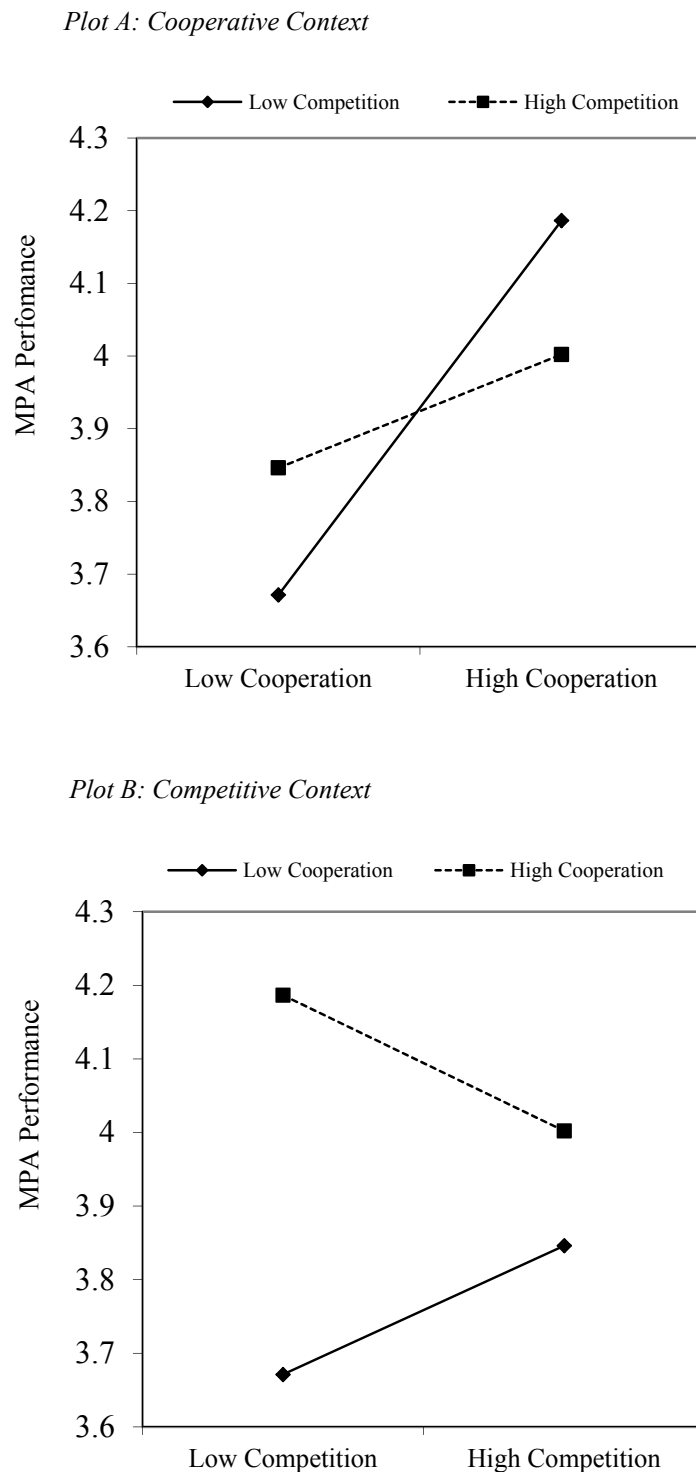
	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Controls</i>					
MPA size	-0.005 (0.009)	-0.004 (0.009)	-0.005 (0.009)	-0.004 (0.009)	-0.002 (0.009)
MPA scope	0.116 (0.093)	0.106 (0.091)	0.096 (0.099)	0.095 (0.0901)	0.077 (0.0883)
Experience (mean/log)	0.071 (0.045)	0.055 (0.045)	0.044 (0.045)	0.046 (0.045)	0.045 (0.044)
Firm size (mean/log)	-0.001 (0.014)	0.002 (0.013)	0.004 (0.013)	0.004 (0.013)	0.004 (0.013)
Exploration	-0.149* (0.082)	-0.118 (0.081)	-0.112 (0.080)	-0.112 (0.080)	-0.132* (0.078)
<i>2-way interaction effect</i>					
Competitive intensity		-0.009 (0.040)	-0.003 (0.040)	-0.001 (0.040)	-0.025 (0.040)
Cooperative intensity		0.144*** (0.045)	0.151*** (0.044)	0.150*** (0.045)	0.122*** (0.045)
Competitive intensity X Cooperative intensity			-0.079* (0.041)	-0.078* (0.041)	-0.054 (0.042)
<i>3-way interaction effect</i>					
Bridging				0.076 (0.164)	0.117 (0.168)
Competitive intensity X Bridging					-0.018 (0.046)
Cooperative intensity X Bridging					-0.134*** (0.051)
Competitive intensity X Cooperative intensity X Bridging					0.131** (0.054)
Constant	3.787*** (0.274)	3.749*** (0.270)	3.761*** (0.267)	3.712*** (0.289)	3.718*** (0.284)
Observations	154	153	153	153	153
R ²	0.0580	0.1230	0.1440	0.1460	0.2080
Adjusted R ²	0.0262	0.0804	0.0968	0.0919	0.1399
Prob > F	0.1115	0.0073	0.0035	0.0061	0.0007

*** p<0.01, ** p<0.05, * p<0.1. Standardized beta coefficients are reported; standard errors in parentheses. I ran the Breusch-Pagan test for heteroskedasticity post-estimation.

To fully explore the interplay between coopetition and the MPA performance, I plotted two-way interactions based on standardized variables for all possible

combinations; that is, of low (one standard deviation below the mean) and high (one standard deviation over the mean) levels of the independent and moderator variables (Aiken and Stephen, 1991). The two-way interaction plots in Figure 16 illustrate the contextualized effects of cooperation and competition on the MPA performance.

Figure 16: Two-Way Interaction of Cooperation, Competition, and Performance



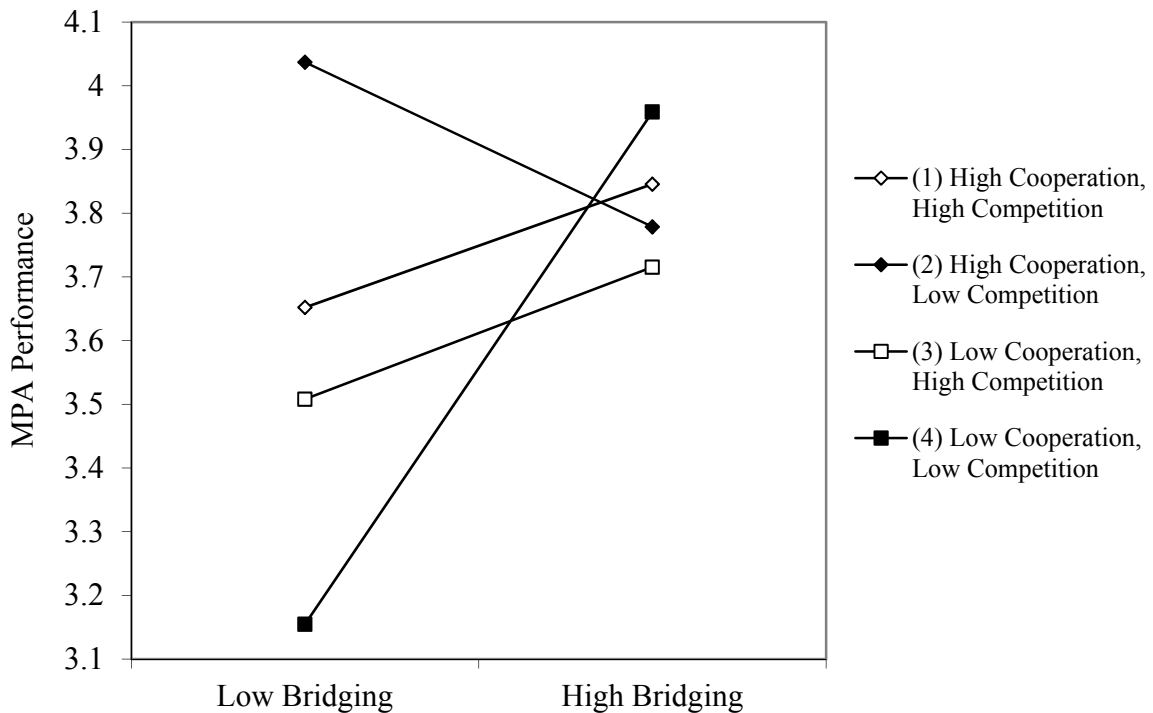
I argued that the effect of cooperation on the MPA performance is contingent upon the varying levels of competition and cooperation. More specifically, Hypotheses 4a states that the MPA performance will increase if the cooperative intensity is high, while, simultaneously, the competitive intensity is low (Plot A).

In turn, Hypothesis 4b asserts that when the level of competition in MPAs is high, a higher cooperative intensity will lead to a lower MPA performance (Plot B). I find support for both hypotheses and the suggested effects in my plots. These results also mirror the hypothesized relationship between cooperation and the MPA performance that is very clear in all the models (Hypothesis 2). An intuitive, yet notable, insight is that the MPA performance is likely to suffer if, simultaneously, the cooperation and competition intensities are low, i.e. if the MPA members are reluctant to interact with each other in any way.

6.6.3 The Role of Strategic Bridging in Multipartner Alliances

In Model 4, I introduced the bridging variable into the analysis. The coefficient is positive, but the result is statistically not significant. In Model 5 I added the two two-way interaction terms (cooperation intensity and bridging; competitive intensity and bridging) and the three-way interaction term (cooperation intensity, competitive intensity, and bridging) to test Hypotheses 5. The results indicate a positive and statistically significant three-way interaction ($b = 0.131$; $p < 0.05$), providing initial support for Hypothesis 5 and suggesting that bridging moderates the relationship between cooperation, competition (coopetition), and MPA performance.

The analysis of simple slopes provided additional information not produced in the full interaction term model. To gain further insights, I followed the procedures developed by Dawson and Richter (2006) for probing three-way interactions. In particular, I plotted the simple slopes for the relationships between public ratio and the MPA performance in terms of each of the four possible combinations of cooperative and competitive intensity, using the conventional values of one standard deviation above and below the mean in Figure 17 (Aiken and Stephen, 1991).

Figure 17: Three-Way Interaction of Cooperation, Bridging, and Performance

I performed a slope difference analysis of the regression lines (Table 14). In particular, I used the pick-a-point approach by testing if the combinations of high and low values of competition and cooperation differ significantly from zero in predicting MPA performance. As suggested by Hypothesis 5_a, the results highlight a positively moderated effect of bridging activity when cooperative intensity and competitive intensity are low. This effect is documented by the significant slope difference tests between slope (4) (low cooperative and low competitive intensity) and all other combinations of cooperative and competitive intensity displayed by slope (1), slope (2), and slope (3). Specifically, the significant difference between slopes (1) and (4) ($p < 0.036$) compares the positive implication of bridging activity for MPA performance when cooperation and competition are low with contexts where both the dimensions are high. Overall, the significant results across all the slopes provide reasonable confidence in the presence of bridging activity's predicted compensatory effects in the absence of (both) the cooperative forces.

Table 14: Slope Difference Analysis of Three-Way Interaction

Pair of slopes	t-value for slope difference	p-value for slope difference
(1) and (2)	1.592	0.114
(1) and (3)	-0.051	0.959
(1) and (4)	-2.114	0.036
(2) and (3)	-1.810	0.072
(2) and (4)	-3.296	0.001
(3) and (4)	-2.123	0.036

Subsequently, in H5_b I hypothesized that the MPA performance will be negatively affected if bridging activity is performed in competitive contexts, irrespective of the cooperative intensity. The slopes point towards quite the opposite direction; however, without a statistically significant result, as indicated by interactions of slopes (1) and (2) ($p < 0.114$) and slopes (2) and (3) ($p < 0.072$). Hence, I find no support for this hypothesis. However, beyond my stated Hypotheses it is noteworthy that the interaction between slopes (3) and (4) provides empirical indication ($p < 0.036$) for my argumentation on knowledge leakage, or (unintentional) knowledge transfer, which the involvement of bridging entities enables in highly competitive MPAs.

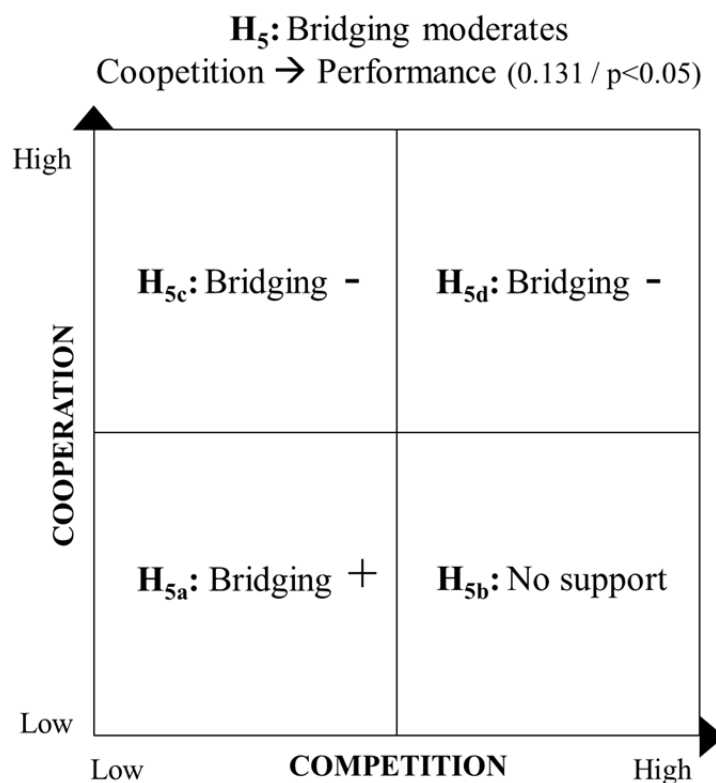
Hypothesis 5_c suggests that strategic bridging has a negative implication for the MPA performance if the cooperation resides on a high level and the competition between the partners is low. I find strong support for this assertion ($p < 0.001$), as shown in the negative gradient of slope (2), which crosses slope (4). I also find support for H5_b that proposed a negative moderation by bridging of the cooperation – MPA performance link when cooperation is high and cooptition is high. This result corresponds to the prior reasoning that bridging involvement may hamper MPAs by imposing additional costs and adding complexity when highly cooperative partnerships are in place.

6.7 Discussion

This study has built on social exchange and transaction cost theories to explore the simultaneous occurrence of cooperation and competition, denoted as the

phenomenon of coopetition, and the moderating role of strategic bridging activity in alliances involving multiple partners. I drew on a sample of 153 MPAs in the field of electric mobility from 2007 until 2014, and collected data in the German-speaking region (Germany, Austria, and Switzerland). I developed a model and multiple hypotheses to empirically test my predictions. In short, my findings reveal the idiosyncratic dynamics produced through the interaction of coopetitive forces, and highlight strategic bridging activity's significant moderating impact on the relationship between the coopetitive forces and the MPA performance. Figure 18 depicts an overview of the study's results regarding the role of bridging activity in moderating the relationship between cooperation, competition, and MPA performance.

Figure 18: Moderating Effect of Bridging on Coopetition and Performance



Taken together, the results of this study have notable implications. First, my findings empirically substantiate coopetition scholars' theoretical argumentation that the co-existence and interplay of cooperation and competition exert a distinct influence on MPA outcomes (Bengtsson and Kock, 2000; Gnyawali and He, 2006; Ketchen, Snow, and Hoover, 2004). My results show that despite the strongly positive effect of

cooperative intensity on MPA performance and the non-significance of competitive intensity, the interactive effect accounting for both forces simultaneously (coopetition) was significantly negative. Competitive intensity's impact was significant in the interaction term, thus overshadowing the strongly positive effect of cooperative intensity on MPA performance. It thus follows that coopetitive dynamics produce performance outcomes, which can deviate substantially from the expected effects if the two forces are examined separately. Further investigation yielded that coopetitive contexts characterized by high cooperation appear to be generally more advantageous for MPA performance if the competitive intensity is low, and less so (if not detrimental) if, simultaneously, the competitive intensity is high. In a broader sense, the findings provide some empirical clarification of our current ambiguous understanding of the link between coopetition and performance. While these results do not permit generalizable conclusions about an optimal blend between cooperation and competition in multipartner collaborations, they provide empirical evidence that MPA performance is contingent upon the interplay of varying degrees of competition and cooperation. Overall, this study shows that a) the performance effects from cooperation and competition are inseparable, and b) that the coopetition manifests itself on two continua, which co-exist and influence performance through their interaction.

Second, I built on social exchange and transaction cost arguments to conceptually argue that bridging activity may help increase overall success in collaborations. While my study cannot underpin assumptions regarding bridging activity's impact on alliance performance in general, it specifically provides evidence for the moderating role that strategic bridging plays between coopetition and MPA performance. According to the studies' results, it appears that strategic bridging activity is most effective when the cooperation and competition intensity is at a low level. This finding is intuitively appealing and yet not trivial. By comparing bridging effects in different contexts, this study suggests that bridging reveals a compensatory effect in contexts in which passiveness and a lack of reciprocation prevail. Further, my findings propose that bridging involvement may be detrimental to alliance performance in specific contexts. This is a somewhat contrasting finding to prior

assertions, which generally advocate bridging activity's positive effects on alliance performance (e.g., Howells, 2006). Specifically, I found that bridging is likely to harm MPA performance when the cooperative contexts are well established and the competition between partners is low. Involving bridging entities in such contexts appears to lead to additional costs and complexity, providing adverse performance effects. Beyond this, this study also highlights the problematic aspect of involving bridging entities in MPAs with partners who are highly inclined towards competition. In MPAs characterized by a high competition between the partners, the involvement of bridging may give rise to an unintentional knowledge transfer, or even leakage, to the detriment of the overall MPA performance (and of some members in particular). This finding corresponds to Park et al.'s (2014) empirical insights suggesting that overly competitive contexts may undermine the benefits of cooperation regarding innovation performance.

Theoretical Contributions

The purpose of this part is to advance our knowledge of the interplay of cooperation and competition in IOS, and to explore the role of strategic bridging organizations in varying cooperative contexts. My insights contribute to the literature in several ways.

First and foremost, this study contributes by complementing prior conceptual studies on cooperation, arguing that firm performance is contingent on the dynamics of cooperation and competition (Gnyawali and Park, 2011). It provides some empirical evidence of the link between cooperation and performance (Walley, 2007) and sheds light on the distinct effects on MPA, which result from the interplay of the varying levels of cooperation and competition (i.e. compensation, overshadowing, or disturbance). This work addresses recent calls for more systematic empirical studies on the "effects of cooperation and different types of cooperative interactions" (Bengtsson *et al.*, 2010: 210; Park, Srivastava, and Gnyawali, 2014) and more effort to understand cooperation in alliances, rather than in individual firms (Ritala, 2012). While our data suggests a negative relationship between cooperation and alliance performance, the

interaction effects must be interpreted with caution. I tested significance at specific values using standard deviation above and below the mean. To gain more depthful insights a further investigation of a potentially U-shaped relationship between coopetition and MPA performance should be explored. This approach would also allow us to at which levels, rather than at which extreme values, coopetition will lead to highest performance.

Second, recent alliance studies emphasize that bridging organizations are important to initiate, orchestrate, stabilize, and enforce trust in multiparty collaborations (e.g., Heidl, Steensma, and Phelps, 2014; Dhanaraj and Parkhe, 2006; Mesquita, 2007; Provan and Kenis, 2008). No empirical study focuses specifically on the contextualized effects of bridging activity and its role in moderating the tensions arising from cooperative forces. My results suggest that studying the role and impact of bridging in varying cooperative contexts is important, as ignoring the context may severely distort conclusions.

Moreover, by highlighting the role of bridging entities as a compensatory mechanism in contexts with low cooperation and willingness to reciprocate, I provide novel insights for research on interfirm exchange. Prior studies have examined coping with low cooperation by introducing contractual (e.g., Poppo and Zhou, 2014), structural (e.g., Reuer, Klijn, and Lioukas, 2014), or relational mechanisms (e.g., Zaheer and Venkatraman, 1995) to overcome cooperation hurdles (i.e. hazards stemming from exchange risks). The current study adds to this debate in the following ways: first, by introducing the concept of strategic bridging, which has hitherto not been applied to business, or to multi-firm contexts. Second, by emphasizing the role of bridging organizations as an alternative means to overcome non-collaborative inertia and facilitate cooperation between multiple partners.

Third, my study draws on coopetition, intermediation, and alliance research to develop a more integrative picture of cooperative dynamics in multipartner constellations. My insights connect and enrich these research streams. On the one hand, this study adds empirical evidence to coopetition research regarding its implications for alliance performance. It thus responds to the call for more empirical investigation of the coopetition phenomenon. On the other hand, my insights add

nance to intermediation studies by taking a more contextual view to understand when bridging is likely to benefit alliance performance, and when it is not. Beyond this, it also contributes to the (multipartner) alliance research thread by informing about the dynamics that are uniquely related to coopetition. Most prior research in this field of inquiry has emphasized a single dimension — cooperation or competition —, with less attention being paid to their interactive effects (Lado, Boyd, and Hanlon, 1997). This study closes this gap by capturing a wider picture that accounts for the varying degrees of cooperation and competition prevalent in MPAs.

Lastly, my research also addresses a central debate in coopetition literature by highlighting the need to study coopetition from a two continua perspective and by viewing cooperation and competition as co-existing dimensions. By clarifying the boundaries and operationalization, I also make a conceptual contribution towards a better understanding of the, as yet, ambiguous coopetition concept, which led to inconsistent findings in prior research.

Practical Implications

This study informs practice, and those involved in MPAs, like firms, public and regional institutions, and project offices, as well as research on when bridging is necessary and creates value, and when it may have a detrimental effect. From a bridging organizations' perspective, my findings provide guidance on how to configure or rebalance the MPA's member composition for higher performance, or when to decrease involvement to make way for well-functioning cooperative MPAs. From a managerial perspective, this study allows a better understanding and management of the paradoxical forces that MPAs often face. Though the management of cooperative forces lies beyond the scope of single individuals or firms, understanding their implications will help organizations cope with the tensions that inevitably occur, i.e. to assess the conditions, when the coopetition strategy is successful, and when it is not. In sum, I can provide managers with confidence that, generally, cooperation in MPAs pays off, but simultaneously caution them that performance might suffer substantially if competition dominates.

Limitations and Future Research

This study has limitations to consider, which introduce important suggestions for future research. First, this study focusses on MPA performance, rather than the performance of its individual members. The encompassing nature of MPAs in this survey-based study precluded the examination of individual firms and suggested measuring performance on the MPA-level instead. However, the evaluation of MPA performance is aggregated across all members and may differ considerably from the performance as the individual entities involved perceive it. A varying appropriation capacity is a critical explanation for this discrepancy (Lavie, 2007; Lavie, Lechner, and Singh, 2007). It seems there is merit in developing a finer-grained performance measure on the organizational level to better understand cooperation's implications for the individual firm level and how these translate into the overall MPA performance. In fact, prior studies note that multi-level analysis is necessary to fully capture cooperative dynamics (Bengtsson *et al.*, 2010), as cooperative processes are interlinked and may impinge upon each other (Park, Srivastava, and Gnyawali, 2014). I agree, and encourage future research to explore cooperative dynamics' interconnectedness on multiple levels.

Second, this study takes limited account of temporal effects that may be associated with bridging activity. While my sample covered an extensive period and surveyed this whole period retrospectively, there may be doubts about my results' robustness at different points of time. A longitudinal research design that extends beyond a single moment in time could be a nuanced addition to this work and uncover other dynamics that remained hidden in this study.

Third, I measured MPA performance based on the responses of my key informants. Given the limited amount of MPAs and their large scope, I had to rely on well-chosen key respondents to assess multipartner performance. The high correlation in the cross-validation, achieved by checking information that one informant provided against that provided by other informants, strengthens the confidence in my results' reliable performance assessment. Capturing a broader assessment of performance and triangulating this with secondary data could strengthen the validity and reliability of the performance measure. Further research may extend this study by examining the

implications of coopetition for non-perceptual performance measures, such as contribution to growth or profitability.

Fourth, there is concern about the generalizability of my results. My sample is based on alliances with a prime focus on R&D activity, which governments partly initiated and support. Despite the good fit with the subject of this investigation, I acknowledge that further research is needed to test for other settings, such as less technology-oriented fields. Hence, methodological and data variation could enhance our understanding of the relationship between coopetition and performance.

Fifth, I conceptualized and measured the involvement of bridging organizations (as a proxy for strategic bridging) by distinguishing between publicly and privately-owned organizations. While my measure accounts for their specific roles and goals, which I aimed to capture in my study, it does not do so in terms of some overlaps of responsibilities between the two types of firms, for example, lead firms (Dhanaraj and Parkhe, 2006). Building on this foundation, future research could develop a more accurate empirical measure and operationalization of strategic bridging. Further, studying additional facets (i.e. including additional internal or external variables) could add to the empirical results' explanatory power.

Finally, my study only takes those firms that have formed MPAs into account. Since firms may differ in their willingness to form an alliance with multiple partners, the inclusion of such firms may have implications for the suggested results. I captured dyadic alliances and compared those to MPAs to alleviate this limitation. This comparison indicated no considerable deviation in terms of my research focus. In closing, the presented limitations notwithstanding, this research made valuable conceptual and empirical advancements in MPA and coopetition research and generated insights for future research.

6.8 Conclusion

March and Simon (1958) argue “where many individual decisions become joint organizational decisions, the potential areas of conflict are substantial” (p.142) for the mutual dependence on limited resources and timing. This observation inside firms

holds also true for MPAs. The struggle that arises from the inherent tension between cooperation and competition when multiple organizations collaborate is an important, yet understudied, field of increasing relevance in management research and management practice. This study has taken a first step to address this shortcoming, while many promising research paths remain. Clearly, managing this tension is at the core of establishing successful alliances between multiple partners. I believe that this study will be valuable to those interested in this phenomenon and will stimulate further research.

7 Overall Discussion and Conclusion

The strategy process field has seen more than five decades of research efforts focused on exploring the origins and trajectories of firm strategies. In the light of industries' increasingly fading boundaries and the growing interconnection of firms across varying business landscapes, strategic interaction across organizations has become essential. The purpose of this dissertation was to illuminate and better understand how strategic dynamics across multiple organizations emerge and evolve.

7.1 Synthesis of the Results

This dissertation builds on three major parts, each of which comprises a stand-alone study that draws on distinct theoretical and methodological approaches. While the three parts were independently conducted, they are interrelated and complement each other through gradually increasing depth and narrowing of the research scope to explore the IOS phenomenon from different angles. The first part provided a preliminary research structure and sounding board for the subsequent research findings. The second part empirically mapped an overarching IOS process model based on qualitative fieldwork that aimed at exploring IOSs holistically. Here, the aim was to provide a comprehensive understanding of the process. Building on the gained insights, the third part delved into a more nuanced investigation to gain insights into the contextual facets and IOS dynamics at play. Hence, together, these parts allow a more complete outline of the IOS phenomenon. Figure 15 presents an overview of the three dissertations parts. In the following, I briefly recapitulate the core findings.

Table 15: Overview of Dissertation Studies

	Part I	Part II	Part III
Research Approach	<ul style="list-style-type: none"> ▪ Review study 	<ul style="list-style-type: none"> ▪ Empirical qualitative study ▪ Inductive theory-building (informed / guided by theory) 	<ul style="list-style-type: none"> ▪ Empirical quantitative study ▪ Deductive theory-testing
Method	<ul style="list-style-type: none"> ▪ Structured review of articles 	<ul style="list-style-type: none"> ▪ Semi-structured interviews ▪ Case studies ▪ Secondary data 	<ul style="list-style-type: none"> ▪ Survey data ▪ Secondary data (Database)
Theory	<ul style="list-style-type: none"> ▪ n/a 	<ul style="list-style-type: none"> ▪ Evolutionary theory 	<ul style="list-style-type: none"> ▪ Social exchange theory (Transaction cost economics)
Research Focus	<ul style="list-style-type: none"> ▪ Strategy process research 	<ul style="list-style-type: none"> ▪ IOSs (in full) 	<ul style="list-style-type: none"> ▪ Coopetition and strategic bridging (in depth)
Research Gaps	<ul style="list-style-type: none"> ▪ Missing IOS definition ▪ Lacking IOS review ▪ Dispersed knowledge on IOS across literatures 	<ul style="list-style-type: none"> ▪ No process model with specific focus on IOSs ▪ Lacking understanding of IOS dynamics 	<ul style="list-style-type: none"> ▪ Underresearched intermediaries role in IOSs ▪ Little knowledge of the implications of coopetition for IOS performance
Guiding Questions	<ul style="list-style-type: none"> ▪ What is our current knowledge of the interorganizational strategy process? ▪ What are the major shortcomings of interorganizational strategy process research? ▪ How do interorganizational strategic initiatives differ from those inside firms and how do multiple partners manage them? 	<ul style="list-style-type: none"> ▪ How does the interorganizational strategy process emerge and evolve? ▪ What are the key activities and dynamics at play and how do they relate or differ from intraorganizational processes? 	<ul style="list-style-type: none"> ▪ Does intermediation impinge upon interorganizational collaboration between multiple partners? If so, what context-specific effects on performance exist?
Main Objectives	<ul style="list-style-type: none"> ▪ Conceptualization of strategy and process ▪ Systematic review of IOS literature ▪ Receive guidance from existing knowledge of strategy process models 	<ul style="list-style-type: none"> ▪ Empirically grounded framework of complete IOS ▪ Compare and embed findings in existing corpus of knowledge ▪ Outline the major strategic dynamics at play 	<ul style="list-style-type: none"> ▪ Operationalize and test developed concepts ▪ Explore the role of strategic bridging in resolving tension from coopetition
Contributions	<ul style="list-style-type: none"> ▪ Definition of IOS ▪ Synthesis of literature on IOS and overview of major strategic process models and dynamics ▪ Definition of multipartner initiatives 	<p><i>Strategy process research:</i></p> <ul style="list-style-type: none"> ▪ Extends intraorganizational strategy process research by more inclusive perspective ▪ Complements evolutionary strategy process models with a negotiative conceptualization of the IOS process <p><i>Managerial practice:</i></p> <ul style="list-style-type: none"> ▪ Insights into effective management or intervention in extensive IOS processes and multipartner initiatives 	<p><i>Strategy process research:</i></p> <ul style="list-style-type: none"> ▪ Evidence of the significance of external context for the strategy process <p><i>Coopetition research:</i></p> <ul style="list-style-type: none"> ▪ Reinforces existence of link between coopetition and performance ▪ Reveals distinct effects of strategic bridging ▪ Clarifies boundaries and operationalization <p><i>Managerial practice:</i></p> <ul style="list-style-type: none"> ▪ Insights into management of tensions in IOSs and multipartner initiatives

7.1.1 Conceptualization and Review

The first part, reviewed the multiple literature threads to lay the groundwork for further investigation of the IOS process. The absence of a clear definition and conceptualization of IOSs, but also a lacking overview of our current knowledge of IOSs, motivated this review. It contributed to our knowledge in a twofold manner: first, by developing an IOS definition that builds on previous strategic management research. Second, by drawing the currently dispersed knowledge of IOSs together, I could provide initial insights into IOS process dynamics, which helped guide my subsequent research.

This review study started with a conceptual delineation of the terms strategy, process, strategic initiative, as the major unit of analysis. Based on this, the key strategic dynamics from intra- and interorganizational strategy process research were organized into five distinct phases. By synthesizing the most prominent strategy process frameworks, this part provides initial guidance for IOS research and reveals research opportunities for future studies.

7.1.2 The IOS Process

The second part was guided by the question ‘how does an IOS emerge and evolve across organizational boundaries?’ The study fills an important void in current management literature by developing an empirically grounded model that specifically focusses on IOSs. Although various literature streams have touched upon single facets — of the IOS process or its dynamics —, no prior studies have specifically mapped IOSs holistically in the tradition of intraorganizational strategy process research. By providing empirical evidence and argumentation for a more inclusive conceptualization of the strategy process, this study fills the gap. It thus extends current research by accounting for (structural and strategic) firm-external contexts (Bower and Gilbert, 2005). Based on insights from two distinct ecologies and data from 45 interviews and interview-based cases, a model was conceptualized that maps an IOS as a multilayered and iterative process that evolves gradually along three distinct phases.

This study's findings reveal that negotiation forms a centerpiece IOS, which allows divergent strategies to co-align towards a coherent and implementable strategic activity. The study thereby develops the notion that IOSs, instead of being ad-hoc defined, top-down induced, or bottom-up championed (Ansoff, 1965; Bower, 1970; Mintzberg, 1978), must be continuously (re-)negotiated to form a bridge between the diverging strategic directions towards coherent action. Moreover, this study uncovered that this initial unstructuredness and absence of organizational contexts (i.e. structural and strategic) caused the formation of substitutional arenas acting as an institutional grid that allows strategic interaction.

Further, the study aimed at increasing our understanding of strategic dynamics that span the boundaries of a single firm. By re-drawing and extending the scope to account for strategic interaction between multiple entities, this study spotlights the significant strategic impetus external to a firm. Specifically, it highlights the external actors' key compensatory function when internal triggering mechanisms are impaired. Moreover, third parties seem to play an instrumental role in bridging gaps to overcome strategic discrepancies, which pose a serious challenge to any multipartner collaboration. Finally, the cyclical implementation of partitioned strategic subsystems appears to account for competitive pressures and the complexness inherent in IOSs to facilitate their implementation.

7.1.3 Strategic Bridging and Coopetition

The third part starts off with two crucial insights into multipartner collaboration from the previous study: first, there is tension that arises from the simultaneous presence and interplay of cooperative and competitive forces (coopetition). Second, the salient role that strategic bridging activity plays in an IOS may help overcome such tension. This study was motivated by our lack of knowledge of when collaborating with competitors is beneficial and when not. Building on a survey with a sample of 153 multipartner collaborations, I undertook a quantitative empirical study to substantiate the role of intermediaries and to explore the notion, which various coopetition scholars developed, that collaborative performance is contingent upon the

varying intensities of cooperation and competition (Brandenburger, 1996; Bengtsson and Kock, 2000; Park, Srivastava, and Gnyawali, 2014). Table 16 summarizes the empirical findings of this study.

Table 16: Overview of Empirical Findings (Part II)

Hypotheses	Predicted Effect	Result
H1	The interplay between cooperation and competition — that is, the level of cooperation — will be significantly related to multipartner alliance performance.	Supported
H2	A higher cooperative intensity (high cooperation context) will lead to a higher multipartner alliance performance than a lower cooperative intensity (low cooperation context).	Supported
H3	A higher competitive intensity (high competition context) will lead to more opportunistic behavior, and, thus, lower multipartner alliance performance than a lower competitive intensity (low competition context).	Not supported
H4 _a	In a high cooperation context, a lower competitive intensity will lead to a higher multipartner alliance performance than a higher competitive intensity.	Supported
H4 _b	In a high competition context, a higher cooperative intensity will lead to a lower multipartner alliance performance than a lower cooperative intensity.	Supported
H5	Strategic bridging moderates the relationship between cooperation and competition (coopetition) and MPA performance.	Supported
H5 _a	Strategic bridging positively moderates the relationship between coopetition and MPA performance when the cooperative and competitive intensities are low (low-low coopetition context).	Supported
H5 _b	Strategic bridging negatively moderates the relationship between coopetition and MPA performance when the competitive intensity is high, irrespective of the cooperative intensity (low-high, high-high coopetition contexts).	Not supported
H5 _c	Strategic bridging negatively moderates the relationship between coopetition and MPA performance when the cooperative intensity is high, but the competitive intensity is low (high-low coopetition context).	Supported
H5 _d	Strategic bridging negatively moderates the relationship between coopetition and MPA performance when the cooperative intensity is high and competitive intensity is high at the same time (high-high coopetition context).	Supported

Guided by social exchange and transaction cost reasoning, I developed a framework and found support for the hypothesized relationship between collaborative performance and the interplay between cooperative and competitive forces. A major finding of this study is that competitive interaction effects produce performance

outcomes that can deviate substantially from these effects if the cooperative and competitive forces are examined separately. This finding revealed that the benefits of highly cooperative contexts may be overshadowed when partners behave overly competitive at the same time. In fact, this study's empirical evidence and the theoretical argumentation run somewhat counter the general assertion that firms benefit from increasing cooperation (e.g. Brandenburger, 1996; Rai, 2013). My findings indicate that simultaneously high levels of cooperation and competition are less advantageous, if not detrimental, to collaborative performance. Instead, in highly cooperative contexts that maintain a moderate level of competition, cooperation is positively associated with performance in collaborations.

Moreover, the second part of this dissertation suggested that strategic bridging plays a critical role in IOSs. The quantitative study tested and corroborated this proposition, showing that strategic bridging activity is most effective when the cooperation and competition intensity is at a low level. This finding hints at strategic bridging providing a compensatory effect in contexts in which passiveness and a lack of reciprocation prevail. By revealing the context-specific effects of strategic bridging on performance, these results extend prior research that have generally advocated that bridging activity has positive effects on alliance performance (Howells, 2006).

7.2 Contributions to Theory

This section demarcates the dissertation's core contributions. The three studies offer the strategic management field several theoretical implications. The following outlines the key contributions to the strategy process and cooperation literatures, as well as evolutionary approaches in strategy research.

7.2.1 Expanding Scope of Strategy Process Research

This dissertation takes a more inclusive view of strategy by illuminating the process and dynamics of interorganizational strategic interaction. Most prior studies on the strategy process have limited their research scope to a single firm's boundaries. Those that included interorganizational considerations lack process insights by often

taking an overly aggregated perspective. This dissertation combines the interorganizational perspective with a processual view in the tradition of intrafirm strategy research (Pettigrew, 1992) to complement and connects both streams. It thereby responds to the call for more a more inclusive strategy conceptualization (Whittington, Caillaet, and Yakis-Douglas, 2011) that recognizes the role of firm-external strategic contexts (Bower and Gilbert, 2005) and reflects recent organizational trends towards more collaborative designs (e.g., Fjeldstad *et al.*, 2012; Gulati, Puranam, and Tushman, 2012).

Intrafirm strategy making has been conceptualized as a linear top-down induced, middle manager driven, or bottom-up initiated strategic process. In contrast, this study finds that, instead, strategies across organizations follow evolutionary cycles (Doz, 1996b) by conceptualizing an IOS process that is critically shaped through negotiation and proceeds along an iterative and cyclical trajectory. My study extended this line of research through social exchange theorizing to gain new insights into the key dynamics of strategic processes (Burgelman and Grove, 2007) and their effective management in multipartner collaborations.

Finally, this dissertation enriches the evolutionary view of strategy process research. Particularly, it underlines the explanatory value of evolutionary approaches in the strategy process research in general and in the interorganizational strategy making phenomena in particular. The evolutionary lens is a predominant approach to understand patterns of strategy formation and evolution in intrafirm strategy process research (e.g., Burgelman, 1991; Canales, 2015; Lovas and Ghoshal, 2000). This dissertation complements this research by anchoring the empirically derived IOS mechanisms in evolutionary theory. It does so by highlighting evolutionary dynamics throughout the IOS phases, but also by drawing parallels to intrafirm dynamics that we know from previous research.

7.2.2 Introducing Novel Concepts to Strategy Process Research

First, the empirical findings of this dissertation have shown that the simultaneous occurrence of cooperation and competition in IOS poses a major challenge with significant implications for collaborative performance. While

coopetition is conceptually precluded in intrafirm strategy research, it needs more attention on interorganizational research grounds.

Beyond arguing for the relevance of the coopetition concept in strategy research, this dissertation contributes to coopetition research itself. On the one hand, by clarifying the boundaries and operationalization, a conceptual contribution is made towards a better understanding of an, as yet, ambiguous coopetition concept. On the other hand, it contributes by enforcing the coopetition-performance link, which has, thus far, lacked empirical corroboration (Walley, 2007). In sum, this work addresses recent calls for more systematic empirical studies on the “effects of coopetition and different types of competitive interactions” (Bengtsson *et al.*, 2010: 210) and the management of their inherent tensions (Park, Srivastava, and Gnyawali, 2014). It does so by adding nuance to the context-specific implications for collaborative performance and by exploring the concept of strategic bridging.

Second, this dissertation similarly introduces the concept of strategic bridging to strategy process research and scrutinizes it empirically. It shows that strategic bridging is salient and relevant in initiatives where strategy spans organizational boundaries. Moreover, tying it to coopetition theory allowed for a more contextualized view, which yielded some practical value implications. Along this path, this work broadens the strategy making arena by underscoring the need to include public actors in strategic rationales, thus indicating a potentially fruitful path towards public theory. These findings correspond to a more recent debate that attributes a more strategic importance to external intermediary actors (Heidl, Steensma, and Phelps, 2014; Lazzarini, 2015; Mesquita, 2007).

7.2.3 Interfirm Perspective on Strategic Initiatives

Building on strategic initiatives as units of analysis, this dissertation contributes to this field of research. In strategic initiative research, the intra-firm locus is a common denominator. To accommodate the IOS phenomenon, my research extends the traditional, intrafirm locus of initiatives. It thereby also responds to recent calls for research to focus stronger on strategic initiatives that cut across single-firm boundaries

(Bryson and Bromiley, 1993; Lechner, 2010; Wielemaker, 2003). Building on extant conceptualizations of firm-bound strategic initiatives, this study develops a first definition of multipartner initiatives. My research setting demonstrates the challenges and boundaries of multipartner initiatives, while the empirical studies provide valuable insight into their management. In particular, my findings show that multipartner initiatives critically need arenas and institutional grids in order to develop in a structured manner. In addition, empirical examples illustrate how multipartner initiatives are managed in sub-systems.

7.3 Managerial Implications

The results of this dissertation have important implications for managers involved in multipartner alliances and consortia, but also for executives who operate in increasingly collaborative contexts, such as platforms, meta-organizations, ecosystems, and open innovation designs. This work synthesizes and translates the knowledge collected from fieldwork and empirical studies over a considerable time. The high response and feedback I received when conducting my fieldwork bolster the relevance of my insights for the practice. The studies provide insights into the nature of complex innovation in the emerging eMobility field and have several managerial implications.

This study informs managers about the key dynamics in interorganizational strategic interaction. While managers may find that understanding the course of IOSs is informative, knowing where it is critically shaped and how intervention is possible is important.

In terms of the three outlined IOS phases, a first finding is that various forces may inhibit the comprehensive nature of IOSs. Consequently, managers should realize that strategic impetus may come from outside rather than from intrafirm actors. Managers should therefore prepare for an ongoing IOS negotiation, which is not formed by a ‘masterstroke,’ but rather through recurrent activity that develops overarching goals, matches interests, and requires cautious measures to stabilize it and to ensure an efficient implementation.

Managing the tensions that arise when multiple partners' strategic interests collide is at the core of establishing successful collaborations. This dissertation advises rethinking the role of intermediaries and acknowledging their potential importance for enhancing the strategic coherence in collaborative organizational designs. More specifically, it provides guidance on when an intermediary's strategic bridging activity might contribute to higher performance. At the same time, it sheds light on the contexts, which may impose higher costs and complexity, or give rise to an unintentional knowledge leakage, leading to adverse performance effects.

Multipartner collaboration requires the challenging juggling of cooperation and competition. Understanding the effects of varying levels of cooperation and competition is crucial to avoid imbalances that lead to suboptimal performance. This dissertation thus provides some guidance for balancing these opposing forces and, in particular, for working towards a modest competitive context that does not undermine the benefits that cooperation creates. Recommending an optimal blend, however, was not my intent, if that is possible at all. More generally, this work underlines that, within collaborations, the trade-off between cooperative and competitive intensities must be cautiously managed to reap cooperative rents.

7.4 Final Conclusion

Overall, by addressing the formulated research gaps this Ph.D. thesis allowed enhancing and advancing previous research. Equally, some valuable findings that contradict previous research emerged, which led to their critical discussion. To some extent, I believe the paradoxes can be resolved by exploring the empirical implications for firm performance, rather than the overall collaborative performance. For instance, firms with a high appropriation capacity might benefit particularly from cooperation in high competition contexts (Hamel, 1991). To bolster the results of my studies, a logical step would be to consider multiple levels of analysis that incorporate firm and interfirm performance. Studying strategic interaction on multiple levels could also unravel how, and if at all, IOSs are rationalized and reconciled inside firms. This dissertation takes a snapshot and delves into a specific IOS aspect. Future research

could therefore benefit from more granular research that builds on these insights to better understand the IOS process and the distinct dynamics at play.

According to March and Simon (1958) the “distinction between the internal and external relations for an organization is frequently a cloudy one” (p.152). I found that the same holds true for the process of strategy making and thus set out to disperse some of these clouds by illuminating the *process of interorganizational strategy making*.

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Appendices

Appendix 1: Literature Review of Selected Strategy Process Research	191
Appendix 2: Overview of eMobility Initiatives in the BW Ecology.....	203
Appendix 3: Overview of eMobility Initiatives in the BA Ecology.....	205
Appendix 4: Interview Guide	208
Appendix 5: Online Survey Platform (Qualtrics).....	209
Appendix 6: MPA Questionnaire	210
Appendix 7: Interviewees Recruitment Letter (via Intranet and Newsletter).....	215
Appendix 8: Validation Questionnaire	216
Appendix 9: Codebook	217

Appendix 1: Literature Review of Selected Strategy Process Research

Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Astley (1984)	Collective strategies	Conceptual / Population	<ul style="list-style-type: none"> ▪ Managing organization-environment relations through collective strategies ▪ Collective strategies build on negotiation to create order among organizations ▪ Need for a negotiated order in which organizations take the purposes of other organizations into account ▪ Organizational environments are socially constructed by managers formulating collective strategies with 	Environmental turbulence Interdependence
Astley and Fombrun (1983)	Collective strategies	Conceptual / Population	<ul style="list-style-type: none"> ▪ Collective strategies as organizations' systemic adaptation to absorb the variation in interorganizational environment and to control unpredictable environments ▪ Interdependence and direct/indirect association are key determinants 	Environmental turbulence
Baer, Dirks and Nickerson (2013)	Strategic problem formulation	Qualitative / Firm	<ul style="list-style-type: none"> ▪ On the whole, the members of the team possess sufficient information and knowledge to span the space of the problem (collaboratively structured inquiry) 	Extant impediments constrain and limit problem formulation
Barnett, Mischke and Ocasio (2000)	Evolution of collective strategies	Quantitative / Population	<ul style="list-style-type: none"> ▪ Matching process forms collective action ▪ Collective action occurs contagiously ▪ Resource dependence motivates stakeholders to formalize relations ▪ Creation of structure through high resource dependence 	Contagion; Organizational problem search
Bourgeois and Brodwin (1984)	Strategy implementation	Conceptual / Review	<ul style="list-style-type: none"> ▪ Five distinct approaches 1) centralized direction according to a plan with defined objectives (commander); 2) the use of organizational structure, incentive compensation, control systems to facilitate the execution of a strategy (change); 3) strategy as a group decision and a negotiated outcome (collaborative), 4) lower levels are involved in strategic interaction and shape strategic direction (cultural); 5) managers' motivation to develop new opportunities and grow (creatively) 	

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Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Bower (1970)	Strategy formation	Qualitative / Firm	<ul style="list-style-type: none"> ▪ Official strategic planning has less impact on the actual strategy formation than expected ▪ Driving force behind initiation of strategy are managers from operative management levels ▪ Strategy manifests itself in the allocation of resources ▪ Strategy process can be divided into three phases: Definition phase, impetus phase, approval phase ▪ Process involves formal and informal political negotiations ▪ Bottom-up-driven initiatives compete for scarce corporate resources and top management's attention. 	Strategy and resource allocation process
Bresser and Harl (1986)	Dysfunctions of collective strategies	Conceptual / Population	<ul style="list-style-type: none"> ▪ Collective strategies represent a search for predicability and stability ▪ Collective strategies may be intended or unintended ▪ Collective strategies increase firms' degree of contractual interconnectedness and thereby decrease decision-making uncertainty and strategic flexibility 	Decision-making uncertainty; Environmental movement
Bryson and Bromiley (1993)	Project management	Quantitative / Project	<ul style="list-style-type: none"> ▪ Strategic context is implemented via managers' direct activities ▪ Both process and contextual variables have outcome effects ▪ Value of strategic planning resides in the process rather than the plan itself ▪ Contexts which hold the highest potential for success have the following characteristics: (a) Stable political and economic environment; (b) experienced personnel; (c) high priority and awareness of affected groups; (e) no excessive time available (f) presence of affected groups not part of stable prior coalitions 	Success factors of projects
Burgelman (1983)	Corporate entrepreneurship and autonomous initiatives	Qualitative / Firm	<ul style="list-style-type: none"> ▪ Corporate entrepreneurship drivers are autonomous strategic initiatives of individuals at the operational level ▪ Middle managers play a key role in the strategy making process ▪ In contrast, the corporate management's role in the ICV process seems to be limited to the retroactive rationalization of autonomous strategic initiatives that have been selected by the external environment at the market level and the internal corporate environment ▪ Process dynamics: Championing, linking process, retroactive rationalization, structuring, selecting, and autonomous activity 	Definition, impetus, strategic context, structural context

(continued)

Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Burgelman (1991)	Intraorganizational ecological perspective on strategy making	Qualitative / Firm	<ul style="list-style-type: none"> ▪ Internal Selection: Administrative mechanisms include, among others, strategic planning and control systems, approaches to measuring and rewarding managers, and rules governing resource allocation. Cultural mechanisms include, among others, socialization rituals and behavioral norms (do's and don'ts). Different forms of structural context provide more or less tight coupling between the organizational strategy and managers' strategic initiatives at various levels ▪ Retention: Strategy incorporates substantive rules and prescriptions that refer to the technical/economic and cultural factors that guide organizational-level strategic action and induce 	Intraorganizational ecological perspective on strategy making
Chaffee (1985)	Strategy models	Conceptual / Firm	<ul style="list-style-type: none"> ▪ Linear Strategy: "determination of the basic long-term goals of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals" (Chandler, 1962) ▪ Adaptive Strategy: definition concerned with the development of a viable match between the opportunities and risks present in the external environment and the organization's capabilities and resources for exploiting those opportunities" (Hofer, 1973, p. 3) ▪ Interpretative Strategy: Orienting metaphors constructed for the purpose of conceptualizing and guiding 	Linear, adaptive, interpretive strategies
Chakravarthy and Doz (1992)	Strategic adaptation and renewal	Conceptual	<ul style="list-style-type: none"> ▪ Administrative systems: organizational structures, planning, control, incentives, HR, and value systems ▪ The strategy process within a firm drives adaptation and self-renewal 	
Clarke and Fuller (2010)	Collaborative strategic management	Qualitative / Multi-organizational cross-sector social partnerships	<ul style="list-style-type: none"> ▪ Investigation of the meta-level may fail to capture all that is relevant; an appreciation of individual firm-level processes is critical, i.e. context/partnership formation, collaborative strategic plan formulation, deliberate vs. emergent strategy, and implementation in partnerships and individual organizations 	Task complexity

(continued)

Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Dess, Lumpkin and Covin (1997)	Entrepreneurial strategy making	Quantitative / Firm	<ul style="list-style-type: none"> ▪ Entrepreneurial strategy making is characterized by experimentation, innovativeness, risk taking, and proactive assertiveness 	Fast-paced competitive environments; Interdependence; Volatility; Knowledge-based competition
Dollinger (1990)	Collective strategies in fragmented markets	Conceptual / Population	<ul style="list-style-type: none"> ▪ Collective strategies appear to proceed through stages: first stage is pairwise interaction; second stage is repetition and aggregation; third stage is cluster formation; and fourth stage is emergence of collective strategy 	Munificence; Dynamism; Complexity
Dougherty and Dunne (2011)	Organizing complex innovation processes	Conceptual / Population	<ul style="list-style-type: none"> ▪ Knowledge creation is dispersed and needs to be embraced across the entire system for the value creation of complex innovations ▪ Continuous problem formulation and problem-solving activities ▪ Building ecology-wide capabilities ▪ Standard setting to achieve common ground ▪ Public policies to enable collaboration, i.e. resolve ambiguity, access public knowledge, finance extensive infrastructure, and set rules of game 	Knowledge to innovate is dispersed across ecologies; Products/Services are complex
Doz, Olk and Ring (2000)	Evolutionary process of network formation	Quantitative / Interfirm	<ul style="list-style-type: none"> ▪ Structures manifest over time (e.g., limits to membership) to prevent opportunistic behavior ▪ Development of shared interests fosters economic and social-psychological investments that stabilize and sustain relationships ▪ Collaboration is an either emergent or an engineered process ▪ Externally initiating entities are more critical in the early phases of network formation. 	Environmental interdependence; Similar interests;
Dyer and Singh (1998)	Relational advantage	Conceptual / Interfirm	<ul style="list-style-type: none"> ▪ A firm's critical resources may span firm boundaries and may be embedded in interfirm routines and processes ▪ Four potential sources of interorganizational competitive advantage: <ul style="list-style-type: none"> ▪ Relation-specific assets (safeguards, volume of transactions) ▪ Knowledge-sharing routines (absorptive capacity, incentives) ▪ Complementary resources and capabilities (fit) ▪ Effective governance (self-enforcing vs. third-party) 	Seeking for sources of competitive advantage; Resource scarcity

(continued)

Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Eisenhardt (1989)	Fast decision making in high velocity environments	Qualitative / Firm	<ul style="list-style-type: none"> ▪ Emotion is critical for understanding strategic decision making ▪ Real-time information, which gives executives intimate knowledge of their business, may speed decision making, but planning, which attempts to predict the future, does not ▪ Conflict resolution capacity increases decision speed 	Real-time information, simultaneous alternatives, consensus, decision integration
Farjoun (2002)	Organic model of the strategic management process	Conceptual / Firm	<ul style="list-style-type: none"> ▪ Mechanistic: conceptual, explanatory, and prescriptive models that are unified by the Newtonian mechanistic logic ▪ Organic: ideas adopt a dynamic concept of time that emphasizes integrated views of strategy phenomena and concepts. Concepts and relationships are part of continuous processes and iterated sequences, and entities are created rather than given ▪ Strategy and actions are an adaptive coordination 	
Grandori (1984)	Strategy making process	Conceptual / Firm	<ul style="list-style-type: none"> ▪ Selection of organizational decision strategies is based on uncertainty and conflict of interest (i.e. cybernetic strategy, incremental strategy, heuristic strategy, and optimizing strategy) ▪ Satisficing applied as a particular case of heuristic decision making 	Uncertainty in environment
Gray (1985)	Facilitative conditions of collaborations	Conceptual / Network	<ul style="list-style-type: none"> ▪ Necessary conditions for collaboration is acknowledgement of interdependence and legitimacy of stakeholders ▪ Joint information search necessary to develop shared directions ▪ Dispersed power enhances collaboration ▪ Premature structure in collaborations can be adverse ▪ Structured collaboration: problem-setting, direction-setting and structuring 	Invisible problems bigger than single organizations; Complex problems
Gulati, Nohria and Zaheer (2000)	Relational strategy	Conceptual / Network	<ul style="list-style-type: none"> ▪ Firms joining strategic networks may benefit from access to information, resources, markets, technologies, and risk sharing ▪ Integrating strategic networks is necessary to gain a comprehensive understanding of firm behavior and performance ▪ Strategic dynamics: Structural network characteristics, positioning, network resources ▪ Lock-in and lock-out effects (due to capacity or contract) ▪ Learning races 	Competitive advantage

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Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Hart and Banbury (1994)	Integrative framework of strategy process	Conceptual / Firm	<ul style="list-style-type: none"> ▪ Five process modes: "command-mode" classical model, where a small top management team outlines strategy to follow. The "symbolic mode" guides through a vision that is formulated by a visionary leader, who sets guiding principles for the alignment of organizational initiatives. The "rational mode" follows an analytical and highly formalized style. The "transactive mode" builds on learning processes that guide strategic thinking and acting. Management seeks to provide an infrastructure to facilitate learning processes. The "generative mode" views top management as a sponsor that selects projects and supports the most promising entrepreneurial initiatives 	Command, symbolic, rational, transactive, and generative
Hamel (1991)	Interpartner learning	Qualitative / Firm	<ul style="list-style-type: none"> ▪ Collaborative strategy does not only mean quasi-internalization of skills, but also acquiring skills through a race to learn 	
Hillman and Hitt (1999)	Corporate political strategies	Conceptual	<ul style="list-style-type: none"> ▪ Three types of generic political strategies: 1) information building; 2) financial incentives; and 3) constituency building 	Impact of government
Huff, Huff and Thomas (1992)	Strategic renewal	Conceptual / Firm	<ul style="list-style-type: none"> ▪ Interaction of stress and inertia may predict the emergence and evolution of strategic efforts over time 	
Huxham (1993)	Collaborative advantage and shared meta-strategy	Qualitative / Interfirm	<ul style="list-style-type: none"> ▪ No jointly owned strategy as members cannot verbalize strategy and no deliberate process of joint strategy development is visible ▪ Sense of common aims develops over time through iterated projects ▪ Collaborators have a natural desire for a meta-mission or meta-objective, allowing setting precise goals, delegate work, assess efficiencies, and discourage competitive behavior. However, discrepancies may occur that promote conflict ▪ The less detailed the meta-strategy, the less need for centralized control ▪ To be effective, meta-strategies must be monitored 	Social problems

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Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Inkpen and Choudhury (1995)	Absence of strategy	Conceptual / Firm	<ul style="list-style-type: none"> Strategy can be absent and there can be virtue and utility in this absence, i.e. failure, transition phases, purposeful choice of no strategy 	Failure, transition, or virtue
Kaplan and Orlikowski (2012)	Temporal work in strategy making	Qualitative / Project	<ul style="list-style-type: none"> Linking interpretations of the past, present, and future allows for constructing a strategic account that enables concrete strategic choice and action Forward-oriented strategies are only possible by incorporating present concerns and historical trajectories Negotiating and resolving tensions among different understandings in past and present necessary 	Uncertain future and challenges of breakdowns
Klingebiel and de Meyer (2012)	Decision making under uncertainty	Qualitative / Initiative	<ul style="list-style-type: none"> Managers adopt preconceived strategic courses of action in response to uncertainty Awareness of future events that are recognized when still perceived as uncertain can trigger a more structured and sophisticated decision-making process 	Uncertainty during the implementation of strategic initiatives
Lindblom (1959)	Decision making	Conceptual / Firm	<ul style="list-style-type: none"> Among other obstacles, we lack sufficient knowledge to understand complex social problems, but also time and money for fully rational strategies Therefore, strategies of "muddling through" are employed for decisions regarding a narrow choice portfolio that rely on previous 	Limited availability of information and limited cognitive capacity
Lovas and Ghoshal (2000)	Evolutionary and ecological process	Qualitative / Firm	<ul style="list-style-type: none"> Guiding, rather than formulating, role of top management in shaping the direction and outcomes Human and social capital are critical selection mechanisms within strategy process 	Limited top-management capacity
Markozy (2001)	Consensus formation	Quantitative / Firm	<ul style="list-style-type: none"> Strategic change occurs through increasing strength or scope of consensus The locus of consensus does not necessarily need to be in the top management, but in the involved interest groups 	Need to develop a general level of agreement
McGee and Dowling (1995)	Impact of cooperative behavior on performance	Quantitative / Interfirm	<ul style="list-style-type: none"> Those firms with experienced managers benefit more from cooperative strategies, because experienced managers better understand what they can learn or lose from cooperation, they are better positioned to take advantage 	Need to choose a type of strategy: cooperative or competitive

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Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
McGrath, MacMillan and Venkataraman (1995)	Antecedents (building) of competence	Quantitative / Project	<ul style="list-style-type: none"> ▪ New competencies can only be developed to gain competitive advantage if the team understand the causal relationships (comprehension) and based on that is able to develop efficient interaction patterns (deftness) 	Need for competence
McGrath (2001)	Project success determinants	Quantitative / Project	<ul style="list-style-type: none"> ▪ No single individual in a group needs to understand how the entire system works to find an adaptive response as a group ▪ Goal autonomy with respect to goals and supervision produced higher results in projects ▪ Group mind to explain how individuals can act interdependently and heedfully to produce reliable results 	Increasing complexity and high-velocity change
Miller (1987)	Modes of strategy making	Quantitative / Firm	<ul style="list-style-type: none"> ▪ Most frequently occurring strategy making modes are rationality, interaction, and assertiveness ▪ Rationality consists of the systematic, formal planning mode of strategy making ▪ Interaction involves political, bargaining, and consensusbuilding activities ▪ Assertive-strategy making suggests a proactive, risk-seeking orientation 	Environmental requirements
Miller and Friesen (1978)	Archetypes of strategy making	Conceptual / Firm	<ul style="list-style-type: none"> ▪ More successful archetypes were: adaptive firm (in challenging environments), dominant firm, giant under fire, entrepreneurial conglomerate, and innovator ▪ Less successful archetypes include: impulsive firm, stagnant bureaucracy, headless giant, the aftermath 	Organizational and environmental context
Miller and Friesen (1983)	Strategy and environment link	Quantitative / Firm	<ul style="list-style-type: none"> ▪ Beside the alignment of the environment and the structure, or strategy and structure - strategy making and environment (third link) must be managed 	Environmental dynamism and hostility
Mintzberg (1973)	Modes of strategy making	Conceptual	<ul style="list-style-type: none"> ▪ Strategy making modes - entrepreneurial, adaptive, and planning modes of strategy making, later adding a bargaining mode: "Planning mode suggests strategy making via formal analysis, the adaptive mode involves adjusting strategies to meet stakeholder concerns, and the bargaining mode represents a political process among decision-makers with conflicting goals. The entrepreneurial mode refers to opportunity seeking, risk taking and decisive action catalyzed by a strong leader." 	Organizational and environmental context

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Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Mintzberg and Waters (1982)	Strategy Formation	Qualitative / Firm	<ul style="list-style-type: none"> Besides a planned and formulated strategy, it may form entrepreneurially where the controlled boldness of an entrepreneurial manager sets the strategy and the structure follows 	Unpredictability of future
Mintzberg and McHugh (1985)	Strategy formation	Qualitative / Firm	<ul style="list-style-type: none"> No "one best way" of strategy formation The process of strategy formation can be overmanaged; sometimes it is more important to let patterns emerge than to prematurely force an artificial consistency on an organization Strategies can take root wherever people have the capacity to learn and the resources are available Strategic patterns may spread by collective action New strategies tend to occur during distinct periods of divergence that punctuate distinct periods of convergence of established 	Operation of firms in adhocracies
Mintzberg (1987)	Strategy process	Conceptual	<ul style="list-style-type: none"> Strategies can be conceptualized as a plan, position, ploy, perspective, and pattern (see introductory chapter) 	
Mintzberg and Westley (1992)	Organizational change	Conceptual	<ul style="list-style-type: none"> Three modes of strategic change: enclaving, uprooting, cloning 	
Noda and Bower (1996)	Strategy process	Qualitative / Firm	<ul style="list-style-type: none"> Effective strategies emerge step by step from an iterative process in which the organization probes the future, experiments, and learns from a series of incremental commitments - as opposed to global formulations of total strategies Top managers guide lower-level managers' behavior by setting up the context in which these managers make decisions and take actions Both strategic and structural contexts influence bottom-up initiatives in the definition process, and shape resource allocation to form corporate strategy 	Top managers experience feedback from earlier actions and reshape the firm's strategic context
Nonaka (1988)	Strategy process	Conceptual / Firm	<ul style="list-style-type: none"> Middle managers are the actual "knowledge engineers" and key strategic actors At the individual level, the critical property of information creation is autonomy; at the group level, it is interaction Middle-up-down management incorporates the strengths of both bottom-up and top-down 	Intense competition and rapid technological change

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Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Narayanan and Fahey (1982)	Micro-political strategy formulation	Conceptual	<ul style="list-style-type: none"> ▪ Strategic decision-making proceeds in two stages ▪ 1) Gestation: activation involves becoming aware of important concerns; mobilization involves the transfer of issues to the organizational level; coalescence involves the integration and specification of effort towards solutions ▪ 2) Resolution: encounter occurs when a coalition starts interacting with other organizational entities; decisions are made when positions and consensus 	Need for consensus
Noda and Bower	Strategy formation	Qualitative / Firm	<ul style="list-style-type: none"> ▪ Strategy trajectory determined by 1) the role of corporate contexts reflecting the top managers' strategic intent; 2) the early business development and outcomes that motivate middle managers and attract resources allocated by top managers; 3) escalation or deescalation of commitment for strategic issues as a result of iterations of resource 	Top-management resource allocation and firm success
Oliver (1990)	Motives for cooperative strategies	Review / Interfirm	<ul style="list-style-type: none"> ▪ Six contingencies that prompt or motivate organizations to establish relationships exist: necessity (regulation), asymmetry (power or dependence), reciprocity (common or mutually beneficial goals), efficiency (of transactions), stability, and legitimacy ▪ An organization's motivation to enter or continue collaborative relationships may change over time 	Necessity, asymmetry, reciprocity, efficiency, stability, and legitimacy
Quinn (1978)	Strategy formation by logical incrementalism	Qualitative / Firm	<ul style="list-style-type: none"> ▪ Inability of firms to foresee the timing, severity, or issue of upcoming events; top managers consciously approach such events incrementally ▪ Strategy develops and proceeds flexibly, experimentally, and incrementally from broad to specific concepts, rather than in big leaps 	Limited availability of information and limited cognitive capacity
Ring and Van de Ven (1992)	Governance mechanisms	Conceptual / Firm	<ul style="list-style-type: none"> ▪ Recurrent contracting (moderate transactions specificity) ▪ Relational contracting (through long-term investments disputes will be resolved internally, preserving relationships) ▪ Greater risk in transactions requires more complex governance structures ▪ Reliance on trust is built through repeated market transactions and may reduce risk inherent in transactions 	Risk of deal; Need for trust

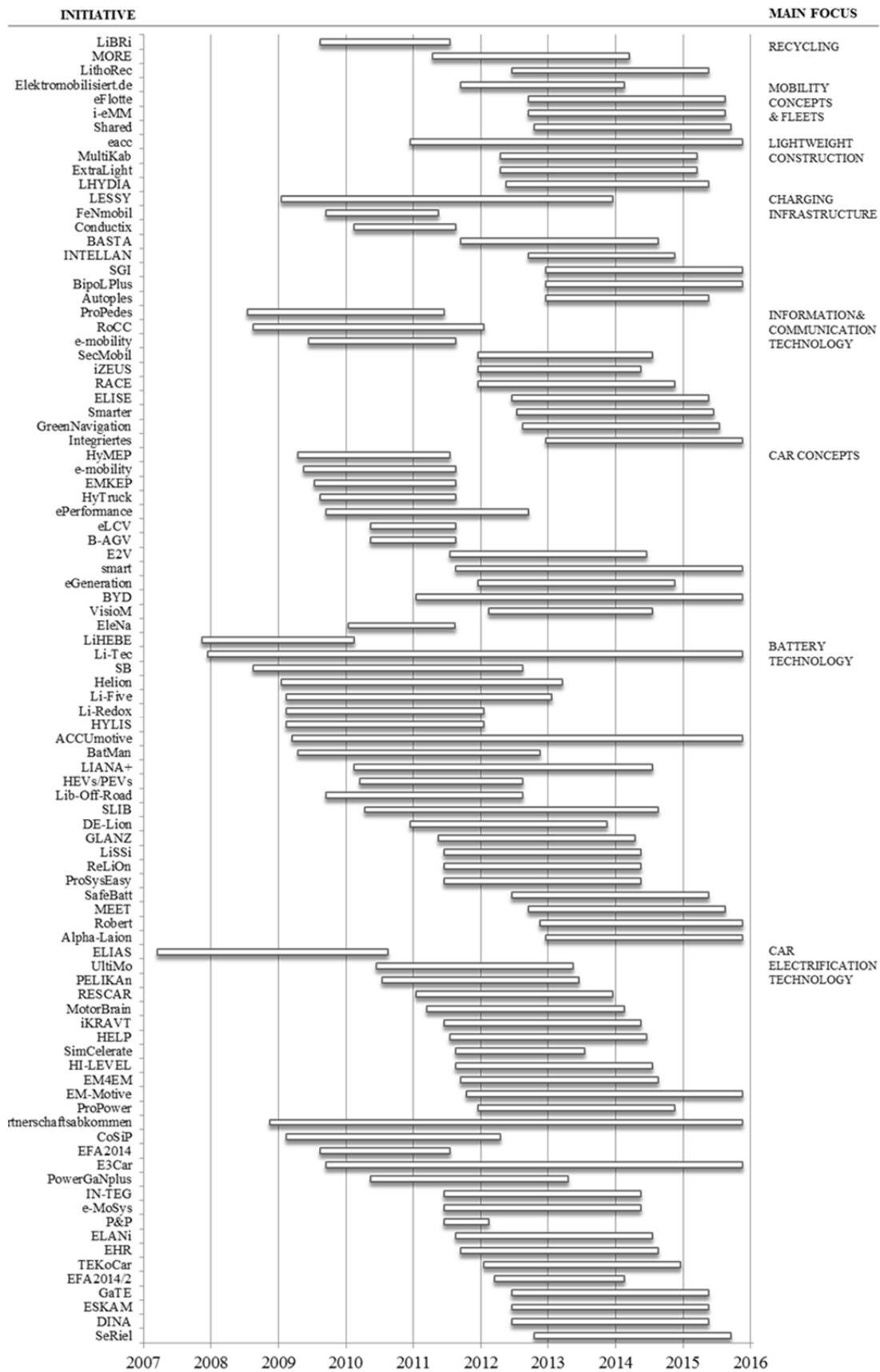
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Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Ring and Van de Ven (1994)	Formation of cooperative IORs	Conceptual / Firm, Interperson	<ul style="list-style-type: none"> ▪ Interorganizational relationships develop as a repetitive (cyclical) sequence of formal and informal interaction through negotiation, commitment, and execution ▪ Simple heuristics guide organizational parties through initial and recurrent sequences of formal stages ▪ Parties need to negotiate minimal, congruent expectations for cooperation, then 	Stability of relationships
Thomson and Perry (2006)	Collaboration process	Conceptual	<ul style="list-style-type: none"> ▪ The collaboration process involves balancing five dimensions: governance, administration, organizational, autonomy, mutuality, and norms of trust and reciprocity ▪ Collaborations are fragile systems, as they create interdependencies and complexity, while lessening individual organizations' control 	Interdependence; Resource scarcity; Previous experiences; Complementories; Complexity
Trist (1983)	Meta-problems	Conceptual / Network	<ul style="list-style-type: none"> ▪ Referent organizations set rules, organize membership, resolve conflicts, maintain values, and set goals ▪ They appreciate trends and issues critical for the long-term development, mobilize resources and develop networks ▪ Centralized referent organization arise providing purposeful action, leadership, and structure ▪ They can arise as a result of network initiatives (boundary spanners), search conferences, conscious designs, or as a convention of the social field 	Meta-problems
Westley and Vredenburg (1997)	Microprocesses of collaboration	Qualitative / Network	<ul style="list-style-type: none"> ▪ Macro- and micro-level processes interact ▪ Collaboration process is based on founding and operating principles ▪ Founding principles and operating principles guide behavior ▪ Structuring at supraorganizational level may be unnecessary or counterproductive - internal structuring may have detrimental effect on collaborative problem-solving capacity ▪ Avoidance of clear boundaries to solve meta-problems ▪ Technology may support problem resolution and even structure problems as a temporary form of organizing ▪ To find solutions, alternating paths may be used to circularly draw on single-referent organizations and networks 	Meta-problems

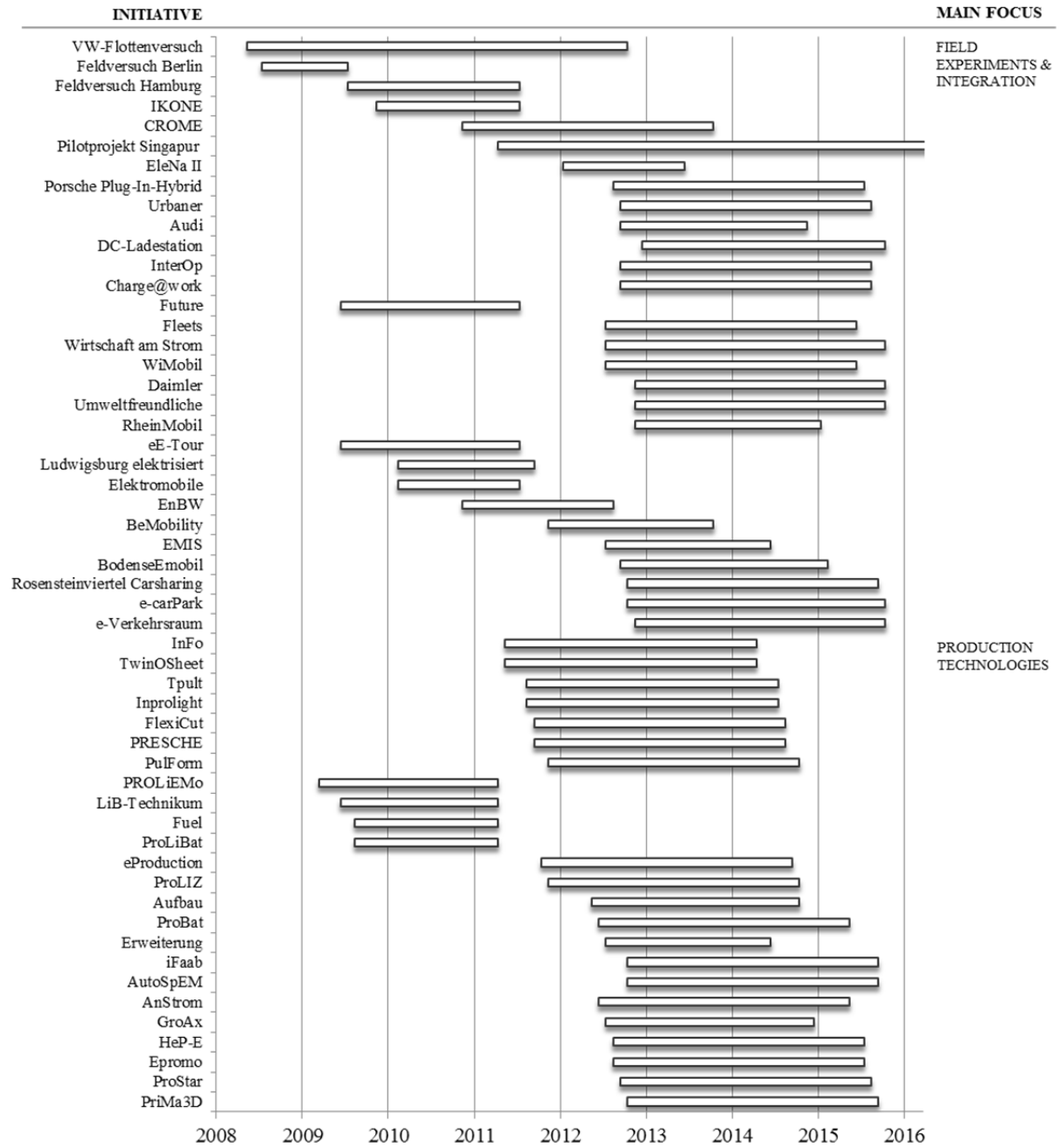
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Author(s)	Core Theme	Methodology & Level of Analysis	Key Findings (relating to Strategy Process)	Antecedents
Zajac and Olsen (1993)	Transactional value	Conceptual / Firm, Network	<ul style="list-style-type: none"> ▪ Mutual gains required to form interorganizational strategies ▪ Need to discover similarities and shared interests to maximize joint gains ▪ Need to understand the development process of relationships rather than a simple comparison of structural properties (as in Transaction Cost Economics) ▪ Three stages of interorganizational strategies: <ul style="list-style-type: none"> ▪ Initializing stage: Estimating value of relationship, preliminary negotiation, testing commitment ▪ Processing stage: Learning, managing conflict, creating norms, building trust ▪ Reconfiguring stage: Assessing performance, redefining processes 	Value creation

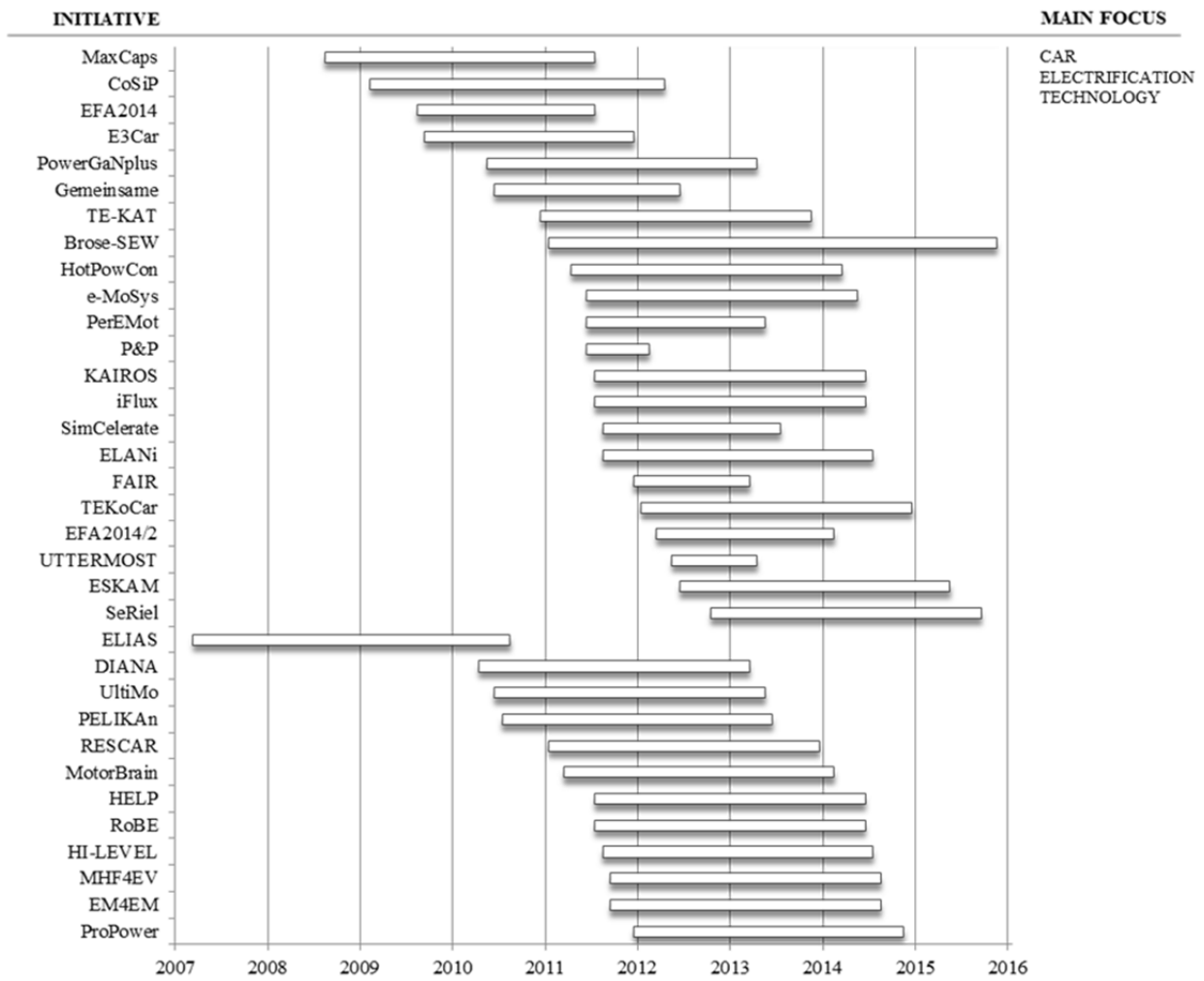
Appendix 2: Overview of eMobility Initiatives in the BW Ecology



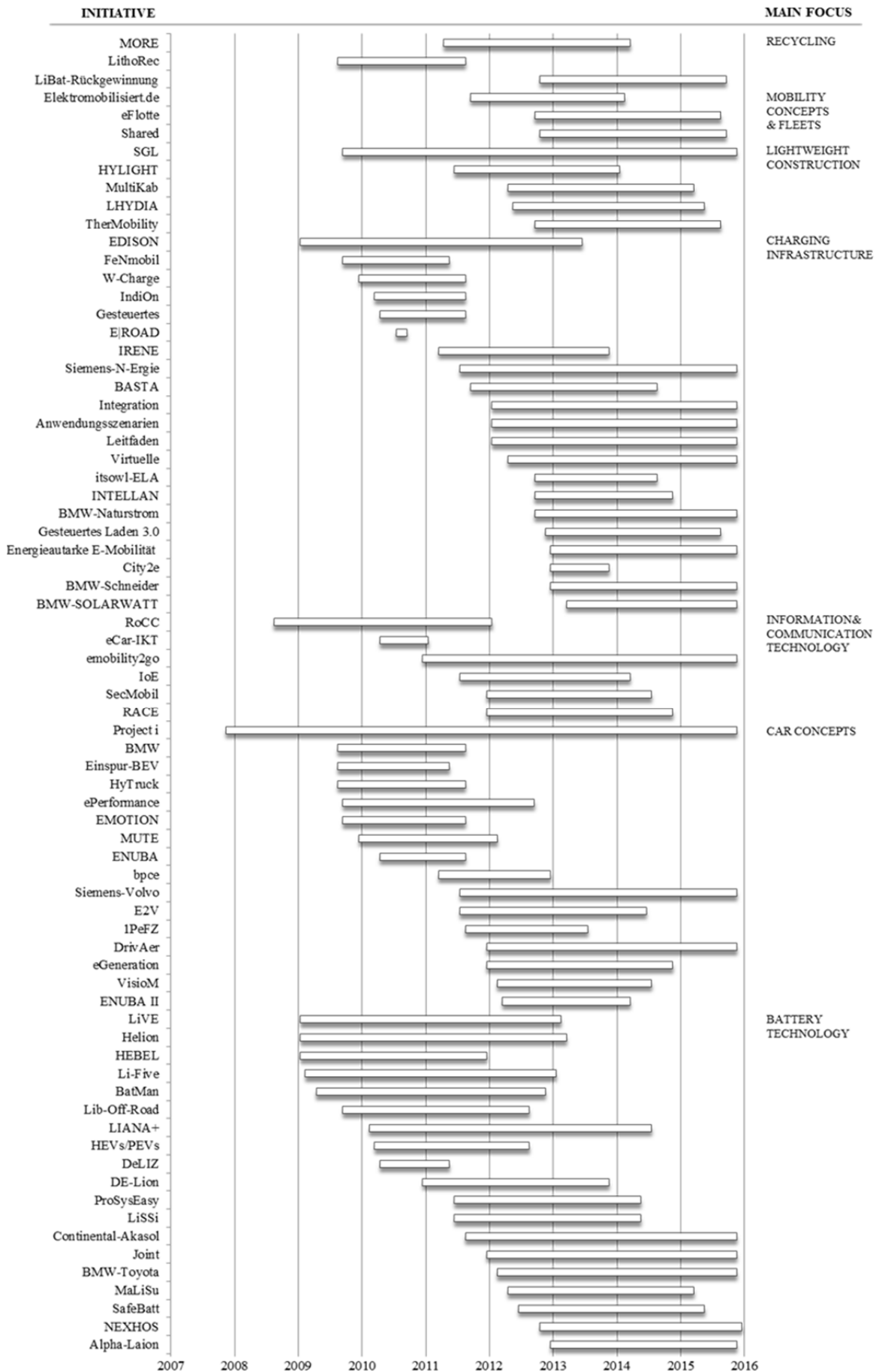
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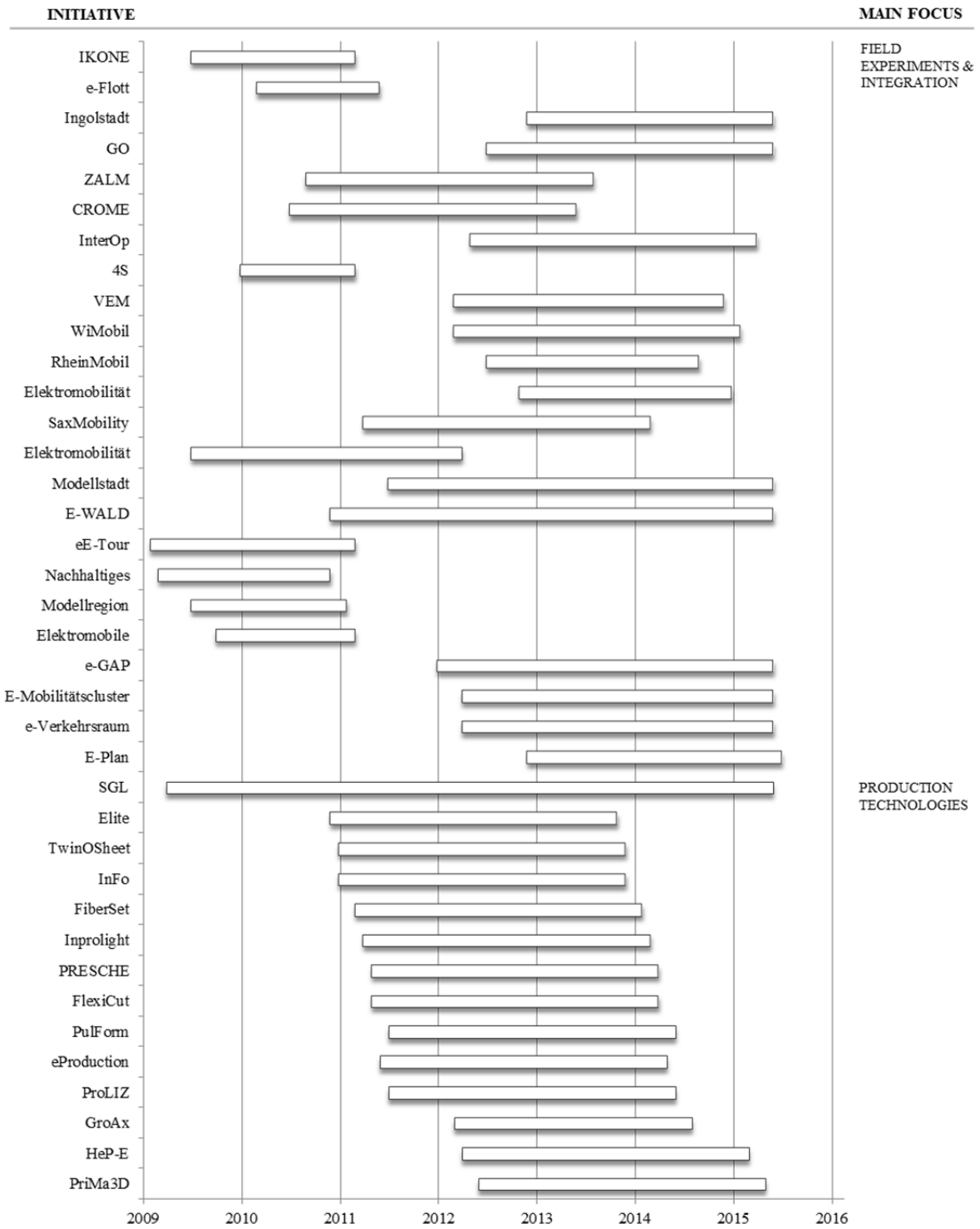
Appendix 3: Overview of eMobility Initiatives in the BA Ecology



continued



continued



Appendix 4: Interview Guide

No.	Question* / <input type="checkbox"/> = Prompt	Latent construct / Note
A. Introduction		
A.1	Introduction interview partner and research project. Addressing confidentiality issues.	Confidentiality agreement
B. Description of Activities / Collaboration		
B.1	Please describe X activities in the field of electric mobility.	Main activities
B.2	How did activities relating to electric mobility emerge in your organization?	Initiation
B.3	What are your major goals in regard to electric mobility?	Reflection on objectives
B.4	In which areas do you collaborate with partners? <input type="checkbox"/> According to which criteria did you choose your partners? <input type="checkbox"/> What significance do these partners have for your electric mobility activities? <input type="checkbox"/> How are partners chosen? With which partners do you work most intensively? Why?	Scope of collaboration
B.5	Why did you choose to collaborate with partners in the field of electric mobility?	Interdependence
B.6	Which actors are most crucial for the development of the initiative? <input type="checkbox"/> Does one/several partners play a dominant part?	Power distribution
B.7	What is your role in the initiative/partnership? How do you contribute? <input type="checkbox"/> Do goals among initiative partners vary? How? <input type="checkbox"/> Are there diverging interests (among the involved actors)? How do you cope with that? <input type="checkbox"/> Which added value do you see in collaborating with diverse partners in the initiative?	Reflection on roles and centrality Managing IOS diversity Motivation for collaboration
B.8	What role/significance do public entities, such as project offices, association, public authorities on national/federal level have (e.g., NOW GmbH, federal innovation agencies)?	Role of public intermediaries
B.9	What challenges do you face in regard to the involvement in the initiative?	Probing for challenges
B.10	How are your activities relating to electric mobility organized internally?	Internal management
C. Strategy Process		
C.1	Who initiates electric mobility projects/activities in your organization?	Impetus
C.2	Who is the driving force behind electric mobility activities in your organization?	Championing
C.3	Did any external impulses change the trajectory of your strategy?	External impetus
C.4	How important is (early) success of electric mobility activities for your firm?	
C.5	How important is commitment of partners for your own activities and decisions?	Role of partner commitment
C.6	Do you have a formalized strategy for electric mobility initiatives?	Formalization of IOS
C.7	Did a formalized strategy (strategic guideline) emerge among you other initiative partners? How? <input type="checkbox"/> Where does strategic interaction happen e.g., meetings, committees, informal get togethers	Structural context: top-down inducement vs. bottom-up
C.7	How do you achieve consensus on interests/strategies that exist among involved organizations? <input type="checkbox"/> Can you give an example of a goal conflict and how initiative members dealt with it?	IOS consensus finding
C.8	How does the process of planning and coordination among initiative partners happen? <input type="checkbox"/> Do you have regular meetings or working groups? <input type="checkbox"/> How does information and resource exchange happen (e.g., IT platforms)?	Structural context: Formation and evolution of IOS
C.8	How does task allocation happen?	Execution of IOS
C.9	<input type="checkbox"/> How specific were the tasks and goals outlined?	
C.10	How do you implement and translate strategic plans outlined in the initiative? <input type="checkbox"/> How do operative and management levels collaborate?	Implementation of IOS
C.10	Does a monitoring process exist?	Implementation of IOS
C.11	Who decides about the allocation of resources towards electric mobility initiatives in your organization? <input type="checkbox"/> Investment or divestment of financial or human resources?	Reflection on IOS as resource allocation
C.11	The intense collaboration among diverse organizations leads to strong interdependencies among the same. Do you see a strategic interdependence or mutual influence in strategic terms? Example?	Strategic interdependence
C.12	Did members negotiate about objectives and activities of the initiative? Example?	Reflection on IOS as negotiation
C.13	How are initiative activities reported back to your organizations?	Strategic context: implementation
C.14	In general, which strategic impact do you have on the strategies of other initiative members?	Strategic interdependence
D. Collaboration		
D.1	Do you have principles of collaboration?	Reflection on rules and principles
D.2	How did the way you collaborate change over time?	IOS evolution
D.3	How would you generally evaluate and describe collaboration within the initiative?	Evaluation
D.4	How important are partnerships or a network for you to develop your goals in this field?	Reflection on interdependence
D.5	Do you consider initiative partnerships as long-term?	Reflection on interdependence
D.6	How do you assess the emerging dependencies among the involved members in an initiative?	Reflection on interdependence
D.7	Do common resources accessible to all members of the initiative exist?	IOS outcomes
D.8	Are there any activities performed in your organization exclusively, which you would not consider to collaborate on with your partners?	Depth of strategic interaction
E. Others (explorative)		
E.1	Is there any difference relating to the collaboration within the field of electric mobility?	Idiosyncracies
E.2	Is there anything else that we did not touch upon, which is important in regard to collaborative strategy within the initiative?	

* Selected list of core questions. Questions were adapted to fit the context and type of organization.

Appendix 5: Online Survey Platform (Qualtrics)

The screenshot shows the Qualtrics dashboard for a survey titled "MANAGEMENT VON MULTI-PARTNER INITIATIVEN - RHEIN-MAIN" with 9 total responses. The interface includes navigation tabs for "My Surveys", "Create Survey", "Edit Survey", "Distribute Survey", "View Results", "Library", "Panels", and "Reporting". Below these are icons for "Create Survey", "Email Survey", "View Results", and "Message Center".

Key metrics displayed include:

- QUOTA:** 0/0
- RESPONSES:** 5 STARTED, 4 COMPLETED. A 12 DAY TREND and TODAY's count are also shown.
- EMAIL DISTRIBUTIONS:**
 - SENT: 36 / 36 (100%)
 - OPENED: 19 / 36 (52%)
 - STARTED: 10 / 15 (52%)
 - COMPLETED: 8 / 10 (80%)

A notification states: "There have been no responses in the last 77 days. Consider closing this survey or sending a new distribution. [MORE INFORMATION](#)".

Below the dashboard, a list of "All Surveys" is shown with columns for "Active" and "Name":

- [Management von Multi-Partner Initiativen - BW](#) (Modified on: Dec 9, 2014)
- [Management von Multi-Partner Initiativen - NRW](#) (Modified on: Mar 25, 2015)
- [Management von Multi-Partner Initiativen - BAYERN](#) (Modified on: Dec 22, 2014)
- [Validierung - Emobil](#) (Modified on: Feb 26, 2015)
- [Management von Multi-Partner Initiativen - BERLIN](#) (Modified on: Nov 29, 2014)

The screenshot shows a survey question page from the University of St. Gallen. The header includes the "Institute of Management" logo and the text "University of St. Gallen". The survey title is "Management von Multi-Partner Initiativen Umfrage 2014".


The question text reads: "Bitte wählen Sie das Projekt an dem Sie beteiligt waren aus folgender Liste aus: Sollte das Projekt nicht aufgeführt sein, bitte 'Sonstiges' wählen und den Namen angeben".

The question is labeled "Projektname" and features a scrollable list box with the following options:

- Aeronautik
- Alpha-Laion
- AnStrom - Antriebsstrangproduktion für zukünftige Mobilität
- Audi NEos
- Click to write Choice 129
- Aufbau Ladeinfrastruktur in Stuttgart und Region
- Autoples - Automatisiertes Parken & Laden von Elektrofahrzeug-Systemen
- AutoSpEM - Automatische Handhabung zur prozesssicheren und wirtschaftlichen Herstellung von Batterien
- B-AGV
- BatMan - BatterieManagement für mobile Lithium-Ionen-Energiespeicher

At the bottom of the page, there are two red buttons: "ZURÜCK" and "WEITER". A progress bar at the very bottom shows 0% completion.

Appendix 6: MPA Questionnaire

 Institute of Management University of St. Gallen		MULTI-PARTNER INITIATIVES SURVEY (Page 1 of 5)			
PART A: GENERAL INFORMATION ABOUT PERSON AND INITIATIVE					
Please provide us with general information about the initiative (project/consortia) and about your person:					
1	Project title <i>(the terms "project", "initiative" and "consortia" will be used synonymously hereafter)</i>	Dropdown menu [here]			
2	Duration of the initiative [in months]	_____ [months]			
3	Initiative completed?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/> Prematurely terminated: <input type="checkbox"/>		
4	Reasons for premature termination of the initiative?	_____			
5	Initiative volume [in thousands of EUR]	< 100 <input type="checkbox"/>	100-500 <input type="checkbox"/>		
		500-1000 <input type="checkbox"/>	1000-5000 <input type="checkbox"/>		
		>5000 <input type="checkbox"/>			
6	Number of involved partners/parties (separate organizations)	_____ [partners]			
7	What is your leadership level within your organization (CEO = 1)?	1: <input type="checkbox"/>	2: <input type="checkbox"/> 3: <input type="checkbox"/> 4: <input type="checkbox"/>		
8	Your role in the initiative (e.g. project leader, member, consultant)	_____			
9	Your e-mail address	_____			
PART B: PERCEPTION OF COMPETITION WITHIN INITIATIVE					
QUESTION B1: COMPETITION					
To what extent do you agree/disagree with the following statements?		1 =		5 =	
		strongly disagree		strongly agree	
		1	2	3	4
1	Among the involved parties, there is a more powerful partner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	The involved parties are direct competitors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The involved parties compete for the same human resources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	The involved parties compete for the same physical resources (e.g., raw materials).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	The involved parties compete for the same financial resources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	The involved parties compete for the same technological resources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	The involved parties compete for the same suppliers (networks).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	The involved parties compete for the same customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	The involved parties compete in the same geographical markets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	The involved parties have worked together before.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
QUESTION B2: ASSET SPECIFICITY					
How would you rate impact of the following scenarios on your business?		1 =		5 =	
		negligible		substantial	
		1	2	3	4
1	If we decided to stop this initiative, the difficulty that we would have in redeploying our people and facilities presently serving the initiative to other uses would be ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	If this initiative were to dissolve, our non-recoverable investments in equipment, people, etc. would be ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

continued

PART C: PERCEPTION OF COOPERATION WITHIN INITIATIVE

QUESTION C1: FLEXIBILITY

To what extent do you agree/disagree with the following statements?		1 = strongly disagree			5 = strongly agree	
		1	2	3	4	5
1	The alliance contract was changed during the period of the initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Flexibility in response to requests for changes in contracts is a characteristic of this relationship.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	When some unexpected situation arises, the parties would rather work out a new deal than hold each other to the original terms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	It is expected that the parties will be open to modifying their agreements if unexpected events occur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Changes in "fixed" terms are not ruled out by the parties, if it is considered necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

QUESTION C2: INFORMATION EXCHANGE

To what extent do you agree/disagree with the following statements?		1 = strongly disagree			5 = strongly agree	
		1	2	3	4	5
1	In this relationship, it is expected that any information that might help the other parties will be provided to them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Exchange of information in this relationship takes place frequently and informally and not only according to a pre-specified agreement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	It is expected that the parties will provide proprietary information if it can help the other parties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	It is expected that we keep each other informed about events or changes that may affect the other parties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

QUESTION C3: SHARED PROBLEM SOLVING

To what extent do you agree/disagree with the following statements?		1 = strongly disagree			5 = strongly agree	
		1	2	3	4	5
1	In most aspects of this relationship the parties are jointly responsible for getting things done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Problems that arise in the course of this relationship are treated by the parties as joint rather than individual responsibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The parties in this relationship do not mind owing each other favors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	The responsibility for making sure that the relationship works for both us and the other partners is shared jointly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

QUESTION C4: RESTRAINT IN THE USE OF POWER

To what extent do you agree/disagree with the following statements?		1 = strongly disagree			5 = strongly agree	
		1	2	3	4	5
1	The parties feel it is important not to use any proprietary information to the other parties' disadvantage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	A characteristic of this relationship is that neither party is expected to make demands that might be damaging to the other(s).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The parties expect the more powerful party to restrain the use of his power in attempting to get his way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

continued

QUESTION C5: COOPERATIVE INTENSITY

To what extent do you agree/disagree with the following statements?		1 = strongly disagree		5 = strongly agree		
		1	2	3	4	5
1	We decide together on the strategic objectives and goals of the initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	We are ready to give in to enable the initiative to achieve its goals as stated in the contract.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	We decide together on the distribution of authority in the initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	We work together to establish rules and regulations concerning the initiative's operation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	We participate together in professional committees in different domains (e.g., production, marketing, personnel, budgeting).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	We value reaching consensus in decision making at the board level.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	We follow mutual consultation in cases of uncertainty.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	We select senior initiative managers together.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	We decide together to resolve issues in executing new plans (e.g., course of action, priorities).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART D: GOVERNANCE OF INTERORGANIZATIONAL INITIATIVE

QUESTION D1: FORMAL CONTRACT

		YES	NO			
1	Does a formal contract exist for this initiative?	<input type="checkbox"/>	<input type="checkbox"/>			
2	If yes, does this formal contract apply to all participants equally?	<input type="checkbox"/>	<input type="checkbox"/>			
To what extent do you agree/disagree with the following statements?		1 = strongly disagree		5 = strongly agree		
		1	2	3	4	5
3	The formal contract is highly customized and required considerable legal work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

QUESTION D2: COORDINATION & ENFORCEMENT PROVISIONS

Which safeguards listed below were put into the formal agreement (contract) of this initiative?		YES	NO
1	Periodic written reports of all relevant transactions.	<input type="checkbox"/>	<input type="checkbox"/>
2	Prompt written notice of any departures from the agreement.	<input type="checkbox"/>	<input type="checkbox"/>
3	The right to examine and audit all relevant records through a firm of certified public accountant.	<input type="checkbox"/>	<input type="checkbox"/>
4	Designation of certain information as proprietary and subject to confidentiality provisions of the contract.	<input type="checkbox"/>	<input type="checkbox"/>
5	Non-use of proprietary information even after the termination of agreement.	<input type="checkbox"/>	<input type="checkbox"/>
6	Termination of agreement.	<input type="checkbox"/>	<input type="checkbox"/>
7	Arbitration clauses.	<input type="checkbox"/>	<input type="checkbox"/>
8	Lawsuit provisions.	<input type="checkbox"/>	<input type="checkbox"/>

continued

LEGAL DETAIL

Please indicate for each type of clause whether it was arranged in writing, only orally arranged, or not arranged at all.		In writing	Orally arranged	Not arranged
1	Penalties on late completion of assigned tasks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Liability clauses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Force majeure clauses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Warranty clauses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Intellectual property.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Nondisclosure clauses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Insurance clauses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Service duration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Dispute resolution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Terms of notice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

QUESTION D3: RELATIONAL GOVERNANCE MECHANISMS

Please rate the extent to which the following governance mechanisms were used in the initiative:		1 = not at all		5 = to a large extent		
		1	2	3	4	5
1	Steering committees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Project groups.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Expert committees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Cooperation managers, working almost exclusively with issues concerning the initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Face-to-face meetings at the top management level.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Deliberate filling of key positions of the initiative (e.g., project team members).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To what extent do you agree/disagree with the following statements:		1 - strongly disagree		5 - strongly agree		
		1	2	3	4	5
1	Participants have an extremely collaborative relationship to each other.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Participants share long- and short-term goals and plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Participants can rely on each other to keep promises.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART E: PERCEIVED OUTCOMES OF INTERORGANIZATIONAL INITIATIVE

QUESTION E1: INITIATIVE SUCCESS FROM YOUR ORGANIZATION'S VIEW

Taking your own organization's perspective, please assess your satisfaction with the initiative by indicating the degree to which you agree or disagree with each of the following statements:		1 = strongly disagree		5 = strongly agree		
		1	2	3	4	5
1	Overall, my organization is very satisfied with the performance of this initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	The initiative has realized the goals my organization set out to achieve.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The initiative has contributed to my organization's core competencies and competitive advantage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	My organization is willing to collaborate again with this/these partner(s) in future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

continued

QUESTION E2: JOINT INITIATIVE SUCCESS

Taking an aggregate perspective of all parties involved, please assess the initiative by indicating the degree to which you agree or disagree with each of the following statements:		1 = strongly disagree		5 = strongly agree		
		1	2	3	4	5
1	The involved parties are very satisfied with the performance of this initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	The involved parties are very satisfied with the knowledge accumulated from participating in this initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The collaboration in this initiative has created new opportunities for the parties involved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Participating in this initiative has helped the parties involved to create/extend their core competencies and/or competitive advantages.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	The involved parties have relatively equally benefitted from the initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	The initiative is characterized by a strong and harmonious relationship between the partners.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	The involved parties are willing to collaborate again with this/these partner(s) in the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please assess the success of the multi-partner initiative in terms of the extent to which it meets the parties` jointly set objectives in the following dimensions:		1 = very unsuccessful			5 = very successful	
		1	2	3	4	5
1	Meeting time objectives (i.e., meeting project schedule).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Meeting budget and cost objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Meeting efficiency objectives (i.e., operational performance of the R&D process).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Meeting technical quality objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Meeting innovativeness objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Meeting value contribution objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Meeting overall project performance objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Further comments:

Please use this text field to provide additional information on anything (1) you thought was missing, (2) you think we should also know related to the topic, and/or (3) any general comments on the survey.

Thank you very much for completing this survey!

Note: We assure you that all information you provide to us will be kept secure and confidential; the University's research team will only use the data for the purposes of this project. The results of the study may be published. However, for this purpose we will only use anonymized data so that the identity of you and your firm will not be disclosed to any third party.

Appendix 7: Interviewees Recruitment Letter (via Intranet and Newsletter)

[Place here: Partner Logo]



[Place here: Salutation]

Collaboration within the field of electric mobility is complex. It demands the cooperative interaction of partners from varying industries, research, academia, and the public sector – all of whom have different goals, strategies, and organizational contexts. Many of you lead, or participate in, multipartner initiatives/projects in consortia and are thus frequently confronted with the associated coordinative challenges.

In their encompassing study covering Germany, Austria, and Switzerland, Erwin Hettich and Prof. Dr. Markus Kreutzer, University of St. Gallen researchers, direct attention towards this topic in order to examine “how multipartner projects may be successfully organized and managed.”

The [Place here: Name of Partner Organization] has collaborated with these St. Gallen researchers to develop a survey aimed at answering this question. We therefore support this research project and encourage you to participate in the survey.

Some of you may have been directly contacted earlier, while others may have already participated. Those who have not participated may do so until December 14, 2014 by following this link:

www.ifb.unisg.ch/emobil-bayern

All the participants will receive a study report once the survey has been completed. Moreover, the participants will receive an invitation to a joint workshop on the results and related topics to be held on the St. Gallen University campus. All disclosed information will, of course, be protected and treated confidentially.

Thank you for taking the time to contribute to this important research!

Best regards,

[Place here: Signature and Contact Details]



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Appendix 8: Validation Questionnaire

Hettich, Erwin (via Email)

Subject: *Thank you for your participation in the research project of the University of St. Gallen (Institute of Management): Multipartner Initiatives/Projects in the Electric Mobility*

Dear [*Name of respondent*],

We would like to thank you very much for your participation and the provided information on [*Project title*]. Our survey of “Management of Multipartner Initiatives” has almost been completed. We are pleased with the high response rate, which will help us develop an informative study report. We will provide you with the final results in a study report once the data analyses have been finalized in about spring next year.

At that time, you are also welcome to attend a joint workshop at St. Gallen, during which we will discuss the study’s results. In addition, this workshop will provide you with an opportunity to exchange information on “Multipartner Initiatives“ with the other survey participants. The workshop will take place around May.

Prior to this, we have a final request concerning our project: Scientific standards demand that when central variables are evaluated, information from multiple participants should be used. This is important to achieve more robust study results. We would therefore be very thankful if you could provide us with the name(s) of (an)other member(s) of your initiative/ project via e-mail, or, alternatively, forward the following link to this/ these person(s):

[Validation Survey Link \(here\)](#)

You may also copy and paste the following link:

[https:// unisg.eu.qualtrics.com/ WRQualtricsSurveyEngine/ ?Q_SS=50wzgMIFeIPRg8d_bIpJY3Vm3PThkh&_ =1](https://unisg.eu.qualtrics.com/WRQualtricsSurveyEngine/?Q_SS=50wzgMIFeIPRg8d_bIpJY3Vm3PThkh&_=1)

The validation survey is a shortened version of the original survey that you completed, comprising just two parts. The information that you provided earlier will not be disclosed to the validation survey respondents.

Further, all responses will be strictly confidential, and will only be used on an aggregated level. The published reports will maintain the confidentiality of these respondents’ information.

For further information, or if you have any questions, please do not hesitate to contact us.

With kind regards

[*Contact information*]

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Please do not contact me anymore: [Unsubscribe](#)

Appendix 9: Codebook

Survey Data				
Construct / Variable	α	Scale and Item(s)	Code	Reference(s) / Adaptation
<i>Competitive intensity perception (Independent variable)</i>	0.87	To what extent do you agree/disagree with the following statements? [5-point Likert scale: 1=strongly disagree to 5=strongly agree]	<i>comp_int</i>	Developed items: They attempt to measure the degree of competition within the initiative by capturing the most important dimensions on which firms compete with each other.
		<ul style="list-style-type: none"> ▪ The involved parties are direct competitors. ▪ The involved parties compete for the same customers. ▪ The involved parties compete in the same geographical markets. 	<i>comp_int2</i> <i>comp_int8</i> <i>comp_int9</i>	
<i>Competitive intensity perception</i>		<ul style="list-style-type: none"> ▪ Among the involved parties, there is a more powerful partner. ▪ The involved parties compete for the same human resources. ▪ The involved parties compete for the same physical resources. ▪ The involved parties compete for the same financial resources. ▪ The involved parties compete for the same technological resources. ▪ The involved parties compete for the same suppliers (networks). ▪ The involved parties have worked together before. 	<i>comp_int1</i> <i>comp_int3</i> <i>comp_int4</i> <i>comp_int5</i> <i>comp_int6</i> <i>comp_int7</i> <i>comp_int10</i>	
<i>Cooperative intensity perception (Independent variable)</i>	0.79	To what extent do you agree/disagree with the following statements? [5-point Likert scale: 1=strongly disagree to 5=strongly agree]	<i>coop_int</i>	Luo and Park, 2004
		<ul style="list-style-type: none"> ▪ We decide together on the strategic objectives and goals of the initiative. ▪ We are ready to give in to enable the initiative to achieve its goals as stated in the contract. ▪ We decide together on the distribution of authority in the initiative. ▪ We work together to establish rules and regulations concerning the initiative's operation. ▪ We participate together in professional committees in different domains (e.g., production, marketing, personnel, budgeting). ▪ We value reaching consensus in decision making at the board level. ▪ We follow mutual consultation in cases of uncertainty. ▪ We select senior initiative managers together. ▪ We decide together to resolve issues in executing new plans (e.g., course of action, priorities). 	<i>coop_int1</i> <i>coop_int2</i> <i>coop_int3</i> <i>coop_int4</i> <i>coop_int5</i> <i>coop_int6</i> <i>coop_int7</i> <i>coop_int8</i> <i>coop_int9</i>	The word "EJV" was substituted for "initiative" to fit the research context. In item 3 the indirect object "between them" was deleted to fit the research context. Examples given in item 9 were adapted to fit our context. Instead of product mix, new technology development, entrance to new markets, we inserted course of action, priorities.
<i>Joint MPA Performance in Meeting Objectives (Dependent variable)</i>	0.82	Please assess the success of the multi-partner initiative in terms of the extent to which it meets the parties' jointly set objectives in the following dimensions... [5-point Likert scale: 1=very unsuccessful to 5=very successful]	<i>suc_obj</i>	Keller, 1992; Keller, 1986; Lechner and Floyd, 2011; Katz, 1982; Katz and Allen, 1985; Brettel et al., 2012; Wall et al., 2004
		<ul style="list-style-type: none"> ▪ Meeting time objectives (i.e., meeting project schedule). ▪ Meeting budget and cost objectives. ▪ Meeting efficiency objectives (i.e., operational performance of the RandD process). ▪ Meeting technical quality objectives. ▪ Meeting innovativeness objectives. ▪ Meeting value contribution objectives. ▪ Meeting overall project performance objectives. 	<i>suc_obj1</i> <i>suc_obj2</i> <i>suc_obj3</i> <i>suc_obj4</i> <i>suc_obj5</i> <i>suc_obj6</i> <i>suc_obj7</i>	We excluded two items used by Lechner and Floyd (2011): meeting user/client satisfaction expectations" and "service expectations" and two other criteria used by Katz (1982), adaptability and the ability to cooperate with other groups in the organization, as there is no fit with our study.
<i>Duration</i>		Duration of initiative existence at the time the survey was administered (in number of months)	<i>duration</i>	Reuer et al., 2002; Hoetker and Mellewig, 2009
<i>Status</i>		Initiative completed? Yes; No; Prematurely terminated [1=Yes; 2=No; 0=Prematurely terminated]	<i>status</i>	
<i>Premature termination</i>		Reasons for premature termination of the initiative? [Verbal record]	<i>termin_ini</i>	
<i>Initiative volume</i>		Initiative volume (in thousands of EUR) [0='<100'; 1='100-500'; 2='500-1000'; 3='1000-5000'; 4='>5000']	<i>vol_ini</i>	
<i>Leadership level</i>		What is your leadership level within your organization (CEO = 1)? [Level 1=1; Level 2=2, Level 3= 3; Level 4=4]	<i>lead</i>	
<i>Role of respondent</i>		Your role in the initiative (e.g., project leader, project member, consultant) [Verbal record]	<i>role</i>	
<i>E-Mail</i>		Your e-mail address [Verbal record]	<i>email</i>	

continued

Secondary Data			
Variable	Measurement	Code	Reference(s)
<i>MPA Size</i> (Control variable)	Mean sales turnover of organizations involved in MPA [in thousands of EUR]	<i>sales_mean</i>	Hoque and James, 2000; Kogut and Singh 1988
<i>Partner size asymmetry</i>	Ratio of smallest firm to largest firm i.e., total sales of the smallest firm in the alliance divided by the total sales of the largest firm [in thousands of EUR]	<i>size_rel</i>	Oxley, 1997; Harrigan, 1988; Hennart, 1991
<i>Initiative scope</i> (Control variable)	Number of partners involved in the initiative (per desk research) [Number]	<i>scope_num</i>	Hoetker and Mellewig, 2009; Das and Teng, 2002; Gulati, 1995; Reuer, Kljin and Lioukas, 2013
<i>Initiative type</i>	Goals and activities [Dummy coded: 0=No; 1=Yes]		Poppo and Zenger, 2002; Li et al. 2014:1200 (Type of industry)
	Research and development	<i>rd</i>	
	Production	<i>prod</i>	
	Marketing	<i>market</i>	
<i>Alliance scope</i>	Vertical scope of alliance activities [Dummy coded: 0 = exclusively RandD activities (narrow scope); 1 = RandD and manufacturing; 3 = RandD, manufacturing, and marketing (broadest scope)]	<i>scope</i>	Reuer, Kljin, Lioukas, 2013; Oxley and Sampson, 2004; Li et al. 2008; Li et al., 2014
<i>Alliance experience</i> (Control variable)	Count of involvements in other MPAs in the field of electric mobility [Number of prior/current MPA involvements]	<i>exp</i>	Kale, Dyer, Singh, 2002; Oxley, 1997
	<ul style="list-style-type: none"> ▪ Mean experience of MPA members. ▪ Presence of an unexperienced member in MPA. ▪ Experience asymmetry (Ratio of lowest to highest involvement among actors in an initiative) ▪ Deviation from the mean experience of organizations. 	<i>mean_exp</i> <i>un_exp</i>	
		<i>rel_exp</i> <i>dev_exp</i>	
<i>Relatedness</i> (Cross-validation variable)	Relatedness of MPA partners' businesses [Based on the three-digit SIC codes of MPA member the index of relatedness as the reverse of the entropy measure of business diversity is computed]	<i>related</i>	Li et al. 2014:1200; Hitt et al., 1997; Palepu, 1985; Bengtsson et al, 2010
<i>Bridging</i> (Independent variable)	Degree of involvement of public organizations [Dummy 0=private; 1=public]	<i>bridging</i>	Ariño et al., 2008
	<ul style="list-style-type: none"> ▪ Degree of involvement of public research organizations [Dummy coded: 0=public research not involved; 1=public research] ▪ Degree of involvement of public or private research organizations [Dummy coded: 0=public or private research not involved; 1=public or private research involved] 	<i>rpub</i> <i>rpubpriv</i>	
<i>Exploration</i> (Control variable)	Degree of exploration in MPA activity	<i>expl_goals</i>	Rothaermel and Deeds, 2004; Gupta and Shalley, 2006; Benner and Tushman, 2002; He and Wong, 2004; Katila and Ahuja, 2002; March, 1991
	<ul style="list-style-type: none"> ▪ Degree of exploration as stated in goals [Dummy coded: 1=Exploration (Prototyping, Development, Research, Field tests); 2=Exploitation (Production, Networking, Integration, Demonstration, Sales)] ▪ Degree of exploration based on firm diversity in MPA [Total number of 3-digit SIC code categories covered by an initiative] 	<i>expl_sic</i>	Developed item

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