MASTER’S THESIS

In a globalized business environment, competitors cooperate for competitiveness

Master’s Thesis
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in the Master’s Program

General Management

Submitted by
Thomas Gerner, BSc
973, 01255047

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Supervisor
Assoz. Univ.-Prof. Mag. Dr. Regina Gattringer

Co-Supervisor
Mag. Dr. Sabine Reisinger

Linz, May 2018
STATUTORY DECLARATION

I hereby declare that the thesis submitted is my own unaided work, that I have not used other than the sources indicated, and that all direct and indirect sources are acknowledged as references.

This printed thesis is identical with the electronic version submitted.

Linz, May 2018
# Table of Contents

Management Summary ........................................................................................................... 9

1 Introduction ......................................................................................................................... 11
   1.1 Problem Statement ......................................................................................................... 11
   1.2 Objective of the Master’s Thesis .................................................................................... 12

2 Research Method .................................................................................................................. 13

3 Definition and Theoretical Foundations of Coopetition ...................................................... 14
   3.1 Definition ....................................................................................................................... 16
   3.2 Theoretical Foundations ............................................................................................... 19
      3.2.1 Game Theory .......................................................................................................... 20
      3.2.2 Resource-based View ............................................................................................. 22
      3.2.3 Network Approach .................................................................................................. 25
      3.2.4 Transaction Cost Economics .................................................................................. 28
      3.2.5 Resource Dependence Theory ............................................................................... 29
      3.2.6 Comparison of the Underlying Theories ................................................................. 30
   3.3 Levels and Phases of Coopetition .................................................................................... 31
   3.4 Multilevel Perspective of Coopetition .......................................................................... 33

4 Management of Coopetition Relationships ....................................................................... 39
   4.1 Coopetitive Relationships ............................................................................................. 42
      4.1.1 Partner Selection ...................................................................................................... 43
      4.1.2 Tensions .................................................................................................................. 51
      4.1.3 Coopetition Strategy ............................................................................................... 60
   4.2 Global Coopetition ......................................................................................................... 66
      4.2.1 Situational Tactics for Coopetition with Global Rivals ............................................ 66
      4.2.2 Coopetition with Global Alliance Partners ............................................................. 70
   4.3 Centrality in Coopetition Networks ............................................................................... 74

5 In Search of Competitiveness .............................................................................................. 79
   5.1 Knowledge-related Outcome of Coopetition ................................................................ 83
      5.1.1 Knowledge Creation and Sharing ........................................................................... 84
      5.1.2 Knowledge Acquisition and Integration ................................................................. 90
5.2 Innovation-related Outcome of Coopetition .............................................................. 95
5.3 Firm Performance-related Outcome of Coopetition .................................................... 99
   5.3.1 Financial Performance ......................................................................................... 99
   5.3.2 Sales Volume and Market Share ......................................................................... 101
   5.3.3 Efficiency ........................................................................................................... 102

6 Conclusion ........................................................................................................................ 107
   6.1 Summary of Main Findings ..................................................................................... 107
   6.2 Critical Reflection and Limitations .......................................................................... 110

7 List of References ............................................................................................................ 112
List of Figures

Figure 1 Research Questions ................................................................. 13
Figure 2 Competition-cooperation relationships ..................................... 17
Figure 3 The value net ........................................................................... 21
Figure 4 Conceptual framework for coopetition performance ..................... 23
Figure 5 The structural embeddedness of competitive dynamics .................. 27
Figure 6 Syncretic model of rent-seeking strategic behavior ....................... 34
Figure 7 Multilevel model of coopetition ................................................. 37
Figure 8 Model for partner selection ....................................................... 45
Figure 9 Contingency model for partner selection and attractiveness ............ 46
Figure 10 Traditional alliance partner selection framework ......................... 47
Figure 11 Comprehensive alliance partner selection framework .................. 48
Figure 12 Significance of the identified areas of coopetition ....................... 50
Figure 13 Management of tensions in coopetitive relationships ..................... 53
Figure 14 Management of tension related to information ............................ 57
Figure 15 Styles of conflict management .................................................. 59
Figure 16 Temporal orientation of coopetitive framework .......................... 61
Figure 17 Development of coopetition strategy ......................................... 62
Figure 18 Deliberate and emergent nature of coopetition ............................ 65
Figure 19 Intensity of coopetition in a global context .................................. 67
Figure 20 Diversity of coopetition in a global context ................................ 69
Figure 21 Typology of private control and cooperation in global strategic alliances 71
Figure 22 Typology of collective control and cooperation in global strategic alliances 73
Figure 23 Conceptual framework for innovation performance ...................... 85
Figure 24 The role of improvisation of knowledge transfer and protection ........ 88
Figure 25 Coopetition in supply chain knowledge management .................... 91
Figure 26 Knowledge search and integration and tensions in R&D networks .... 93
Figure 27 Conceptual framework for mediating role of knowledge integration mechanisms on NPP ............................................................... 94
Figure 28 Framework for innovation through coopetition .......................... 95
Figure 29 Buyer-supplier-supplier coopetitive relationship ....................... 103
List of Tables

Table 1 Primary literature findings regarding definition and theory of coopetition .......... 16
Table 2 Framework for relational propositions .................................................................. 23
Table 3 Comparison of the underlying theories ................................................................. 30
Table 4 Levels and phases of coopetition research ......................................................... 32
Table 5 Primary literature findings regarding management of coopetition ...................... 42
Table 6 Identified CSFs for evaluating potential partners .................................................. 49
Table 7 Management of coopetitive relationship through integrated IS ............................... 55
Table 8 Management of different types of information ....................................................... 56
Table 9 Types of tensions in coopetitive relationships ...................................................... 58
Table 10 Primary literature findings regarding competitiveness through coopetition .... 83
Table 11 Identified cooperative and competitive routines for knowledge development .... 87
Table 12 Effects of coopetitive buyer-supplier relationships ............................................. 104
### List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AMC</td>
<td>Awareness Motivation Capability</td>
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<tr>
<td>ATM</td>
<td>Automated Teller Machine</td>
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<tr>
<td>BMI</td>
<td>Business Model Innovation</td>
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<tr>
<td>CDMA</td>
<td>Code-Division Multiple Access</td>
</tr>
<tr>
<td>CEFAGE</td>
<td>Center for Advanced Studies in Management and Economics</td>
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<td>CSF</td>
<td>Critical Success Factor</td>
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<td>DBIS</td>
<td>Datenbank-Infosystem</td>
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<tr>
<td>DPO-framework</td>
<td>Driver, Process and Outcome-Framework</td>
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<tr>
<td>EADS</td>
<td>European Aeronautic Defence and Space Company</td>
</tr>
<tr>
<td>EBSCO</td>
<td>Elton Bryson Stephens Company</td>
</tr>
<tr>
<td>et al</td>
<td>et al (and others)</td>
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<tr>
<td>EZB</td>
<td>Elektronische Zeitschriftenbibliothek</td>
</tr>
<tr>
<td>F-15</td>
<td>Fighter-15</td>
</tr>
<tr>
<td>GSM</td>
<td>Global System for Mobile Communications</td>
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<td>HD-TV</td>
<td>High-Definition-Television</td>
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<td>IOR</td>
<td>Inter-organizational relationship</td>
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<td>IS</td>
<td>Information System</td>
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<td>JKU</td>
<td>Johannes Kepler University</td>
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<td>JStore</td>
<td>Journal STORage</td>
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<td>KIM</td>
<td>Knowledge integration mechanisms</td>
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<td>KIO</td>
<td>Knowledge-intensive Organizations</td>
</tr>
<tr>
<td>LCD</td>
<td>Liquid Crystal Display</td>
</tr>
<tr>
<td>LISSS</td>
<td>Literature Search Support Service</td>
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<tr>
<td>MNC</td>
<td>Multinational corporation</td>
</tr>
<tr>
<td>np</td>
<td>No page</td>
</tr>
<tr>
<td>NPD</td>
<td>New Product Development</td>
</tr>
<tr>
<td>NPP</td>
<td>New Product Performance</td>
</tr>
<tr>
<td>NR</td>
<td>Not rated</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
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<tr>
<td>ROA</td>
<td>Return on Assets</td>
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<tr>
<td>ROE</td>
<td>Return on Equity</td>
</tr>
<tr>
<td>ROS</td>
<td>Return on Sales</td>
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<tr>
<td>SEMATECH</td>
<td>Semiconductor Manufacturing Technology</td>
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<tr>
<td>S-LCD</td>
<td>Samsung-LCD</td>
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Note: The abbreviations and their meanings are listed as per the document content.
TV................................................................................................................................. Television
US...................................................................................................................................... United States
VHB.................................................................Verband der Hochschullehrer für Betriebswirtschaft e.V.
VHS................................................................................................................................. Video Home System
vs....................................................................................................................................... versus
WISO .................................................................Wirtschafts- und sozialwissenschaftliche Datenbank
Management Summary

As a result of an increasing amount of research literature available in the field of coopetition (Bengtsson et al., 2016, p. 4), the primary intention to craft this Master’s Thesis is to provide meaningful data to the interested reader. The scientific work is intended as traditional literature review, which means that it is a theoretical desk research.

The term coopetition was initially established in the 1980s and was then brought to conventional business in the 1990s by the researchers Brandenburger and Nalebuff (1996). Coopetition is a blend of cooperation and competition, which is simultaneously applied in business practice among competitors. In traditional business view, both concepts are perceived as opposing entities (Chen, 2008). However, this perspective has been changed since the uprising of the overall concept of coopetition. From a normative standpoint, coopetition helps firms to achieve superior performance and this Master’s Thesis is summing up current research findings with this regard.

According to current research, the concept of coopetition is segmented into the intra-, inter- and network-level of coopetition, wherein the inter-firm and network level is subject to extensive research (Dahl et al., 2016). In the first place, simultaneous cooperation and competition have been researched from distinctive theoretical standpoints. The most common underlying theories, which have been applied to coopetition are, for instance, the game theory, the resource-based view, the network approach, the transaction cost economics and the resource dependence theory (Bengtsson & Kock, 2014, p. 180). The Master’s Thesis includes theoretical approaches to investigate the antecedents, behaviors and potential outcomes for firms engaged in coopetitive relationships. Furthermore, a multilevel model is included to advance coopetition research by taking into account actors and activities as units of analysis. The actors and activities are then integrated and analyzed along with its drivers, processes, and outcomes (Bengtsson & Raza-Ullah, 2016, p. 33).

The provided theoretical background allows for the investigation of coopetition in globalized and dynamic business environments. In order to deal with global coopetitive relationships, multinational corporations (MNC) and global alliances are provided with applicable situational recommendations which have been developed by Luo (2007). The situational recommendations considering the intensity and diversity of global coopetition. The intensity of coopetition refers to the degree of competition and cooperation, while the diversity of coopetition covers the geographical breadth and number of engaged coopetitive relationships. This Master’s Thesis further states mechanisms for the management of tensions as well as current findings from the coopetition strategy realm, which is
contemporarily researched from the strategy-as-practice perspective (Dahl et al., 2016; Lundgren-Henriksson & Kock, 2016a). With regard to the management of tensions, it is argued that cooperating competitors either have to separate or integrate identified critical activities and resources to ensure effective management (Fernandez et al., 2014; Seran et al., 2016).

The key aspect of this scientific work is an investigation of the implications of coopetition on competitiveness. In order to categorize empirical research papers related to competitiveness implications of coopetition, Bengtsson and Raza-Ullah’s (2016) classification has been applied. The researchers distinguish outcomes of coopetition into knowledge, innovation and firm performance. According to current research results, it is still not clear whether or not coopetition increases competitiveness. However, several research studies supporting the hypothesis that coopetitive arrangements have positive effects on competitiveness in terms of knowledge, innovation and firm performance. For example, the researchers Kumar and Dutta (2017), Huang and Yu (2011) and Kostopoulos et al. (2011) have revealed that coopetition has positive effects on competitiveness, whereas quantitative research studies from Kang and Kang (2010) and Nieto and Santamaria (2007) have identified otherwise. As a result, there are still more empirical research efforts required to answer that research issue.
1 Introduction

1.1 Problem Statement

In traditional western business thinking, competition is perceived as the opposite of cooperation, as a consequence, the concept of simultaneous competition and cooperation between competitors is paradoxical (Chen, 2008, p. 287; Raza-Ullah et al., 2014, p. 190). Coopetition is the concept where two or more firms work together while being rivals with regard to their market share simultaneously (Nalebuff & Brandenburger, 1997, p. 28f). Furthermore, it is proposed that performance of such dyadic undertaking depends on its underlying dynamics regarding market commonality and resource similarity (Peng et al., 2012, p. 535f). Consequently, the concept of coopetition will be in-depth investigated along with its theoretical foundations including its levels and phases to allow for multilevel analysis of the research topic (Bengtsson & Raza-Ullah, 2016, p. 23).

In the era of globalization and dynamic business environments, firms are searching for competitiveness, resulting from low rates of innovation in matured industries, a lack of resources for geographical expansion in multinational corporations and high research and development costs (R&D) of high-tech corporations (Park et al., 2014; Gnyawali & Park, 2011). Therefore, this Master’s Thesis aims to provide insights into the underlying partner selection processes, tensions, and development of coopetition strategy (Dahl et al., 2016; Fernandez et al., 2014). Implications of centrality in coopetition networks, as well as situational recommendations for multinational corporations, are provided to enable efficient management of coopetitive operations (Luo, 2007; Luo et al., 2008; Sanou et al., 2016).

Furthermore, coopetitive relationships are investigated regarding their competitiveness-related outcomes (Kumar & Dutta, 2017; Lechner et al., 2016; Ritala & Sainio, 2014).

Coopetition is most common in the global automotive and aviation industries, where collaboration takes place in terms of joint R&D and manufacturing (Ritala & Hurmelinna-Laukkonen, 2009, p. 819). A reasonable example for cooperation among competing high-tech firms is subject to analysis in Gynawali and Park’s (2011) research paper ‘Co-opetition between giants: Collaboration with competitors for technological innovation’, wherein the case of Sony Corporation and Samsung Electronics is analyzed with regard to the output of coopetitive behavior. Although the competitors have conjointly worked together at the innovation stage of a certain technology, they have kept on competing in other areas (Gnyawali & Park, 2011, p. 655). Definitively, those two firms have fundamentally changed the entire industry by changing the way how research and development is done.
1.2 Objective of the Master’s Thesis

Based on the method of the traditional literature review, this scientific work is going to provide a comprehensive set of information regarding the concept of coopetition. After investigation of the key theoretical aspects of simultaneous cooperation and competition, the research literature regarding competitiveness-related outcomes is going to be stated in this Master’s Thesis. In accordance with Jesson et al. (2011, p. 76), this traditional literature adopts a critical approach by examining theories and empirical research studies in a critical way. Furthermore, some systematic components from the systematic literature review are going to be applied in order to enhance the completeness of the arguments by stating the quality of the research papers. As the complexity of this scientific work increases, there might also be an identification of a research gap in the field of coopetition. In this sense, this Master’s Thesis gives the interested reader an in-depth examination of the concept of coopetition with its different facets as well as performance implications.
2 Research Method

This Master's Thesis deals with competitiveness as the normative outcome of coopetitive arrangements. Therefore, cooperation among competitors is investigated in terms of a global business context. The illustration stated below shows how analysis of the concept of coopetition enables to answer the overall research question of this scientific work.

As a result of the growing amount of coopetition research literature available, this Master's Thesis is designed as a theoretical desk research work, where solely secondary data is used. More specifically, the methodology of the traditional literature review is applied. Consequently, the identified research literature have been assessed regarding its quality in terms of peer-reviewed publications (Jesson et al., 2011, p. 104). For each chapter, the primary used scientific literature and their respective journal rankings are stated (Tranfield et al., 2003, p. 208f). Therefore, data from the peer review platform VHB online is adopted in this Master's Thesis. For the sake of completeness, journal rankings from CEFAGE complement missing ranks from the VHB online database. The VHB online database classifies academic management literature into A+, A, B, C, D, whereas CEFAGE reviews academic journal on the following methodology of AAA, AA, A, B, C and D (CEFAGE, 2015, p. 3; VHB, 2017). Furthermore, the research method of the research paper is provided, whereby in this Master's Thesis it is distinguished between qualitative research, quantitative research, conceptual framework, and systematic literature review.

Figure 1 Research Questions

What is the concept of cooperation among competing firms?

What are the current research findings regarding coopetition as a source of competitiveness?
After an initial investigation of the essential literature, keywords have been identified in order to find relevant scientific papers with the academic literature service Google Scholar. Most relevant key words of the research topic coopetition are collaboration among competitors, coopetition, cooperation-competition, inter-organizational collaboration, business model innovation coopetition. Furthermore, the online platform Coopetitionworld\(^1\), which is managed by a group of dedicated doctoral researchers, has been investigated in order to identify relevant research papers and upcoming trends within the coopetition research stream.

Since access is often limited within the Google Scholar services, the JKU university services were used as the primary source of literature including the following services: LISSS, EZB eJournals, and DBIS databases, which are applied to obtain the required data. Furthermore, the DBIS databases contain various academic literature databases like EBSCO host, WISO, Emerald, ScienceDirect, Wiley Online Library, Web of Science, SpringerLink and JStore. At times, there are access restrictions, to some extent, within these mentioned academic literature databases; then, the online search engine Researchgate is applied to obtain the required scientific paper.

3 Definition and Theoretical Foundations of Coopetition

The emphasis in this chapter is to give a central theoretical understanding of the concept of coopetition. Therefore, in the following subsection a clear definition, theoretical foundations including the game theory, resource-based view of the firm, the network approach, transaction cost economics and resource dependence theory are stated and brought in line with the respective research topic. Besides the distinctive levels and phases of simultaneous cooperation and competition relationships, Lado et al.’s (1997) model of rent-seeking behavior, as well as a multilevel approach (Bengtsson & Raza-Ullah, 2016) are provided to enable investigation of the concept of coopetition from multiple stages. The following Table 1 states the most relevant research literature used in this chapter including their research method, key findings and corresponding journal rankings from VBH online, and where relevant from CEFAGE.

\(^1\) Source: https://coopetitionworld.com/resources/aggregated-references-list/academic-articles/
<table>
<thead>
<tr>
<th>Name of researcher, Journal</th>
<th>Research method</th>
<th>Title of research paper</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bengtsson and Raza-Ullah (2016), Industrial Marketing Management (B)</td>
<td>Systematic literature review</td>
<td>A systematic review of research on coopetition: Toward a multilevel understanding</td>
<td>Identification of two different school of thoughts: actor and activity school; development of multilevel model of coopetition covering drivers, processes and outcomes</td>
</tr>
<tr>
<td>Chen (2008), Journal of Management Inquiry (B)</td>
<td>Conceptual framework</td>
<td>Reconceptualizing the Competition-Cooperation Relationship</td>
<td>Conceptualization of the competition-cooperation relationships: • Independent opposites • Interrelated opposites • Interdependent opposites</td>
</tr>
<tr>
<td>Chen and Miller (2012), Strategic Management Journal (A)</td>
<td>Conceptual framework</td>
<td>Reconceptualizing competitive dynamics: A multidimensional framework</td>
<td>Reconceptualization of competitive dynamics: • Rivalrous • Competitive-cooperative • Relational</td>
</tr>
<tr>
<td>Chiambaretto and Dumez (2016), International Studies of Management &amp; Organization (C)</td>
<td>Systematic literature review</td>
<td>Toward a Typology of Coopetition: A Multilevel Approach</td>
<td>Tensions within coopetition relationships may not arise at the same organizational level</td>
</tr>
<tr>
<td>Dowling et al. (1996), Journal of Management Inquiry (B)</td>
<td>Conceptual framework</td>
<td>Multifaceted Relationships Under Coopetition: Description and Theory</td>
<td>Identification and description of determinants of multifaceted relationships (coopetition)</td>
</tr>
<tr>
<td>Dorn et al. (2016), European Management Journal (B)</td>
<td>Systematic literature review</td>
<td>Levels, phases and themes of coopetition: A systematic literature</td>
<td>Identification of three distinctive level of coopetition research: • Inter-firm • Intra-firm</td>
</tr>
</tbody>
</table>
### Table 1: Primary literature findings regarding definition and theory of coopetition

<table>
<thead>
<tr>
<th>Source</th>
<th>Study Type</th>
<th>Research Area</th>
<th>Findings</th>
</tr>
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<tbody>
<tr>
<td>Peng et al. (2012), British Journal of Management (B)</td>
<td>Quantitative research</td>
<td>Is Cooperation with Competitors a Good Idea? An Example in Practice</td>
<td>Conceptual framework for coopetition performance</td>
</tr>
<tr>
<td>Quintana-Garcia and Benavides-Velasco (2004), Technovation (C)</td>
<td>Quantitative research</td>
<td>Cooperation, competition, and innovative capability: a panel data of European dedicated biotechnology firms</td>
<td>Transaction cost economics as governance form for coopetition relationships, development of agreements to reduce opportunism</td>
</tr>
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</table>

### 3.1 Definition

The term coopetition was originally coined in the 1980s by Raymond John Noorda, the founder of Novell, an American software and service company, and was then brought to ordinary business by Nalebuff and Brandenburger (1996) in the 1990s. Although the concept of coopetition is a relatively new field of research, it receives a considerable amount of attention including its various nuances (Rusko, 2011, p. 311). As stated in Nalebuff and Brandenburger (1997, p. 28) business is traditionally considered as war, whereas partnerships and alliances are denoted as peace. From a competitive standpoint, firms
intend to outperform and maximize their market share at the expense of other market players, while collaboration among firms emphasizes on common actions. Although both of the concepts have the ability to describe relationships, none of them can fully explain inter-organizational relationships (Kraus et al., 2017, p. 3). However, in the era of globalized business environments and digitized markets, the metaphor “business is war and peace” (Brandenburger & Nalebuff, 1996, p. 4) simultaneously better fits to the new conditions.

“Business is cooperation when it comes to creating a pie and competition when it comes to dividing it up” (Brandenburger & Nalebuff, 1996, p. 4)

Initially, coopetition is a portmanteau constituting of cooperation and competition, which are regarded, in traditional western business thinking, as two opposing entities (Chen, 1996, p. 287; Raza-Ullah et al., 2014). As a result, Chen (2008) has set up in his seminal work ‘Reconceptualizing the competition-cooperation paradox’ a framework to converge the Western paradox conception and the Chinese middle way philosophy. The framework comprises of three cooperation and competition types of relationships (Chen, 2008, p. 298):

- ‘Independent opposites’
- ‘Interrelated opposites’
- ‘Interdependent opposites’

![Figure 2 Competition-cooperation relationships](Chen, 2008, p. 298)
The Figure 2, stated above, depicts the distinctive relations of competition and cooperation, in which the first conception ‘Independent opposites’ refers to the independency of cooperation and coopetition. The perception of the first relationship is that both concepts are irreconcilable and thus respective absolutes (Bengtsson & Kock, 2000, p. 412). Chen (2008, p. 297f) further asserts that coopetition and competition cancel out each other and therefore lead to a zero-sum game. The second conception comprises of inter-organizational relationships, as illustrated in Figure 2, resulting in an intersection of both components. In this view, competition and cooperation influence each other. ‘Interrelated opposites’ further comprises of uncertainty and risk, insofar that interfirm collaborations need to be managed with prudence, as it is the case with the joint establishment of industry standards (Chen, 2008, p. 298). For instance, the introduction of new standards like HD- TV, fax machines and ATM systems, needed cooperative interactions in order to be successful and once the standard is established competitive moves within the network will increase. Furthermore, as new opponents may enter the market, which may result in higher competition, competitors within in an industry have to maintain the standard on a cooperative basis in order to avoid material devaluation of the investment (Chen, 2008, p. 298).

The third conception ‘Interdependent opposites’ encompasses an all-inclusive understanding of cooperation and competition (Chen, 2008, p. 299). Both conceptions are intertwined in a way that it is impossible to view them as separate, opposing entities. Both concepts of coopetition and cooperation are unified and covering all possible interfirm dynamics and beyond (Chen, 2008, p. 299). The all-inclusive view of the interdependent opposites further adopts suppositions from the inter-organizational relationship (IOR) researchers, which represent the position that firms naturally operate in business environments of relational interconnectedness and that those entities depend on their linkages to other organizations (Oliver, 1990, p. 259f). The distinction of the three competition-cooperation relationships allows for further theoretical investigation of the concept of coopetition.

Corresponding research from Chen and Miller (2015) focuses on the reconceptualization of competitive dynamics by providing a respective multidimensional framework. Therefore, the researchers build upon the competition-cooperation relationships developed by Chen (2008) in order to draw out three distinctive views of the concept of competitive dynamics:
• ‘Rivalrous’
• ‘Competitive-cooperative’
• ‘Relational’

The first view ‘Rivalrous’ is equal to ‘Independent opposites’, ‘Competitive-cooperative’ is equal to ‘Interrelated opposites’ and the third view ‘Relational’ is equal to ‘Interdependent opposites’. As stated above, this scientific work emphasizes on the ‘Competitive-cooperative’ view respectively coopetition and the ‘Relational’ view. These views are analyzed by Chen and Miller (2015, p. 761) along the following dimensions: Aim, mode, actors, toolkit and time horizons. However, the from Chen and Miller (2015) developed framework is stated in the subsection of the ‘Resource-based view’ of the theoretical foundation’s subchapter.

In general, the competitive-cooperative view refers to cooperation among competitors, insofar, that it aims to the increase competitive advantage of the firm, while the relational dimension emphasizes on mutual value creation for multiple stakeholders, according to Chen and Miller (2015, p. 761f). The competitive-cooperative view focuses on the rivaling firms, while the relational view incorporates a wider set of stakeholders and thus allows for a redefinition of technological and industry boundaries as well as changes of the underlying ideology (Chen & Miller, 2015, p. 764). In the following subchapters, insights into the academic foundations of competition-cooperation relationships are provided.

3.2 Theoretical Foundations

In this Master’s Thesis, the emphasis is placed on the two latter competition-cooperation relationships, ‘Interrelated opposites’ and ‘Interdependent opposites’, which perceives competition and cooperation on the one hand as opposing but interrelated entities and on the other as completely intertwined concepts (Chen, 2008, p. 298). For example, competition with one division of a firm does not compromise cooperation with another one. There are numerous research streams adopting different underlying theories on the concept of coopetition, which will be subject to further investigation in the following subchapters. These theories are:

- Game theory (Brandenburger & Nalebuff, 1996; Ritala & Hurmelinna-Laukkanen, 2009)
- Resource-based view (Bengtsson et al., 2016; Chen, 1996; Chen & Miller, 2015)
- Network approach (Gulati, 1998; Gulati & Gargiulo, 1999)
• Transaction cost economics (Powell, 1990; Quintana-Garcia & Benavides-Velasco, 2004)
• Resource dependence theory (Dowling et al., 1996; Pfeffer & Salancik, 1978)

3.2.1 Game Theory

The game theory has been applied to the concept of coopetition by Brandenburger and Nalebuff (1996). According to the researchers, the underlying theory has the potential to abolish the widespread assumption that business is war and its corresponding zero-sum outcomes. The perspective that one wins at the expense of the other is only one side of the subject (Brandenburger & Nalebuff, 1996, p. 5f; Padula & Dagnino, 2007, p. 35). The game theory can also be applied to positive-sum or so-called win-win situations (Lado et al., 1997, p. 122f; Yami et al., 2015, p. 333). Basically, respective theory helps to predict or give advice on problems for the real world. Therefore, it consists of the game form and a set of propositions. Whereby the game theory can be adopted on specific problems, the results will be only abstract mathematical objects without a link to the real problem (Grüne-Yanoff, 2018, p. np).

However, the better the elements of the real world are specified in the game form, the closer the results on the real social phenomenon (here coopetition) (Ross, 2016, p. np). An appropriate example for coopetition is the game of the stag hunt, where it is supposed that two hunters can either hunt a deer or a hare (Ritala & Hurmelinna-Laukkanen, 2009, p. 821). Each hunter can independently hunt a hare, but a deer needs to be bagged by two hunters. For both hunters is cooperation the best option, since a hare is less valuable than a deer. Cooperation between the hunters has received a higher payoff that would otherwise not be possible individually (Ritala & Hurmelinna-Laukkanen, 2009, p. 821).

In general, the emphasis is on finding the right strategies and making the right decisions (Brandenburger & Nalebuff, 1996, p. 7). In times of high complexity, a change of a specific factor decides if a firm will have success or will fail. Therefore, it is indispensable to break down the complexity into essential elements in order to grasp the various aspects of the business environment and how they are interrelated. Brandenburger and Nalebuff (1996, p. 9) have identified the following five elements as key components:

• Players
• Added values
• Rules
• Tactics
• Scope

However, in this section of the Master’s Thesis emphasis is placed on the ‘Players’. In this sense, the researchers have developed a value net serving as a conceptual scheme for the application of the game theory (Nalebuff & Brandenburger, 1997, p. 30). It is further proposed by the researchers to adopt the game theory at all business levels since decision-making is becoming more complex and decentralized (Nalebuff & Brandenburger, 1997, p. 7). The Figure 3, stated below, depicts the players within the value net and their interdependencies:

![Value Net Diagram]

Figure 3 The value net (Nalebuff & Brandenburger, 1997, p. 30)

The value net provides a firm with information regarding its players and their inherent roles as well as the interdependencies among them (Brandenburger & Nalebuff, 1996, p. 16f). The figure above comprises of competitors, customers, complementors and suppliers as potential players of the business game. Complementors refer to an organization providing corresponding products or services, as it is, for instance, the Intel Corporation with its computer chips to the Microsoft Corporation. The value net helps to map all significant players and their linkages systematically. However, the value net reveals the two fundamental symmetries within a business game. On the vertical axis, customers and suppliers are symmetric and thus are equal players when it comes to value-creation, whereas competitors and complementors are supposed to be their mirror-images (Brandenburger & Nalebuff, 1996, p. 21).

The game theory applied to the concept of coopetition normatively enables a firm to achieve superior performance. The value added is assessed by taking into account the power
distributions within a game of business (Brandenburger & Nalebuff, 1996, p. 45). Therefore, the market size has to be estimated when the respective firm and all players are involved, minus the market size with all players involved without the respective firm, thus the difference is the performance improvement. The added value depends on what a firm brings in into the overall value net. Hence, a performance improvement above the added value is hard to achieve, since the added value of the respective firms grows at the expense of all other players involved. Thus, from a game theoretical point of view, it is more likely to be left out of the game rather than the other players will give their consent to increase the respective firm’s personal added value (Brandenburger & Nalebuff, 1996, p. 45ff).

3.2.2 Resource-based View

The resource-based view of the firm was developed by Barney (1991) and aims to provide a theoretical framework to assess strategic resources regarding value, rareness, imitability and substitutability in order to understand the sources of sustained competitive advantage. Therefore, it is assumed that strategic resources are heterogeneous among firms and that they are stable over time (Barney, 1991, p. 101f). The concept of coopetition has also been investigated from the resource-based view of the firm (Chen, 1996). The from Chen (1996, p. 104f) introduced conceptualization of market commonality and resource similarity are contradictory to the fundamental assumptions of the resource-based view; both concepts are nevertheless rooted in the resource level of the firm.

According to Chen (1996) and Peng et al. (2012), the relationship between two or more firms depends on their market commonality and resource similarity. A heterogeneous resource base positively contributes to cooperation, while market commonality supports competitive interactions between rivals. Therefore, resource similarity and market commonality may, in turn, lead to simultaneous competition and cooperation (Peng et al., 2012, p. 536f). The Figure 4, stated below, illustrates Peng et al.’s (2012) framework for coopetition performance, which is built on the competitive dynamics framework developed by Chen (1996). Peng et al. (2012, p. 535) for this purpose found out that market commonality and resource similarity affect not only competitive dynamics but also impacting coopetitive dynamics. Thus, leading to an overall improvement of performance at least for a temporary time (Peng et al., 2012, p. 549).
Corresponding to the advancement of the competition-cooperation relationships as stated in the previous subchapter ‘Definitions’, the multidimensional framework of competitive dynamics developed by Chen and Miller (2015) is subject to analysis. The identified views of competitive dynamics are ‘Rivalrous’, ‘Competitive-cooperative’ and ‘Relational’ and serve as the basis of the respective framework. The primary purpose of the framework is to provide insights into competitive dynamics to identify measures how to encourage relational competition (Chen & Miller, 2015, p. 766f). Therefore, the from Chen and Miller (2012) developed Awareness Motivation Capability (AMC) model is applied to develop the framework (Table 2) and formulate the propositions. The dimensions of awareness, motivation and capability, are then analyzed with regard to the organizational-, industry- and culture-level factors. This analysis takes place by weighing against the ‘Rivalrous’ respectively ‘Independent opposites’ and the ‘Relational’ respectively ‘Interdependent opposites’ view of competitive dynamics.

<table>
<thead>
<tr>
<th></th>
<th>Awareness</th>
<th>Motivation</th>
<th>Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
<td>Organizational structure and systems</td>
<td>Firm governance culture, incentives</td>
<td>Strategic resources and core capabilities</td>
</tr>
<tr>
<td><strong>Industry</strong></td>
<td>Physical proximity</td>
<td>Crisis and birth</td>
<td>Resource-rich environments</td>
</tr>
<tr>
<td><strong>Culture</strong></td>
<td>Upbringing and socialization</td>
<td>Values and mores</td>
<td>Experience and practice</td>
</tr>
</tbody>
</table>

*Table 2 Framework for relational propositions based on Chen and Miller (2015, p. 766)*

**Awareness**

At the organizational level of analysis relational competition could be encouraged through increased awareness of a firm regarding the strengths and interests of its key stakeholders and partners as well as the competitive attitudes of its rivals. It is further proposed that flat organizational structures are more suitable to scan the external business environment than
centralized and formalized organizational structures and thus are more likely to support relational competition (Chen & Miller, 2015, p. 766). The physical proximity with regard to the industry-level factor can positively contribute to the information exchange of rivaling firms. Such communication improves the awareness of strengths and weaknesses of the competitors and thus encourages the formation of complementary alliances. Under the term, 'Upbringing and socialization' should be understood that the cultural individualism and collectivism have different impacts on relational competition. Therefore, this mindset should encourage entities to discover opportunities, which are beneficial to the firm itself and other stakeholders, as well as its competitors (Chen & Miller, 2015, p. 767f).

Motivation
The organizational level is investigated from a motivational point of view and includes the firm governance, culture and incentives. The emphasis is placed on the value distinctions of large public corporations and family-owned businesses (Chen & Miller, 2015, p. 767). At large public corporations, the management is primarily motivated and rewarded by the achievement of short-term gains, while smaller firms focus on long-term value creation. However, they have in common to build a motivated workforce, aiming to accomplish the set objectives. Therefore, it is proposed that long-term strategic objectives encourage to adopt relational competition practices (Chen & Miller, 2015, p. 767). The crisis within industries and resource scarcity are motivational drivers for firms to engage in relational competition. Thus, rough times may stimulate future success. Moreover, different values in Western and Eastern societies have encouraged different cultures. Western societies put the focus on competition, whereas Eastern societies place emphasis on cooperative relationships and thus are more likely to adopt to the relational competition thinking (Chen & Miller, 2015, p. 768f).

Capability
Investment in capability development, acquisition of favorable locations, implementation of superior processes and equipment as well as recruiting of superior human resources may have positive effects on stakeholder loyalty (Chen & Miller, 2015, p. 768). Therefore, such overall advantageous conditions could lead to the adoption of relational competition. In resource-rich environments, for instance, large cities, firms have the possibility to engage in favorable partnerships. Firms operating in resource-weak regions forge partnerships with different functions for the purpose of survival. However, it is proposed that firms operating in resource-rich environments have the capabilities, motivation and awareness to engage in relational competition (Chen & Miller, 2015, p. 768). According to the authors, Eastern executives have the interpersonal skill to monitor reaction from others and considering
group viewpoints. This skillset is superior to forge large business networks and social relationships and is thus encouraging relational competition.

The respective outcome of adopting relational competition is at first glance not apparent since the outcomes of engaging in such complex relationships are long-term oriented and invest in ideas, capabilities and the relationship itself, resulting in improved overall performance, high-quality products and motivated workforce (Chen & Miller, 2015, p. 769; Lado et al., 1997, p. 123). Thus, firms engaging in relational competition need to review their relationships and interactions constantly. Furthermore, it is indispensable to ensure consistency of relational behavior in order to safeguard key stakeholders’ trust (Chen & Miller, 2015, p. 769).

3.2.3 Network Approach

A social network is “a set of nodes (e.g., persons, organizations) linked by a set of social relationships (e.g., friendship, transfer of funds, overlapping membership) of a specified type” according to Laumann et al. (1978, p. 458). Moreover, Powell (1990, p. 323f) states that the network theory constitutes of three critical factors, know how, demand for speed and trust for promoting and sustaining network forms. Know how perceived as a critical component for engagement in network forms, insofar, that the exchange of complementary information and capabilities lead to shared values and therefore to trusted relationships between the partnering firms. Demand for speed refers to technological competition and the need for reducing costs. Therefore, coalitions and partnerships are means to accomplish those objectives since internal developments may be costly and not as rapid. Trust is perceived as critical for the sustainability of network forms since the desire for continued collaborations may reduce the chance of opportunism (Powell, 1990, p. 324f). Moreover, it is proposed, that from a network perspective, economic actions are influenced by the social environment in which an actor is embedded (Gulati, 1998, p. 295).

Correspondingly, Gulati (1998, p. 298) has identified five key subjects of networks: Formation of alliances, the choice of governance structure, dynamic evolution of alliances, the performance of alliances and the performance consequences for firms entering alliances. However, in this subsection, the network approach is investigated with regard to coopetitive relationships by highlighting the formation process and its performance consequences for the network itself and the firms involved. Organizations tend to create ties with other entities in uncertain environments in order to obtain needed resources and capabilities (Gulati, 1998, p. 301).
Furthermore, the inter-organizational collaboration itself comprises of uncertainties in terms of opportunism and imperfect information of the partnering firm. Therefore, it is asserted that trust and ample exchange of information are indispensable components of such relationships (Gulati & Gargiulo, 1999, p. 1440). According to Powell et al. (1996, p. 116f) and Gulati (1998, p. 299f), inter-organizational relationships within the same industry result from the critical strategic interdependence of the corresponding firms. This is consistent with the research results from Gulati and Gargiulo (1999, p. 1472), which have analyzed the effects of interdependence within an industry on the creation of new alliances. However, the measurement of performance consequences of alliances is problematic, according to the authors. Therefore, McCutchen et al. (2008) have analyzed the outcome of alliances in terms of its rate of termination, whereas other researchers have explicitly focused on the alliance failure rate. Kale et al. (2002), for example, have investigated the performance level of the alliance entering firm by measuring its stock market performance.

Taking on theoretical insights from the resource-based view, which has been described above, Gnyawali and Madhavan’s (2001) conceptual model of structural embeddedness of competitive dynamics is subject to analysis. The concept of structural embeddedness emphasizes on networks and is applied to investigate effects of external resources on competitive interactions within networks (Gnyawali & Madhavan, 2001, p. 432; Granovetter, 1985, p. 487f). Basically, in social science, it is distinguished between structural embeddedness and relational embeddedness (Moran, 2005, p. 1145).

In respective theory following four insights are consolidated, which positively contributes to a networking firm: Networks provide firms with internal resources held by network members; external capabilities, which are created within inter-organizational networks of simultaneous cooperating and competing firms complement internal resources; the rate of return of internal resources is determined by the network structure; and the network position influences the capability to acquire competitive capabilities (Gnyawali & Madhavan, 2001, p. 432). The structural properties of centrality, structural autonomy, structural equivalence and network density shaping the action and response likelihood within inter-organizational networks.
The above-stated Figure 5 shows graphically how the structural properties influence the competitive behavior within networks, whereby the fourth property ‘Network density’ serves as a moderating role. The effects of ‘Centrality’ refer to a firm’s position within a network and its thereof resulting implications (Gnyawali & Madhavan, 2001, p. 434; Sanou et al., 2016, p. 146). However, this is subject to investigation in the later subsection ‘Centrality in coopetition networks’.

According to Gnyawali and Madhavan (2001, p. 436), the higher the centrality of a firm within a network the higher is the likelihood that the firm initiates a competitive action and the lower is the likelihood that competitors initiate a response to this action. The effects of ‘Structural autonomy’ refers to structural holes, which have been outlined by Burt (1995). Structural holes exist in networks when for example actor A has ties to actor B and actor C, but B and C have only connection to each other through actor A. As a result of such structural autonomy respective actor A has earlier access to new information, superior opportunities for control and higher integration in interactions (Burt, 2004, p. 353f; Gnyawali & Madhavan, 2001, p. 436).
The third property ‘Structural equivalence’ denote actors with similar attitudes or patterns, which may have not direct ties to each other (Rice & Aydin, 1991, p. 223). It is further stated that structurally equal actors tend to imitate themselves and possessing identical information assets and resource profiles. Although the competitive dynamics literature suggests that resource symmetry leads to competitive interactions, those may not be directly pointed since they are mutually dependent from each other (Gnyawali & Madhavan, 2001, p. 438). The effects of network density describe the degree of interconnectedness among the actors. Networks with high-density facilitate efficient exchange of information and resources. As a result, firms participating in high-density networks have a lower probability of having unique access to information (Gnyawali & Madhavan, 2001, p. 439). However, as already mentioned above network density serves also as moderating role since high network density decreases the effects of structural centrality and structural equivalence and increase the effects of structural autonomy.

### 3.2.4 Transaction Cost Economics

The core assumption of the transaction cost theory is that transactions, which involve uncertainties regarding their outcomes, are frequently conducted and requires considerable transaction-specific investments those should be performed within a hierarchical system (Williamson, 1981, p. 550f). Repetitive and low-risk investments, in turn, should be performed across the market interface (Powell, 1990, p. 296f). As the specificity of assets increase, transactions will be performed within the firm, although the costs associated with the underlying transactions are relatively higher. There are two reasons for this decision: Bounded rationality and opportunism (Williamson, 1981, p. 553). The concept of bounded rationality refers to the economic inability to set up contracts covering all contingencies, and opportunism to the pursuit of one’s advantage (Powell, 1990, p. 297). This is of particular interest when it comes to simultaneous cooperation and competition. For instance, Nieto and Santamaria (2007, p. 369f) have identified that coopetition is not suitable for the development of highly novel innovations since information leakage and the risk of hold up is more likely with competitors.

According to Quintana-García and Benavides-Velasco (2004, p. 928), transaction cost economics serves as a governance form aiming to reduce risk associated with markets and firms. More specifically, the researchers refer to the exchange of tactical knowledge, which is on the one hand difficult to formalize and on the other challenging to estimate its true value, when transmission takes place through the market. Therefore, when it comes to cooperation among direct competitors, an opportunistic behavior may undermine the forged agreements (Quintana-García & Benavides-Velasco, 2004, p. 928f). According to Powell et
al. (1996, p. 117f), exchange of resources needs to be carefully weighed against its potential for value creation and associated risk.

### 3.2.5 Resource Dependence Theory

The resource dependence theory describes the effects of external resources on a firm (Pfeffer & Salancik, 1978, p. 43). More specifically, a firm conducts transactions with other market participants in order to survive. Such transactions comprise of monetary, physical or information assets, which makes the firm dependent on its environment. As a result, market participants attempt to create power to assert power over other organizations (Gulati & Sytch, 2007, p. 33; Pfeffer & Salancik, 1978, p. 44f). In general, three distinctive components determine the dependence of a firm to another (Dowling et al., 1996, p. 158):

- Importance of resources
- Discretion over resource use
- Concentration of resource control

The importance of resources is distinguished between the relative magnitude and criticality of the exchanged resource. Concerning the relative magnitude of the exchanged resources, firms are confronted with different degrees of dependence when producing one or more products. The criticality of the resource refers to the ability to ensure long-term existence of the firm. However, the criticality may change over time for the specific resource (Pfeffer & Salancik, 1978, p. 46). The discretion over resource allocation and use is also a main driver of power and becomes more critical when the respective resource is scarce. Such power constitutes of the amount of knowledge, access and the ability to make rules about the possessed resource (Dowling et al., 1996, p. 158; Pfeffer & Salancik, 1978, p. 48). The concentration of resource control refers to the ability of the firm to access the resource from additional sources. This is especially relevant when a firm holds a monopoly position over a specific resource, irrespective of the subject that the firm is legally protected or as a result of its operational excellence (Pfeffer & Salancik, 1978, p. 55).

With regard to inter-organizational relationships, the resource dependence theory distinguishes interdependence between actors into competitive and symbiotic respectively cooperative interactions (Gast et al., 2015, p. 9; Pfeffer & Salancik, 1978, p. 41). However, focus here is placed on the perceived dependency of one firm to another within a coopetition relationship. For instance, Bouncken and Fredrich (2012, p. 7) state that under high dependency the less powerful coopetition partner will not suffer negative consequences,
instead of the dependent firm will benefit through reduced coordination costs. Furthermore, it is proposed that the dependency between the cooperating firms may lead to improved innovation through development of alliance strategy and goal orientation (Bouncken & Fredrich, 2012, p. 17). Moreover, the resource dependence perspective is applied in coopetition relationships between multinational corporations and host governments.

3.2.6 Comparison of the Underlying Theories

The following table subsumes the main parts of each theory provided in this subsection:

<table>
<thead>
<tr>
<th></th>
<th>Game theory</th>
<th>Resource-based view</th>
<th>Network approach</th>
<th>Transaction cost theory</th>
<th>Resource dependence theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit of analysis</td>
<td>Cooperative equilibrium</td>
<td>Resource heterogeneity and immobility</td>
<td>Cooperative ties among competitors</td>
<td>Firm versus market</td>
<td>Effects of external resources on the firm</td>
</tr>
<tr>
<td>Outcome</td>
<td>Added value through positive-sum games</td>
<td>Performance through resource similarity and market commonality</td>
<td>Learning and knowledge sharing</td>
<td>Provider of governance structure</td>
<td>Reduction of dependencies</td>
</tr>
<tr>
<td>Avoidance</td>
<td>Leakage of specific knowledge</td>
<td>Corrosion of competitive advantage</td>
<td>Lack of trust</td>
<td>Maximization of individual learning</td>
<td>Power imbalance</td>
</tr>
<tr>
<td>Risks</td>
<td>Opportunism</td>
<td>Opportunism</td>
<td>Opportunism</td>
<td>Opportunism and risk of hold up</td>
<td>Asymmetric interdependence</td>
</tr>
</tbody>
</table>

The table stated above indicates the distinctions and commonalities of the theoretical perspectives adopted to the concept of coopetition. Although the structuring of this paper presumes that those underlying theories are separated and mutually exclusive, they are in fact to some extent intertwined in a way that they either support each other or are built upon another. For instance, the concept of competitive dynamics (Chen, 1996) has its theoretical roots within the resource-based view of the firm and was then brought to transaction cost economics by Chen and Miller (2015, p. 770f). The researchers state that in terms of
relational competition strong cooperative ties among competitors could reduce transaction costs as it is with the internal transmission of knowledge. Moreover, the risk associated with the concept of coopetition are identical according to the currently available research.

3.3 Levels and Phases of Coopetition

Corresponding to the theoretical perspectives provided above, Dorn et al. (2016, p. 487f), have conducted a comprehensive literature review, in which they have identified three distinctive levels of coopetition research:

- Inter-firm level
- Intra-firm level
- Network level

The majority of the coopetition literature focuses on the inter-firm level, whereas the intra-firm level has not attracted many research attentions according to the authors. In turn, simultaneous competition and cooperation shifts from the inter-firm level to the network level, as it is the case with networks, ecosystems, supply chains and platforms. Each identified level of analysis is then investigated along with its antecedent phase, initiation phase, managing and shaping phase, and evaluation phase (Dorn et al., 2016, p. 488).

In the following Table 4, the three levels of coopetition research are illustrated to give an overview of their input and to enable differentiation between them. As already stated above, this Master’s Thesis emphasizes on the inter-firm level and network level of analysis. For the sake of completeness, the intra-firm level is stated in order to provide the interested reader with full information regarding current coopetition research streams.

<table>
<thead>
<tr>
<th></th>
<th>Inter-firm level</th>
<th>Intra-firm level</th>
<th>Network level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antecedents</strong></td>
<td>Market conditions, dyadic and individual aspects</td>
<td>Coopetition of business units and subsidiaries</td>
<td>Network position and compatibility of structures</td>
</tr>
<tr>
<td><strong>Initiation phase</strong></td>
<td>Agreement form</td>
<td>Mechanisms and structural conditions</td>
<td>Partner identification and governance structures</td>
</tr>
<tr>
<td><strong>Managing &amp; shaping phase</strong></td>
<td>Balancing coopetition</td>
<td>Communication</td>
<td>Re-shaping the network design</td>
</tr>
</tbody>
</table>
**Table 4 Levels and phases of coopetition research based on Dorn et al. (2016, p. 488)**

<table>
<thead>
<tr>
<th>Evaluation phase</th>
<th>Performance of the firm and industry</th>
<th>Knowledge sharing and enhanced customer orientation</th>
<th>Creation of sub-networks through coopetition</th>
</tr>
</thead>
</table>

**Inter-firm level**

In general, the antecedents of the inter-firm level can be divided into market conditions, dyadic and individual aspects (Dorn et al., 2016, p. 487). The game theory, as well as the transaction cost economics, can be attributed to the market conditions, whereas the resource-based view is referred to the dyadic aspects. Individual aspects are firm-specific factors, for instance, strategy formulation, goal characteristics and resource endowment. The initiation phase of coopetition emphasizes on the agreement form, while only the cooperation side of the overall concept is subject to formal contracts, structural design of the organization to enable coopetition, and relational mechanisms and routines to manage the complexity of dual relationships (Dorn et al., 2016, p. 489f). The managing and shaping phase puts focus on the balance of simultaneous cooperation and competition relationships, as well as the management of dynamics arising of coopetitive relations since expectations of the partnering competitors may change over time and the management of tensions and conflicts. Furthermore, identification of potential sources of tensions takes place as well as the potential for opportunistic behavior. Lastly, the evaluation phase deals with the outcome of coopetitive relationships with regard to the inter-firm level. The outcomes of dual relationships are investigated at the firm level and from industry level, for instance, if coopetition promotes radical innovation (Dorn et al., 2016, p. 491).

**Intra-firm level**

According to Dahl et al. (2016, p. 491), the intra-firm level of analysis is still an under-researched topic. Conversely to the antecedents of coopetition at the inter-firm level, the starting point is cooperation since subsidiaries, teams or groups work towards the achievement of a common corporate goal. The initiation phase emphasizes on mechanisms and structural conditions for headquarters to initiate and coordinate cooperation between competing subsidiaries or business units (Luo, 2005, p. 84f). The managing and shaping phase within a multinational corporation deals with the development of joint objectives, conflict resolution techniques, and workshops. However, the evaluation phase focuses on the performance outcomes of internal coopetition with regard to social ties across business units or subsidiaries, which enhances customer orientation and knowledge sharing (Dorn et al., 2016, p. 492).
Network level

The antecedents phase of coopetition at the network level focuses on the firm’s position in the network, complementary resources, network structure compatibility and balance of coopetitive relationships. Whereas the initiation phase deals with potential partners to engage with as well as the development of governance structures, the third phase, managing, and shaping emphasizes on how coopetitive interactions shape the design of the network. The research focus of the evaluation phase of networks lies in the formation of sub-networks, which may influence the overall market structure and may enhance value creation. For example, the from Amazon.com, Inc. provided ecosystem impacts the horizontal business networks (Dorn et al., 2016, p. 492f; Ritala et al. 2014, p. 245).

In general, the in this subchapter stated information regarding levels and phases of coopetition aims to provide a framework for the following sections. However, the next sections emphasize on the inter-firm as well as the network level by taking into account simultaneous cooperation and competition from a global standpoint including its inherent relationships with partners and performance outcomes.

3.4 Multilevel Perspective of Coopetition

In this subchapter, a traditional two-dimensional model of coopetition is contrasted with a multilevel model of coopetition in order to provide key insights and developments of the underlying concept. In this respect, Lado et al. (1997) have developed a conceptual framework comprising of the resource-based view of the firm, the game theory and socioeconomics in order to investigate the concept of coopetition. The resource-based view is adopted to describe the antecedents of the concept of rent-seeking behavior, the game theory to describe a firm’s behavior in inter-organizational relationships and lastly, the socioeconomic approach to deal with the consequences of competitive collaborations (Lado et al., 1997, p. 113f). The outcome of combining those three research streams is a four-cell typology along two dimensions – the cooperative and competitive orientation of a firm. The matrix, therefore, exemplifies competitive rent-seeking behavior, monopolistic rent-seeking behavior, collaborative rent-seeking behavior and syncretic rent-seeking behavior, whereas the latter one is also referred to as coopetition. The Figure 5, stated below, illustrates the syncretic model of rent-seeking strategic behavior.
According to the model, the competitive rent-seeking behavior is analogous to competitive rivalry. Firms aim to achieve superior performance by either changing the structural parameters of the underlying industry or by development of unique capabilities and competencies (Barney, 1991; Lado et al., 1997, p. 118f; Porter, 1998). Moreover, this behavior comprises of a zero-sum orientation, where economic rents flow to the firm possessing the right capabilities to utilize scarce resources more efficiently than other market participants. Lado et al. (1997, p. 119) further propose that this perspective may also increase efficiency by reducing transaction costs. However, this is limited when a firm needs specific resources, which are held by a competing firm since opportunities cannot be realized.

The monopolistic rent-seeking behavior constitutes of low competition and low cooperation. The emphasis of this rent-seeking behavior is on favorable government regulation through lobbying activities and on colluding interactions with competitors in order to increase prices and restrain outputs (Lado et al., 1997, p. 111). This kind of strategy is short-term oriented and is advantageous at the expense of the society by reducing societal welfare. Moreover, the long-term viability of the firm may be at risk, due to a firm’s complacency which leads to a decay of organizational skills, management and technological systems, and innovational performance (Lado et al., 1997, p. 120).

The collaborative rent-seeking behavior focuses on pooling of complementary resources, capabilities with stakeholders. Those generated economic rents are also referred to as ‘Composite quasi-rents’, which are defined as “rents generated by a resource that depends on continued association with the resources of others” (Hill, 1990, p. 500). The central aspect of this rent-seeking behavior is trust, since it reduces uncertainty and increases, in turn, the social control of the collaborating firms. However, it is also asserted that negative
opportunistic behavior may occur due to the potential of yielding premium returns and to strategic inflexibility due to specific investments in the cooperative efforts. Thus, the collaborative rent-seeking behavior is not appropriate for the achievement of sustained business viability and performance (Lado et al., 1997, p. 122).

The syncretic rent-seeking behavior respectively coopetition emphasizes on both high cooperative and competitive orientation in order to achieve a positive-sum outcome by balancing competitive and cooperative strategies. This kind of rent-seeking behavior has the potential to improve the overall strategic flexibility by offering a wide range of strategic options for the partnering firms. Therefore, Lado et al. (1997, p. 123f) argue, that partnering firms should have congruent goals, objectives, and expectations. In general, syncretic rent-seeking is characterized by long-term commitment including suppliers as well as competitors (Yami et al., 2015, p. 333). For instance, the Toyota Motor Corporation has maintained several open long-term collaborations with it suppliers and provided a respective network in order to promote cooperation among them, which resulted in higher quality and problem-solving partnerships. Furthermore, a firm adopting this kind of strategic behavior is in all probability more likely to stimulate innovation, market growth and technical advancement (Lado et al., 1997, p. 122f; Bouncken et al., 2015, p. 584f). However, the provided syncretic model characterizes four distinctive rent-seeking behaviors by taking into account the different levels of competition and cooperation, whereas only the coopetitive behavior emphasizes on positive-sum outcomes.

The syncretic model of rent-seeking strategic behavior, which describes the dimensions of competition-cooperation relationships along two dimensions, is according to the researchers Bengtsson and Kock (2014, p. 182) insufficient to understand all implications. More specifically, the investigation of the concept of coopetition through the juxtaposition of the two entities of competition and cooperation may lead to limited results of the respective research topic. As a result, the researchers do not support Lado et al.’s. (1997) four-cell typology of rent-seeking behaviors. Therefore, Bengtsson and Kock (2014, p. 184) call for adoption of a multilevel perspective on the concept of coopetition.

Bengtsson and Raza-Ullah (2016) took on the call for a multilevel perspective by investigating the phenomena of coopetitive relationships and developed a respective model. Consequently, the researchers have conducted a systematic literature review of the existing research literature in the research field of coopetition. The investigation of literature has revealed that coopetition research can be categorized into two distinctive schools of thoughts (Bengtsson & Raza-Ullah, 2016, p. 29):
• Actor school of thought
• Activity school of thought

The actor school of thought focuses on the actors of coopetitive relationships. Therefore, the researchers have applied the value net as the underlying concept, which is subject to investigation in this Master’s Thesis in the subchapter ‘Theoretical foundations’. As mentioned above, the value net comprises of customers, competitors, suppliers and complementors and their interdependencies (Afuah, 2000, p. 388; Brandenburger & Nalebuff, 1996, p. 16f). Furthermore, the systematic literature review has revealed that the majority of coopetition research within this school of thought has been analyzed from the network level. The network level with this regard aims to expand the overall market through collaboration and then subsequently compete for maximizing the firm’s market share (Nalebuff & Brandenburger, 1997, p. 30). The activity school of thought emphasizes in turn on the coopetitive relationship itself, whereas one-to-one direct coopetitive interactions mostly occur at the dyadic level (Bengtsson & Kock, 2000, p. 415; Bengtsson & Raza-Ullah, 2016, p. 27; Resende et al., 2018, p. 178).

In general, the systematic literature review of the concept of coopetition has revealed that the drivers can be categorized into three distinctive, but interrelated parts into external, internal and relational drivers of coopetition. Moreover, it has been devoted that coopetitive processes are dynamic, complex and challenging in nature (Bengtsson & Raza-Ullah, 2016, p. 29). Finally, the framework divides outcomes of competitive collaborations into innovation, knowledge, firm performance and relationship related outcomes since those categories were most frequently used as dependent variables in coopetition-cooperation studies according to the authors (Bengtsson & Raza-Ullah, 2016, p. 31f). The following Figure 6 illustrates the DPO-Framework, which is also referred to as the multilevel model of coopetition.
The DPO-framework, stated in Figure 6, consists of drivers, processes, and outcomes. In the following, the overarching model will be explained to provide insights into the multiple stages of the concept of coopetition. The first part of the multilevel model comprises of the drivers of coopetition, which have been identified as external, relations-specific and internal drivers of coopetition. The external drivers constitute of environmental conditions as the characteristic of the industry, technological demands and influential stakeholders (Bengtsson & Raza-Ullah, 2016, p. 28). Relational drivers of coopetition facilitate engagement of competitive collaborations insofar that it takes into account the characteristics of the partners and the relationship itself. Lastly, the internal driver of coopetition emphasizes on the internal environment and thus on the specific motive of the firm, strategies, goals and its resource and capability base.

The second part of the multilevel model deals with the processes of dual relationships, whereas the distinctive processes are investigated along the actor and the activity school of thought. In general, the processes can be categorized into dynamic, complex and managerially challenging. From the actor school of thought standpoint, the dynamic processes involve variations of interdependencies and interactions as well as reconfigurations of inter-organizational network structures (Bengtsson & Raza-Ullah, 2016, p. 29). Whereby from an activity school of thought perspective dynamic processes focus on the interplay of competitive and cooperative activities of the partnering firms (Bengtsson &
Kock, 2000, p. 418f; Bengtsson & Raza-Ullah, 2016, p. 28f). Moreover, complexities of processes are also distinguished between the two distinctive schools of thought. Processes related to the actors emphasizes on role conflicts, ambiguity and network positions, whereas complexities with regard to the activity school arise in the realm of knowledge-sharing, tensions and contradicting viewpoints of the partnering firms regarding value creation and value appropriation. Managerially challenging processes arise in terms of development of governance structures and regulative policies as well as strategies to balance coopetitive relationships, from an actor school of thought perspective. Whereas the activity school of thought perspective takes into account prior coopetitive experience of relationships, mediation strategies and adoption of coopetitive mindsets of the executives involved (Bengtsson & Raza-Ullah, 2016, p. 30; Wilhelm, 2011, p. 665).

The third part of the DPO-framework places the focus on the corresponding outcomes of coopetitive relationships, which are classified as innovation, knowledge, firm performance and relationship related. Those categories are then further broken down: Innovation-related outcomes are subdivided into innovation performance and incremental and radical innovation. The knowledge-related outcomes are investigated regarding sharing, creation and acquisition of knowledge, whereas the firm performance output is categorized in economic and financial performance, market performance, quality and service and competitive advantage. The last outcome category deals with relational outcomes including maintenance and failure of coopetitive relationships, loss and restoration of trust, and resource commitment as well as learning and achievement of goals (Bengtsson & Raza-Ullah, 2016, p. 31f). However, the overall findings have been integrated into the DPO-Framework by the researchers to enable an in-depth view of the concept of coopetition. The multilevel perspective of coopetition shows that both schools of thought are interconnected and will further improve understanding of coopetitive processes. Also, the majority of studies in that context are mainly based on either the actor or activity perspective and thus impedes a holistic view on coopetition (Bengtsson & Kock, 2014, p. 184; Bengtsson & Raza-Ullah, 2016, p. 32f).

Correspondingly, the multilevel perspective of the concept of coopetition has also been studied by Chiambaretto and Dumez (2016), which have reviewed the existing literature and applied their findings on the airline industry. Therefore, the researchers have investigated coopetition from an organizational level and activity level. The organizational level constitutes of a ‘similar’, ‘dissimilar’ and ‘mixed’ levels, whereas the activity level is characterized through a ‘purely horizontal’, ‘purely vertical’ and ‘combining horizontal and vertical’ level of analysis (Chiambaretto & Dumez, 2016, p. 126f). The main findings are that
tensions within partnerships may not only evolve at the same level of analysis. Instead of, dynamics within the competitive realm may have a negative impact on the stability of coopetitive arrangements. Finally, adoption of a multilevel perspective of simultaneous cooperation and competition relationships may enrich the overall research topic by taking into account multiple stages of investigation (Chiambaretto & Dumez, 2016, p. 117).

4 Management of Coopetition Relationships

The previous chapter provided a definition and theoretical foundations of the concept of coopetition including distinctive levels and phases, which allows for further investigation of the research topic. However, this chapter deals with the establishment of coopetition relationships including the corresponding processes of partner selection, tensions and the coopetition strategy itself. Then, the coopetition literature will be reviewed from a global business perspective, whereby the emphasis is placed on coopetition with global rivals (Luo, 2007) and global alliance partners (Luo et al., 2008). Furthermore, the current literature regarding the effects of network centrality on the market performance of a central firm is investigated in order to provide a comprehensive set of information. The following Table 5 states the most relevant research literature used in this chapter including their respective journal ranking and key findings.

<table>
<thead>
<tr>
<th>Name of Researcher, Journal</th>
<th>Research method</th>
<th>Title of research paper</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cummings &amp; Holmberg (2012), Long Range Planning (B)</td>
<td>Systematic literature review</td>
<td>Best-fit Alliance Partners: The Use of Critical Success Factors in a Comprehensive Partner Selection Process</td>
<td>Development of comprehensive alliance partner selection framework, incorporating task-, learning-, partnering and risk-related critical success factors including a dynamic evaluation component</td>
</tr>
<tr>
<td>Authors et al. (Year), Journal of Product Innovation Management (A)</td>
<td>Research Type</td>
<td>Title</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----------------</td>
<td>-------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| Emden et al. (2006), Journal of Product Innovation Management (A) | Systematic literature review | Collaborating for New Product Development: Selecting the Partner with Maximum Potential to Create Value | Model of partner selection and co-development including of:  
• Technological alignment  
• Strategic alignment  
• Relational alignment |
| Fernandez et al. (2014), Industrial Marketing Management (B) | Systematic literature review | Sources and management of tension in co-opetition case evidence from telecommunications satellites manufacturing in Europe | Model for management of tensions in coopetitive relationships on the basis of the principles of separation and integration |
| Fernandez and Chiambaretto (2016), Industrial Marketing Management (B) | Qualitative research | Managing tensions related to information in coopetition | Development of control mechanisms for simultaneous protection and sharing of appropriable and critical information in coopetitive projects through a dedicated information system |
| Gnyawali et al. (2006), Journal of Management (A) | Quantitative research | Impact of Co-opetition on Firm Competitive Behavior: An Empirical Examination | Empirical analysis of the effects of the structural position (network centrality) and structural autonomy on competitive actions (competitive activity and competitive variety) |
| Gnyawali and Park (2011), Research Policy (A) | Conceptual framework | Co-opetition between giants: Collaboration with competitors for technological innovation | Chronological description of competitive and cooperative interactions and its firm and market-level consequences |
| Kraus et al. (2017), Review of Managerial Science (B) | Quantitative research | In search for the ideal coopetition partner – An experimental study | Identification of critical factors for partner selection in coopetitive relationships:  
• Actors  
• Activities |
| Luo (2007), Journal of World Business (B) | Conceptual framework | A coopetition perspective of global competition | Frameworks for the management of intensity and diversity of coopetition in a global business context |
| Luo et al. (2008), Journal of International Business Studies (A) | Conceptual frameworks | Control-cooperation interfaces in global strategic alliances: a situational typology and strategic responses | Typologies for private and collective control-cooperation with situational strategic responses for firms maintaining global strategic alliances |
| Sanou et al. (2016), British Journal of Management (B) | Quantitative research | How Does Centrality in Coopetition Networks Matter? An Empirical Investigation in the Mobile Telephone Industry | Investigation of the effects of the structural position in coopetitive networks. The higher the network centrality of a firm the higher its market performance and competitive aggressiveness |
| Seran et al. (2016), Industrial Marketing Management (B) | Qualitative research | The management of coopetitive tensions within multi-unit organizations | Advancement of the model for management of tensions. The principles of separation and integration are expanded with formal and informal coordination mechanisms |
The decision of a firm to collaborate with a competitor varies among different industries. As a result, Devece et al. (2017, p. 6) have identified the most common reasons for engaging in coopetitive relationships: access to resources and knowledge, sharing of information and resources to enhance efficiency. Moreover, technological innovation through collaborative R&D, cost and risk sharing, achievement of economies of scale and scope and market entry are also associated with coopetitive relationships. Since competitive markets are confronted with rising costs, shrinkage of product lifespan and increased technological complexity, like the semiconductor industry (Gnyawali & Park, 2009, p. 310), firms seeking to collaborate with their competitors. These arising relationships are subject to investigation in the following subchapter including the processes of partner selection, tensions and coopetition strategy.

### 4.1 Coopetitive Relationships

According to Luo (2007, p. 130), the functional, product and geographical areas of an organization are more likely to contribute to cooperative behavior, whereas coopetitive interactions more likely occur at the corporate, divisional, or subsidiary level of firms. For instance, McDonnell Douglas, which has merged with Boeing in 1997, has managed a coopetitive relationship with Mitsubishi Heavy Industries at the corporate level. Both firms competed for military orders in several countries and simultaneously cooperated in producing the F-15 Eagle fighter model and commercial helicopters (Luo, 2007, p. 130). In this sense, it is proposed that coopetition leads to a reduction of costs, risks, and uncertainties related to innovation, product development and global expansion (Luo, 2007, p. 131). Since competitive collaboration may additionally lead to enhanced bargaining power with regard to procurement of inputs, regulatory policies and infrastructure access, coopetition culminates into overall increased strategic flexibility. Although competitive collaboration activities remain not constant over time, coopetition has the potential to shape
emerging industries by setting technological standards, as it was the case with GSM standard versus CDMA standard in wireless communication products and VHS format and BETAMAX format in the analog video cassette industry (Luo, 2007, p. 132). Moreover, tight cooperation with suppliers leads to greater innovation performance and thus greater growth rates compared to firms without deep supplier-collaboration according to Noor et al. (2013, p. np).

Correspondingly, simultaneous competition and cooperation are also present in high technology industries since shorter product life cycles, high investment requirements and convergence of technologies make it difficult for firms to improve their resource base in isolation (Gnyawali & Park, 2011, p. 650). For example, before Samsung Electronics and Sony Corporation have started to cooperate, they have fiercely competed in several product-market segments. In 2004, they decided to establish an equity joint venture, called the S-LCD Corporation, to develop and produce the 7th generation of flat-screen LCD panels. Although the two global high-tech firms have cooperated at the development and manufacturing stage, they have remained competitors when it comes to market the final product. In order to balance the relationship, the Sony Corporation brought in its strong and valuable technological capabilities and remarkable brand recognition in television, while Samsung Electronics contributed its sophisticated technology in the LCD technology segment (Gnyawali & Park, 2011, p. 653f).

4.1.1 Partner Selection
The above-stated reasons and criteria for engaging in inter-organizational relationships and the contingencies necessary to form such interactions have been amongst others identified by Oliver (1990, p. 242f). According to her inter-organizational relationships “are relatively enduring transactions, flows, and linkages that occur among or between organizations in its environment” (Oliver, 1990, p. 241). Those following six identified contingencies including their interactions explain why firms enter inter-organizational relationships from a top management perspective, although the implementation of the construct takes place at the lower managerial level (Oliver, 1990, p. 243f):

- Necessity
- Asymmetry
- Reciprocity
- Efficiency
- Stability
- Legitimacy
The condition ‘Necessity’ deals with the decision of an organization to interact, either on a mandated or voluntary basis with other organizations. ‘Asymmetry’ refers to the ability to assert control or power over an associated firm (Oliver, 1990, p. 243). Conversely, to ‘Asymmetry’, the contingency ‘Reciprocity’ implies that the inter-organizational relationship is based on mutualism. The emphasis of the contingency ‘efficiency’ is to engage with other firms in order to increase output, return on assets, or the reduction of waste, for example. As the asset specificity and uncertainty increase, inter-organizational relationships could provide the transaction at lower costs than the marketplace (Oliver, 1990, p. 243f). ‘Stability’ or predictability is in this respect described as an adaptive response to uncertainties in external environments. Such uncertainties arise from resource scarcity and imperfect knowledge about environmental changes, and availability of exchange partners. In turn, the contingency ‘Legitimacy’ is referred to as the significant motive for interconnection of firms. However, each of the presented contingency measures could be itself sufficient to form inter-organizational relationships, although it is common that such relationships are initiated on the basis of multiple contingencies (Oliver, 1990, p. 246).

Based on this mindset, Emden et al.’s (2006) model of partner selection for co-development of alliances is applied in order to describe the processes for partner selection and formation of inter-organizational relationships. First of all, the model is rooted in the alliance research and is intended to improve new product developments (NPD) through cooperation. The following Figure 8 illustrates the framework consisting of three distinctive phases: technological alignment, strategic alignment, and relational alignment in order to identify a partner with the potential to create synergistic value (Emden et al., 2006, p. 334f).
The first phase ‘Technological alignment’ refers to the technological capability and resource complementarity as well as a similar knowledge base (Rindfleisch & Moorman, 2001, p. 12). Those circumstances may lead to the development of a mutual understanding and application of their technologies (Emden et al., 2006, p. 334). The second phase ‘Strategic alignment’ constitutes of corresponding motivation and goals of the potentially partnering firms, resulting in establishment respectively development of specifications of the mutual project. The third phase ‘Relational alignment’ emphasizes on cultural compatibility, propensity for adaption, and the long-term orientation of the firm. The alignment with those conditions may create organizational acceptance and determines the financial and legal feasibility of the inter-organizational relationship (Emden et al., 2006, p. 335f).

Corresponding research from Shah and Swaminathan (2008) emphasizes on partner selection and partner attractiveness in the context of alliances. Therefore, the researchers have developed a contingency model for partner selection and attractiveness by focusing on the airline industry. The respective model builds upon two dimensions: The outcome interpretability and process manageability (Shah & Swaminathan, 2008, p. 474). The outcome interpretability represents the degree of transparency concerning the output of the alliance, while the process manageability is intended as the degree of transparency of the implemented and sustained processes of the alliance (Shah & Swaminathan, 2008, p. 473f).
The following Figure 9 exemplifies the contingency model for partner selection and partner attractiveness.

<table>
<thead>
<tr>
<th>Process manageability: Low (difficult)</th>
<th>Process manageability: High (easy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome interpretability: Low</td>
<td>Outcome interpretability: High</td>
</tr>
<tr>
<td>(difficult to interpret)</td>
<td>(easy to interpret)</td>
</tr>
<tr>
<td>Most critical: Trust</td>
<td>Most critical: Commitment</td>
</tr>
<tr>
<td></td>
<td>Most critical: Financial payoff</td>
</tr>
</tbody>
</table>

Figure 9 Contingency model for partner selection and attractiveness (Shah & Swaminathan, 2008, p. 474)

Where inter-organizational relationships constitute of difficult process manageability and complicated interpretation of the outcomes, ‘Trust’ is a substantial criterion of the partner firms. The criterion is further subdivided into benevolence-based trust and competence-based trust. ‘Complementarity’ of the collaborating firms is stressed when the involved processes can be easily managed, and the outcome of the respective alliance is difficult to measure (Shah & Swaminathan, 2008, p. 474f). The criterion ‘Commitment’ is adopted when the outcomes are easy to interpret, and its underlying processes are difficult to manage, whereas the criterion ‘Financial payoff’ is emphasized in alliances with high manageability of the processes and high interpretability of the outcomes (Shah & Swaminathan, 2008, p. 476). However, after the development of the theory, Shah and Swaminathan (2008) have empirically tested their theoretical framework for partner selection and partner attractiveness. For each of the described scenarios, a criticality rating has been conducted, which resulted in confirmation of respective theory (Shah & Swaminathan, 2008, p. 482f).

In contrast, Geringer (1991) distinguishes partner selection criteria into the task and partner-related dimensions. The task-related dimension refers to resources and operational skills, whereas the partner-related dimension refers to the effectiveness and efficiency of the cooperation (Geringer, 1991, p. np). More specifically, Das and He (2006, p. 126) state that
task-related criteria can be understood as complementary products, financial resources, technological and managerial capabilities, skills, location, reputation, specific distribution or marketing systems, government relationships, and reputation. Partner-related criteria are characterized as compatible goals and strategies, interdependencies, cooperative organizational culture, strong commitment, identical status, size and organizational structure as well as risk appetite.

![Traditional alliance partner selection framework](Cummings & Holmberg, 2012, p. 139)

The researchers Cummings and Holmberg (2012) took on Geringer’s (1991) distinction of partner selection criteria and have investigated the past research literature concerning partner selection in alliances. The researchers have therefore identified their so-called traditional partner selection model, which is shown in Figure 10. Moreover, Cummings and Holmberg (2012, p. 140) have adopted the terms task and partner-related dimensions to task and partnering-related critical success factors (CSF). The framework consists of a decision flow starting with an assessment of environmental factors, then the derivation of corporate and alliance objectives. After identification of the corresponding objectives, specific task and partnering-related critical success factors can be determined to enable evaluation of potential partners (Cummings & Holmberg, 2012, p. 139f). However, this framework is not sufficient since it lacks an underlying strategic management process, relies fully on trust, focuses on specific criteria (task and partner criteria) and neglects dynamic evaluation.
As a result, Cummings and Holmberg (2012, p. 141) have advanced the traditional alliance partner selection framework (Figure 11) to overcome the identified deficiencies. The comprehensive alliance partner selection framework is illustrated in Figure 11 and shows on the top of the pyramid the four distinctive critical success factors. The traditional requirements task and partnering-related critical success factors have been supplemented with learning and (potential) risk-related critical success factors. Moreover, the improved framework allows for dynamic analysis of partner selection through the application of a dynamic lens, shown as the interaction arrows. In business practice, the dynamic process is intended as a combination of knowledge from initial partner selection and ongoing partner management (Cummings & Holmberg, 2012, p. 141). Furthermore, the research paper states what firms are trying to accomplish through alliances. The identified reasons are categorized along the four critical success factors. The results are provided in the following Table 6:
<table>
<thead>
<tr>
<th>Task-related CSFs</th>
<th>Learning-related CSFs</th>
<th>Partnering-related CSFs</th>
<th>Risk-related CSFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain synergy advantages</td>
<td>Locate certain, specialized knowledge in a timely and efficient manner</td>
<td>Joint rules and norms</td>
<td>Relational risks</td>
</tr>
<tr>
<td>Achieve greater specialization</td>
<td>Improve knowledge soothsaying, forecasting and research</td>
<td>Convergent interests</td>
<td>Unequally shared risks</td>
</tr>
<tr>
<td>Access new capabilities</td>
<td>-</td>
<td>Situational awareness</td>
<td>Emergent competition risks</td>
</tr>
<tr>
<td>Increase speed</td>
<td>-</td>
<td>Administrative controls</td>
<td>Quality risks</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Relational harmony knowledge-processing capacities</td>
<td>Customer relationship risk</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Personnel practices</td>
<td>Idiosyncratic risks</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>Lock-out potential partners</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>Loss prevention</td>
</tr>
</tbody>
</table>

Table 6 Identified CSFs for evaluating potential partners based on Cummings and Holmberg (2012, p. 143ff)

Correspondingly, the researchers Alves and Meneses (2015, p. 26) state that the partner selection aspect of prior personal ties has been widely neglected. Their qualitative research study has revealed that coopetitive relationships are predominantly based on former interpersonal ties. Moreover, the findings suggest that an overwhelming majority of the participants had in the past successfully experienced formal or informal business interactions with their current partner (Alves & Meneses, 2015, p. 30).

These results are consistent with research findings from Kraus et al. (2017), which have conducted an experimental study along three relational factors for partner selection in coopetitive relationships and their impact on trust, complementary perception and partner attractiveness. Therefore, the researchers have applied the relational factors ‘Actors’, ‘Activities’ and ‘Resources’ on coopetition in order to describe inter-organizational relationships (Bengtsson & Kock, 1999, 2000). The ‘Actors’ involved in coopetitive relationships are distinguished into direct and indirect competitors, ‘Activities’ related to coopetition are either upstream activities, which are far away from the customer or
downstream activities, which are close to the customer, for example, sales and marketing functions. The ‘Resources’ with regard to coopetitive relationships are either identical or heterogeneous among partnering firms. In this respect, it is asserted that a similar resource base positively contributes to the achievement of economies of scale, while heterogeneous resources allow for inlearning (Kraus et al., 2017, p. 6f). However, the empirical analysis of the relational factors has revealed that an indirect competitor, possessing a heterogeneous resource base and aims to collaborate in terms of upstream activities has significant positive effects on the partner attractiveness, trust, and the complementary perception among the collaborating firms (Kraus et al., 2017, pp. 16ff).

Cygler and Debkowska (2015) have also conducted a quantitative research by analyzing the strategic attributes of the size, market position, geographical scope and technological position of the potential coopetition partner. The research study focused on data from high-tech firms engaging in coopetitive relationships. The identified areas of coopetition are R&D, input supply, production and services, sales and distribution, marketing, logistics, finance, computer information systems, and human relations (Cygler & Dębkowska, 2015, p. 223f).

<table>
<thead>
<tr>
<th>Area of competitive cooperation</th>
<th>Preference for partner’s size</th>
<th>Preference for partner’s technological position</th>
<th>Preference for partner’s market position</th>
<th>Competitor’s geographical scope</th>
<th>Prediction accuracy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D</td>
<td>99</td>
<td>73</td>
<td>58</td>
<td>100</td>
<td>60.7</td>
</tr>
<tr>
<td>Input supply</td>
<td>100</td>
<td>66</td>
<td>48</td>
<td>92</td>
<td>54.1</td>
</tr>
<tr>
<td>Production/Services</td>
<td>66</td>
<td>99</td>
<td>87</td>
<td>100</td>
<td>57.7</td>
</tr>
<tr>
<td>Sales/Distribution</td>
<td>63</td>
<td>81</td>
<td>94</td>
<td>100</td>
<td>57.5</td>
</tr>
<tr>
<td>Marketing</td>
<td>86</td>
<td>100</td>
<td>77</td>
<td>99</td>
<td>61.6</td>
</tr>
<tr>
<td>Logistics</td>
<td>77</td>
<td>100</td>
<td>67</td>
<td>56</td>
<td>60.8</td>
</tr>
<tr>
<td>Finance</td>
<td>87</td>
<td>57</td>
<td>100</td>
<td>86</td>
<td>61.7</td>
</tr>
<tr>
<td>Computer information systems</td>
<td>87</td>
<td>100</td>
<td>70</td>
<td>68</td>
<td>62.8</td>
</tr>
<tr>
<td>Human Relations</td>
<td>75</td>
<td>81</td>
<td>100</td>
<td>60</td>
<td>65.5</td>
</tr>
</tbody>
</table>

*Figure 12 Significance of the identified areas of coopetition (Cygler & Dębkowska, 2015, p. 224)*

The corresponding Figure 12 depicts the identified areas of coopetition including their significance values. The significance values are presented in a scale, ranging from 0 to 100, whereas 100 represents the highest significance. The prediction accuracy is determined as the relation of accurately qualified firms and the total amount of cooperating firms in their given area. According to the data (see Figure 12), the areas of R&D and input supply have strong preferences for the partner’s size and geographical scope (Cygler & Dębkowska, 2015, p. 224). The areas of sales of production and services, marketing, logistics and computer information system emphasize on the technological position of the potential cooperating competitor, whereas the market position is preferred by sales and distribution,
finance and human relations. The geographical scope of a potential coopetition partner has received the highest number of areas with significant values. Furthermore, the research has revealed that firms engaging in coopetitive relationships in the area of R&D receive significant benefits from partners with a comparable size, strong market and technological position and wide geographical scope. This positive effect decreases when the selected coopetition partner has a relatively large firm size but operates exclusively on a national scale (Cygler & Dębkowska, 2015, p. 224).

The quantitative research from Zakrzewska-Bielawska (2015) is identical to the research study from Cygler and Debkowska (2015) since it also focuses on firms operating in the high-tech industry. The quantitative research study investigates the preference of firms aiming to collaborate with competitors. Therefore, the size of the firm, territorial scope, and the growth stage are analyzed with regard to the identified areas of coopetition, which are in this research study R&D, supply, product and services, and sales and distribution (Zakrzewska-Bielawska, 2015, p. 162). The results strongly suggest that high-tech firms engage in multiple coopetition relationships throughout all areas. Interestingly is that the larger the firm size, the lower the number of coopetition relationships. Domestically operating firms prefer to coopete with equal partners, whereas international high-tech firms are more likely to enter dyadic relationships with foreign firms. Moreover, the research study has revealed that firms at the growth or maturity life-cycle entered a higher number of coopetition relationships. Smaller firms are more likely to forge R&D collaborations with competitors than medium or larger corporations. The highest number of coopetition relationships can be found in domestic supplier partnerships, which are closely followed by domestic sales and distribution partnerships (Zakrzewska-Bielawska, 2015, p. 163).

4.1.2 Tensions

From a normative point of view, coopetitive relationships promise superior performance. As a result, such undertakings also may raise tensions between the actors (Brandenburger & Nalebuff, 1996, p. 6f; Le Roy & Czakon, 2016, p. 3). As stated in research from Bengtsson and Kock (2000, p. 412) simultaneous competition-cooperation relationships consist on the one hand of conflicting interests and the other of shared interests. Therefore, it is argued amongst others to separate the opposing logics of interactions in order to ensure cooperation among rivals (Bengtsson & Kock, 2000, p. 412; Fernandez et al., 2014, p. 223; Seran et al., 2016, p. 32). Therefore, Fernandez et al. (2014) have developed a theoretical framework to deal with coopetitive tensions based on the principles of separation and integration of interactions related to competition-cooperation relationships. The framework is built on data from the coopetitive relationship between the EADS Group, which has
merged with the Airbus Group in 2013, and the Thales Group, which are both manufacturers of telecommunication satellites. Although the respective manufacturers are competing in the European space industry for orders, the competitors started to collaborate. As a result, the two firms were then confronted with tensions at multiple levels. The researchers have therefore analyzed the coopetition literature concerning the levels where tensions are likely to occur (Fernandez et al., 2014, p. 223f):

- Inter-organizational level
- Intra-organizational level
- Inter-individual level

However, although it is well-known among coopetition scholars that dual relationships arise tensions among the collaborating firms, it is still an under-researched topic (Fernandez et al., 2014, p. 222). In this respect, the inter-organizational level is the most prominent source of tensions arising out of coopetitive relationships. On the one hand, there is a common goal towards the achievement of mutual value creation, and value appropriation and on the other, there is the risk associated with the realization of private gains (Fernandez et al., 2014, p. 223; Quintana-García & Benavides-Velasco, 2004, p. 930). Moreover, tensions may also arise due to implicit or explicit differences among the cooperating rivals, for example, deviating objectives and expectations towards the relationship or incompatible strategies. Coopetitive tensions with regard to the intra-organizational level can be distinguished into tensions arising within business units or subsidiaries of a multinational corporation (Luo, 2005, p. 72) and tensions arising in employees involved in coopetitive relationships (Tidström & Hagberg-Andersson, 2012, p. 334f). When a partner becomes a competitor or the other way round, the in the activities involved employees have to change their mindsets and practices in order to be prepared for new challenges, for instance (Fernandez et al., 2014, p. 223f).

In general, the inter-individual level deals with daily work procedures of the coopetition relationship affected employees. From a normative standpoint, individuals are more prone to support or belong to his or her parent firm. Thus, obstacles may arise due to the paradoxical nature of coopetitive relationships (Fernandez et al., 2014, p. 224). Moreover, it is stated that a collective identity of a firm may hinder constructive collaboration with a competitor since distinctive cultures and norms are in place. With regard to inter-organizational projects, involved employees need to adapt their mindsets and beliefs to work with others until completion of the project (Fernandez et al., 2014, p. 224). It is further proposed by Castaldo et al. (2010, p. 142f) that the management of coopetitive relationships
may be entrusted to a third party, which serves as a broker of the underlying strategic network and mitigates tensions arising of coopetitive relationships. Additionally, Depeyre and Dumez (2010, p. 125f) state that the third party could be a client or another ordering entity.

As stated above, in order to manage dual relationship interactions with the competitor, some activities may have to be separated to allow for coopetition (Bengtsson & Kock, 2000, p. 415). For instance, Fernandez et al. (2014, p. 224) propose that specific teams or functions should carry out either a collaborative or competitive function, insofar that the head of R&D is responsible for collaborative interactions with the partner, whereas the head of marketing is in charge of competitive actions, for example. Chen (2008, p. 299) states that segregation of specific activities could lead to tensions in dual relationships. The principle of integration emphasizes on the implementation of a coopetitive mindset comprising of organizational learning and global experience related to competition-cooperation relationships. However, the respective principle is based on coopetition as interrelated opposites as mentioned above, in the subsection ‘Definition’ (Chen, 2008, p. 298f; Das & Teng, 2000, p. 49). The following Figure 13 illustrates the inherent tensions of coopetitive relationships:

![Figure 13 Management of tensions in coopetitive relationships (Fernandez et al., 2014, p. 232)](image)

The researchers intended to combine the principles of integration and separation since it is suggested that it will allow for effective management of coopetitive relationships (Fernandez et al., 2014, p. 225). The Figure 13 stated above shows the three distinctive levels of tensions related to coopetition. The inter-organizational coopetitive tensions are more likely be managed by an entrusted third party (Castaldo et al., 2010, p. 143), which coordinates the partnering firms, whereas tensions within an organization are more prone to be managed through a separated project team, where its manager simultaneously handles competition and collaboration. Furthermore, inter-individual coopetitive tensions are subject to the integration principle, insofar that conflicts are managed by the respective project team.
manager (Fernandez et al., 2014, p. 233). Therefore, handling of coopetitive tensions takes place by adopting the principles of integration and separation and may result in improved conflict management.

Corresponding to research from Fernandez et al. (2014), Seran et al. (2016) have analyzed coopetitive tensions within multi-unit organizations on the French banking industry. Therefore, the researchers have also applied the principles of integration and separation and extended the approach with formal and informal coordination mechanisms (Seran et al., 2016, p. 33). They propose that application of integration and separation depends on the performed activities, proximity to customers and access to specific capabilities and resources (Bengtsson & Kock, 2000, p. 424; Seran et al., 2016, p. 32).

However, Seran et al. (2016, p. 33f) conducted a qualitative research study by analyzing two cases of two large French banking organizations. Both banking groups comprise two financial institutes, which compete in the customer market segment. The cooperative component of the network lies on the integrated information system (IS), where amongst others development of new products takes place (Table 7) (Seran et al., 2016, p. 34). In order to deal with the coopetitive tensions, the banking group (the parent firm) enhanced cooperation between its two financial institutes through the implementation of a common advertising campaign for its developed banking products, whereas competition between the financial institutes was enhanced through aggressive sales campaigns at the bank branch level of each financial institute. The coopetitive relationship was altogether managed through a fair share of leaders participating in projects, development of a formal organization and informal networks (Seran et al., 2016, p. 36). Moreover, a job shift scheme for employees was developed to enhance cooperation and mutualization of resources. The integrated information system allows for same data warehouse and a system of incentives, whereby installed performance controls are installed to display competitive benchmarks. The coopetitive relationship between the two financial institutes enables the banking group to foster its competitive advantage through shorter launch times of banking products, usage of synergies in human resources and cost reductions related to the integrated information system (Seran et al., 2016, p. 36f).
<table>
<thead>
<tr>
<th>Conception</th>
<th>Implementation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation</td>
<td>Developing a common banking product and IS</td>
<td>Implementing a common advertising campaign for a common banking product</td>
</tr>
<tr>
<td>Competition</td>
<td>Promoting an existing local software and integrating it into the common global IS</td>
<td>Enhancing sales competition between bank branches</td>
</tr>
<tr>
<td>Coopetition management: design and tools</td>
<td>Transversal projects A fair share of domains and leadership Formal organization Formal budget and arbitration Informal networks Trust</td>
<td>Systems of incentives (competition) and a system of job shifts between banks (cooperation, mutualization of resources)</td>
</tr>
</tbody>
</table>

Table 7 Management of coopetitive relationship through integrated IS based on Seran et al. (2016, p. 36)

The research results suggest that formal coordination and informal coordination based on trust and social networks interact as feedback loops facilitating management of coopetitive tensions (Seran et al., 2016, p. 39; W. Tsai, 2002, p. 180). The two banking groups handled their multi-unit coopetitive tensions differently since their financial institutes had historically developed distinctive informal coordination mechanisms and values. Furthermore, the research study has identified trust at the individual level as a major driver for management of coopetitive tensions.

Fernandez and Chiambaretto (2016) have further investigated the principles of integration and separation by focusing on coopetitive tensions related to information. Therefore, the researchers have developed, based on Saxton and Dollinger (2004), a definition for appropriability of information. This term refers to the ability of a firm to incorporate information to use it for product and market development (Fernandez & Chiambaretto, 2016, p. 67). In order to manage tensions in coopetitive relationships, formal and informal control mechanisms have to be implemented to measure the appropriability and criticality of information. Table 8 illustrates the management of different types of information:
<table>
<thead>
<tr>
<th>Appropriability</th>
<th>Criticality</th>
<th>Protection</th>
<th>Sharing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriable</td>
<td>Critical</td>
<td>Protection and sharing</td>
<td>Protection</td>
</tr>
<tr>
<td>Non-appropriable</td>
<td>Non-critical</td>
<td>Protection</td>
<td>Sharing</td>
</tr>
</tbody>
</table>

Table 8 Management of different types of information (Fernandez & Chiambaretto, 2016, p. 68)

The common goal of a coopetitive project requires some types of information in order to be successful. Therefore, critical and appropriable information should, on the one hand, be shared with the competitor to reach the goal of the project and on the other side be protected to limit the risk of opportunism. Non-appropriable critical information should be shared with the project partner since there is a low risk that the information can be used for other projects (Fernandez & Chiambaretto, 2016, p. 68). The classification of information appropriability can be evaluated on the basis of informal and formal control mechanisms. For instance, formal control mechanisms are contracts defining rules and penalties, formal procedures or organizational structures. Informal control mechanisms are for example daily routines and procedures. (Fernandez & Chiambaretto, 2016, p. 68f).

The mechanisms for simultaneous protection and sharing of appropriable critical information has been developed by Fernandez and Chiambaretto (2016, p. 70) through a qualitative research of two coopeting manufacturers of telecommunication satellites. In the beginning, a theoretical framework, illustrated in Figure 14, has been developed to demonstrate the need for applicable control mechanisms for critical information. Therefore, the researchers have identified financial, technological and human resources as essential for the success of the coopetitive project (Fernandez & Chiambaretto, 2016, p. 70).
For the purpose of sharing critical and appropriable information, the coopeting firms have developed a dedicated information system as a formal control mechanism. Since highly critical and appropriable information is essential for the success of the coopetitive project, these informational resources are exclusively shared on an aggregated data basis. In order to set a suitable price for the client, financial information of both competitors is required. That information is shared through the dedicated information system, whereby confidential and strategically relevant data cannot be accessed by the opposing competitor (Fernandez & Chiambaretto, 2016, p. 71).

Technological information is essential for the progress of the project; therefore, the exchange was only allowed through the information system. Personal information sharing was prohibited, and non-compliance could have led to the exclusion of the team member of the project. The dedicated information system was not accessible to non-collaborative employees from the parent firm, thus, providing further protection from the transfer of highly critical and appropriable information (Fernandez & Chiambaretto, 2016, p. 70f). As a result, technical solutions were only disclosed to the client without explanation of why the problem occurred and how the solution was found. The project managers of the coopeting firms were installed as informal control mechanisms. They were responsible for the management of
the sharing and protecting dilemma. However, the project managers were also responsible for addressing information leakages. In case of leakage of highly critical and appropriable information, the project managers talked to each other and tried to settle the problem (Fernandez & Chiambaretto, 2016, p. 71).

Research from Tidström (2014) has emphasized on the investigation of tensions and the potential outcomes of tension management. The empirical study is based on a comparative case study taking into account two different events in the steel and natural products industries. However, the analysis of the respective research literature has identified the types of tensions in coopetitive relationships (Tidström, 2014, p. 262). The following Table 9 shows the exhaustive list of identified tensions:

<table>
<thead>
<tr>
<th>Tensions</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roles</td>
<td>Bengtsson and Kock (2000), and Mele (2011)</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Chin et al. (2008) and Tsai (2002)</td>
</tr>
<tr>
<td>Power and dependence</td>
<td>Osarenkhoe (2010)</td>
</tr>
<tr>
<td>Opportunism</td>
<td>Khanna et al. (1998), Lado et al. (1997) and Osarenkhoe (2010)</td>
</tr>
</tbody>
</table>

*Table 9 Types of tensions in coopetitive relationships based on Tidström (2014, p. 262)*

The tensions related to roles may arise at the firm level, insofar, that employees at the individual level perceive the strategy and objectives of the cooperating rival as incompatible (Mele, 2011, p. 1380). Knowledge is amongst others widely perceived as a source of competitive advantage. Therefore, knowledge-sharing is an integral part of the concept of coopetition. However, it is also a source of potential tensions, when it comes to private gains, for instance (Chin et al., 2008, p. 439). Tensions arising from power and dependence refers to enforcement of strategies, which are not subject to the equal interest of the coopeting firms, due to financial, emotional or technical power imbalances (Osarenkhoe, 2010, p. 345). Finally, opportunism as a type of tensions refers to situations where one firm exploits the other in order to improve its competitiveness (Lado et al., 1997, p. 116). It is further proposed, that these types of tensions may occur on a contemporaneous basis (Tidström, 2014, p. 262).

Thomas and Kilmann’s model of conflict management (Kilmanndiagnostics, 2017) has been applied by Tidström (2014, p. 264) after identification of the types of tensions. The overall model comprises two axes:
• Assertiveness
• Cooperativeness

These two dimensions can either have a high or a low degree and offer ‘Competition’, ‘Collaboration’, ‘Avoidance’, ‘Accommodation’ and ‘Compromise’ as possible styles of conflict management (Tidström, 2014, p. 264). The following Figure 15 depicts the potential styles of managing tensions concerning coopetitive relationships:

![Figure 15 Styles of conflict management (Tidström, 2014, p. 264)](image)

The conflict management style ‘Collaboration’ refers to a win-win situation, where each involved partner is fully satisfied. ‘Competition’ involves high assertiveness and highly uncooperative behavior and focuses on win-lose outcomes. The central style of conflict management ‘Compromise’ is also referred to as a half-hearted solution to solve conflicts (Tidström, 2014, p. 264). ‘Avoidance’ can be understood as denied or suppressed tension, in which the partnering firms try to ignore the conflict. The conflict management style ‘accommodation’ is the opposite of ‘Competition’. The firm neglects its own position in order to satisfy its partner and to its own detriment (Kilmanndiagnostics, 2017, p. np; Tidström, 2014, p. 264). The comparison of the two case studies has revealed that the conflict managing styles of ‘compromise’ and ‘accommodation’ are not applied to manage tensions in coopetitive relationships, whereas ‘Competition’ and ‘Avoidance’ seem to be the most common behaviors to manage coopetitive tensions. Moreover, the researcher suggests that the styles ‘Competition’ and ‘Avoidance’ deviate from the original definition of the underlying
model. Insofar that 'Competition' must not be as fierce as it is supposed to be, while 'Avoidance' may positively contribute to the style of competition (Tidström, 2014, p. 268f).

### 4.1.3 Coopetition Strategy

According to Wilhelm (2011, p. 664f), the inherent tensions between simultaneous cooperation and competition is called in academic literature coopetition and thus is an integral part of the overall concept. Consequently, this subsection deals with the management of coopetition and provides theoretical insights into coopetition strategy including a respective typology of the nature of coopetition. In this respect, Brandenburger and Nalebuff stated that "the biggest opportunities – and the biggest profits – don't come from playing the game differently. They come from changing the game itself" (1996, p. 69). Thus, the essence of coopetition is to change the business strategy in order to achieve superior performance.

The researchers Lundgren-Henriksson and Kock (2016a) have adopted the strategy-as-practice approach in order to analyze coopetition from the standpoint of strategic change. Therefore, they conducted a qualitative research study by using data from the media industry. Since changing consumer behaviors and digitalization require established media firms to adapt to new industry conditions (Lundgren-Henriksson & Kock, 2016a, p. 100). The case analysis has revealed that coopetition strategy comprises of deviating managerial understandings, which can be categorized into the following temporal orientations (Lundgren-Henriksson & Kock, 2016a, p. 102):

- Retrospective ('Re-enacting the past')
- Present ('Contextualizing the present')
- Prospective ('Aspiring for the future')

The different temporal orientations enable to frame coopetition strategy on the basis of their characteristics (Tidström & Hagberg-Andersson, 2012, p. 334). The analysis has revealed that the perceived social value of the past ('Re-enacting the past') lies on the coopetitive relationship itself. The history plays a dominant role in developing a coopetition strategy since in this case study cooperation among the participants of the industry was undesirable (Lundgren-Henriksson & Kock, 2016a, p. 102f). In the past, independency and brand identity were highlighted, and competition was favored among the managers. As a result, cooperation among competitors was perceived as a destructive force and impedes future coopetitive strategizing.
The competitive framework of the present (‘Contextualizing the present’) emphasizes on the perceived incompatibility of the organization and the coopetition strategy. However, the worse financial situation of the firms ensured that the managers incorporated a mindset of strategic change, which allows for simultaneous optimism and skepticism about engaging in coopetitive relationships (Lundgren-Henriksson & Kock, 2016a, p. 103). With regard to the prospective dimension (‘Aspiring for the future’), a part of the interviewed managers adopted a future cultural motive for supporting new practices like coopetition. Additionally, some managers have widened their strategic scope through assessment of past and present industry changings resulting in high future expectations and optimism (Lundgren-Henriksson & Kock, 2016a, p. 104).

The Figure 17 illustrates the temporal orientation of coopetitive frameworks, whereby the dotted arrows represent the ambiguity between the competitive frameworks. Insofar that different temporal orientations about coopetition may exist at some point simultaneously. Some of the interviewed managers have adapted their competitive assumptions more quickly than the others in accordance with industry changes (Lundgren-Henriksson & Kock, 2016a, p. 104; Tidström & Hagberg-Andersson, 2012, p. 336). The illustration further shows
that the ongoing time is changing the assumptions about business practices and its expectations. Moreover, the strategy-as-practice perspective allows for modification of the strategic patterns on the basis of past and present industry changings (Lundgren-Henriksson & Kock, 2016a, p. 104f).

Furthermore, the researchers Lundgren-Henriksson and Kock (2016b) have investigated the development process of coopetition strategy from a strategic change perspective. Therefore, they have applied the so-called sensemaking lens constituting of sensemaking and sensegiving processes aiming to improve the understanding of inter-organizational relationships (Lundgren-Henriksson & Kock, 2016b, p. 20). According to the researchers Maitlis and Christianson, sensemaking is as a process of “creating intersubjective meaning through cycles of interpretation and action” (2014, p. 67). Whereas sensegiving is a “process of attempting to influence the sensemaking and meaning construction of others towards a preferred redefinition of organizational reality” (Gioia & Chittipeddi, 1991, p. 442). In particular, the conceptual framework highlights the role of middle managers in formulating and implementing coopetition strategies. As well as their role in re-formulation of coopetition strategies resulting from their influence on top management (Lundgren-Henriksson & Kock, 2016b, p. 23).

![Figure 17 Development of coopetition strategy (Lundgren-Henriksson & Kock, 2016b, p. 25)](image-url)
The framework, illustrated in Figure 18, shows the processes associated with the development of coopetition strategies and its related strategic activities. Coopetition strategy goes through a pre-strategy initiation phase, which is initiated and influenced by the top management, in times where the industry conditions are stable (Lundgren-Henriksson & Kock, 2016b, p. 26). The main outcome of this phase is to discuss and to approach inter-organizational relationships. The second phase deals with the formulation of respective strategy. The industry conditions have during this time radically changed from stable to upheaval. As a result, the organizations have engaged industry experts or consultants, which should help to establish a common coopetition strategy. The post-strategy formulation phase occurs in times of escalating radical change. The influential primary actors of the coopetitive relationship are the top and middle management aiming to implement the previously discussed joint projects (Lundgren-Henriksson & Kock, 2016b, p. 26; Rouleau & Balogun, 2011, p. 954). The researchers Lundgren-Henriksson and Kock (2016b, p. 25) have identified in their research project the following implementation issues as critical:

- Material
- Reciprocity
- Technology
- Routine
- Coordination

The implementation issue ‘Material’ is referred to as an exchange of materials of the cooperating competitors. ‘Reciprocity’ deals with the achievement of successful and ongoing material exchange and the overcoming of the reluctance of the top management to share materials (Gioia & Chittipeddi, 1991, p. 434; Lundgren-Henriksson & Kock, 2016b, p. 25f). The development of compatible internal and external data systems has been labeled by the researchers as ‘Technology’. Furthermore, ‘Routine’ has also been identified as the main driver for coopetition strategy implementation. However, this implementation issue is relevant at the intra- and inter-organizational level, to integrate inter-organizational task into day-to-day work. The implementation issue ‘Coordination’ deals with the establishment of working procedures and timetables to allow for structured and consequent inter-organizational exchange (Lundgren-Henriksson & Kock, 2016b, p. 26).

After coopetition strategy has been initiated and formulated, several difficulties may arise, for example, due to worsening financial situation of the cooperating firms or problems at the
operational level. These negative developments could lead to anxiety and skepticism among the employees involved, which may, in turn, lead to organizational inertia and stagnation (Maitlis & Christianson, 2014, p. 90). As a result, sensemaking and sensegiving actions help to overcome problems of the inter-organizational relationship according to Lundgren-Henriksson and Kock (2016b, p. 27). Sensemaking efforts like social interaction and communication during the formulation and implementation stage of the coopetition strategy are symbols for commitment and collective working towards a common goal at the inter- and intra-organizational level. Sensegiving for the future collaboration takes place through the information of the primary stakeholders, as well as promoting coopetition inside the organization and among the partnering firms (Lundgren-Henriksson & Kock, 2016b, p. 26f).

However, the sensemaking of the coopetitive paradox is perceived by the middle management as difficult task since they have to simultaneously balance positive and negative emotions associated with the inter-organizational relationship. In order to successfully adjust to the new industry conditions, cooperation in particular at the middle management level is required. Therefore, Lundgren-Henriksson and Kock (2016b, p. 28) state that managers in such position need to acknowledge ongoing changes actively as well as to generalize the change from fierce competition to cooperation. At the passive side, middle managers respond to inter-organizational relationships by questioning the value of the undertaking, ranking their task priorities in favor of the organization or blaming others for failures. This, in turn, leads to either an affirmative or disadvantageous sensegiving of implementation of the coopetition strategy at the middle management level. This is of particular relevance since in practice managers at this hierarchical level implement organizational change (Huy, 2001, p. np; Lundgren-Henriksson & Kock, 2016b, p. 23).

The researchers Padula and Dagnino (2005, p. 23) state that coopetition strategy comprises of deliberate as well as emergent actions. This point of view is supported by Dahl et al. (2016) and Lundgren-Henriksson and Kock (2016a), which have applied a strategy-as-practice approach to set up a delineation of respective strategy. The theoretical approach constitutes strategy by three interconnected elements: praxis, practices, and practitioners (Jarzabkowski et al., 2007, p. 10f). Therefore, it takes the influence of all individuals involved in strategic activities, roles, structures and social embeddings into account and unifies different conceptualizations of coopetition into a general strategy framework (Dahl et al., 2016, p. 95f). The core of coopetition strategy lies in mutual value creation and individual use of the benefits created. The following four scenarios ‘coopetition strategy as a planned practice’, ‘coopetition strategy as a contextually derived practice’, ‘coopetition strategy as a
reacting practice’ and ‘coopetition strategy as an adapting practice’ are depicted in Figure 7. The provided scenarios differentiate in what way coopetition can be manifested as the degree of deliberate or emergent strategic activities within an organization and between organizations (Dahl et al., 2016, p. 99f).

Figure 18 Deliberate and emergent nature of coopetition (Dahl et al., 2016, p. 99)

According to Dahl et al. (2016, p. 101), the first scenario ‘Coopetition strategy as a planned practice’ is considered to be formally planned and deliberate regarding the intra- and inter-organizational dimensions. The top management is the primary practitioner of the intentions and deliberate activities, whereas the organizational level deals with coopetition at the implementation stage. The second scenario ‘coopetition as an adapting practice’ is supposed as a fully emergent strategy, in which the business environment rather than the top management conduces formulation and reformulation of coopetition strategy on the basis of its market power (Dahl et al., 2016, p. 102f). ‘Coopetition as a reacting practice’ is based on the assumption that top management can predict and control the external business environment activities about competition and cooperation. The intra-organizational level is of emergent nature due to assumed self-interested behavior, for instance, opportunism, resulting in a spontaneous reformulation of strategic activities and intentions (Dahl et al., 2016, p. 103f). The fourth and last scenario ‘Coopetition as a contextually derived practice’ comprises of emergent features at the intra-organizational
level and deliberate features at the inter-organizational level. This is due to the underlying assumption that top management has limited control over the external business environment, while the inter-organizational level is supposed to be deliberate because of favorable external business environment conditions (Dahl et al., 2016, p. 104).

4.2 Global Coopetition

This subchapter of the Master’s Thesis deals with coopetition at the global level. The provided breakdown of global coopetition is based on Luo (2004):

- Coopetition with global rivals
- Coopetition with global suppliers and distributors
- Coopetition with corporate members within a multinational corporation
- Coopetition with global alliance partners
- Coopetition with foreign governments

The overall intention of this Master’s Thesis is to provide relevant data regarding global coopetition and its implications for competitiveness. However, since the structure mentioned above regarding global coopetition would be too broad, the emphasis is here placed on coopetition with global rivals and coopetition with global alliance partners.

4.2.1 Situational Tactics for Coopetition with Global Rivals

In order to succeed in global coopetition, multinational firms have to continuously adapt their level of competition and cooperation (Luo, 2007, p. 132; Ritala & Tidström, 2014, p. 507). On the one hand, firms need to increase their cooperative efforts when they are confronted with increasing competitive threats, global consumer sophistication, rising pressure on global value chain integration, increasing danger from institutional environments, or as a result of the inter-organizational relationship itself. While on the other hand firms have to increase competitive interactions when there is a rising conversion of global goals, for instance, same or identical competitive strategies, market expansion plans, similar product and business portfolios, maturing industry or decreased resource interdependence of global rivals (Luo, 2007, p. 133f).

Therefore, the intensity of competition and cooperation determines what kind of situation a global operating firm has to deal with. The from Luo (2007, p. 135) developed framework provides situational tactics how a multinational corporation can interact with a global competitor. The in the following Figure 19 depicted matrix consists of four situational tactics,
which can be applied in accordance with the intensity of global coopetition. The situational tactics are named as the following (Luo, 2007, p. 135f):

- Contending situation
- Isolating situation
- Partnering situation
- Adapting situation

The contending situation is subject to adoption when the global firm is confronted with strong competition on the one side and weak levels of cooperation on the other, concerning an oligopolistic market (Luo, 2007, p. 135). The above-stated theoretical approach of coopetitive dynamics including market commonality and resource similarity is not valid in global oligopolistic markets since large parts of the global market share are occupied among few competitors, and product similarity and resource homogeneity with regard to this subject is reducing the potential for cooperation. The concept of coopetition is in the contending situation adopted in order to gather information regarding the rival's next strategic moves (Luo, 2007, p. 135f).

![Intensity of coopetition in a global context](Luo, 2007, p. 136)

The isolating situation is a condition, in which competition is high, and cooperation is weak, as a result, this situational tactic is out of the scope of this Master’s Thesis. The partnering situation is most common among global rivals with low market commonality and high resource complementarity. Therefore, the coopetitive relationship enables cooperation with non-direct competitors to increase their collective knowledge base and in turn enhance their
financial performance (Luo, 2007, p. 137). The adapting situation is characterized by high levels of competition and cooperation. As a result, the global players have to balance their dyadic relationship to achieve their common goals (Luo, 2007, p. 138). Therefore, the collaborating rivals need to adapt in order to achieve their goals. Since dual relationships are characterized by conflicting and opportunistic behaviors, the coopetitors should take into account analysis of boundaries, loose coupling, and strategic balancing. According to Luo (2007, p. 139), a firm engaged in coopetitive relationships may consequently develop an overall coopetition profile in order to indicate vulnerabilities. Moreover, a multinational corporation’s engagement in global coopetition requires besides the level of intensity also the level of diversity of coopetition in order to identify potential interactions with major global rivals (Gnyawali et al., 2006, p. 509).

The diversity of coopetition constitutes the geographic breadth of coopetitive collaborations and the number of rivals a firm is cooperating with. The following Figure 20 illustrates the diversity of coopetition in a two-dimensional matrix. The diversity of coopetition framework provides the multinational corporation with four applicable situational tactics (Luo, 2007, p. 139):

- Dispersing situation
- Concentrating situation
- Connecting situation
- Networking situation

Initially, the dispersing situation is to be applied when a global operating firm collaborates with few rivals over a large number of markets. Those firms may try to solidify their market shares by using their collective power to reduce competitive pressures as it was the case with the collaborating competitors like Eastman Kodak Company and Fujifilm and The Coca-Cola Company and PepsiCo (Luo, 2007, p. 140). The concentrating situation is more likely to be applied by smaller multinational firms since they may not have the worldwide scale. Therefore, those firms engaging in competitive collaborations may find themselves in a position with reduced fix costs and enhanced strategic flexibility. The connecting situation is adopted when a global firm maintains a large number of competitive relationships with only a small scope of markets. Such behavior focuses on the enlargement of the market potential or creation of new ones (Ritala & Hurmelinna-Laukkanen, 2009, p. 821). For instance, cooperating rivals may engage in coopetitive relationships to establish new technological standards or avoid price wars. Corresponding results from Peng et al. (2012, p. 548) support those finding that coopetitive relationships have the potential to
increase the scale of the market. However, this also strengthens competition within an industry. Therefore, Luo (2007, p. 141) calls for the implementation of product differentiation or low-cost strategy in order to gain or defend market share.

![Figure 20 Diversity of coopetition in a global context (Luo, 2007, p. 139)](image)

The respective networking situation occurs when a multinational corporation maintains a large number of coopetitive relationships with a broad geographic breadth. This approach is more likely the case in large global firms, as it is, for example, Royal Philips Electronics. The large firm, therefore, provides a “network with globally dispersed rivals to build a loosely coupled yet structurally differentiated and coopetitively heterogeneous framework” (Luo, 2007, p. 141). In this sense, loose coupling is defined as a “situation in which elements are responsive, but remain evidence of separateness and identity” (Orton & Weick, 1990, p. 203). However, in order to capitalize its efforts, the multinational corporation shares with its partner’s complementary resources and creates advantageous conditions for its diverse industries. Finally, such heterogeneous framework may lead to enhanced financial returns for the provider of the network (Gomes-Casseres, 1994, p. 63; Lado et al., 1997, p. 123; Sanou et al., 2016, p. 144). Moreover, Luo (2007, p. 131) asserts that alongside enhanced financial performance coopetitive behavior may lead to quasi-internalization of a collaborating rival’s skills. Those skills can be applied to new geographic markets, new products and new businesses improving the overall competitiveness of the firm (Bengtsson & Raza-Ullah, 2016, p. 32).
4.2.2 Coopetition with Global Alliance Partners

The dynamics of global coopetition with alliance partners has been investigated by Luo et al. (2008). Therefore, the researchers have applied the loose coupling framework on the interplay of global alliance partners (Luo et al., 2008, p. 429; Orton & Weick, 1990, p. 203; Weick, 1976, p. 3). In general, it is proposed that the simultaneity of private and collective control and cooperation offers opportunities for managing the dynamics resulting from global alliances. Private control refers to the management of global strategic alliances in a way to contribute to the firm itself, whereas collective control refers to the achievement of joint gains. Both of the control mechanisms are present in global strategic alliances, but their presence varies due to deviating goals, strategies, organizational cultures (Luo et al., 2008, p. 431). Typically, collective control mechanisms are in common written into contracts, whereas the private control mechanisms are sometimes evolving naturally or arising out of specific situations depending on shared and non-shared values (Luo, 2002, p. 904; Luo et al., 2008, p. 431).

The in this subsection presented typologies of private and collective control and cooperation, which have been developed by Luo et al. (2008), serves as designated alliance settings. Each strategical response provided fits to a certain situation. The first typology in this respect refers to private control and cooperation ranging from (high) complete private control to (high) complete cooperation. However, it is proposed that the risk arising from high private control poses a great threat to cooperation and thus on the global strategic alliance itself (Kogut, 1989, p. 384f; Luo et al., 2008, p. 432). Although, control and cooperation are dichotomous, low private control does not imply high cooperation or the other way around. Therefore, each strategic situation produces three strategical responses (Luo et al., 2008, p. 433f):

- The contending or bargaining situation
- The honeymoon situation
- The coopetition situation

To start with, the contending situation or bargaining situation is a state, in which high private control and low level of cooperation are emphasized. In particular, this state is characterized by high risk of opportunism and low mutual commitment culminating in a combative atmosphere due to conflicting goals, and weak resource dependence in the early development phase of the global strategic alliance (Luo, 2004, p. 114). Established global strategic alliances face a contending or bargaining situation when goals or objectives deviate from each other or loss of honor as a result of defective contracts, misappropriation
of knowledge, for example. However, this particular state is provided with three strategic responses for each party involved in the global strategic alliance. The in Figure 21 stated strategic responses ‘Dominance’, ‘Challenge’ and ‘Exit’ are applicable for the contending situation depending on the assertiveness and the degree of unilateral commitment of the partner, and the strategic need of the alliance (Luo et al., 2008, p. 433).

Figure 21 Typology of private control and cooperation in global strategic alliances (Luo et al., 2008, p. 432)

However, Luo et al. (2008, p. 433) state that ‘Dominance’ is achieved in a global strategic alliance a partner provides equity or management controls to lead key positions. The second strategic response ‘Challenge’ refers to situations where renegotiation of mutual goals takes place. Therefore, a partner may amend its resource commitment in order to improve its bargaining power. ‘Exit’ is as a viable strategic option when costs of dominance or challenge exceed the expected marginal returns of continuing the alliance (Luo, 2004, p. 115).

The honeymoon situation takes place in global strategic alliances where all partners involved cooperate at a high level (Luo, 2004, p. 116; Luo et al., 2008, p. 433). This particular state comprises high mutual trust, congruent goals, and resource interdependencies, as a result of common historical developments. In the case of developing tensions and conflicts within the global strategic alliance, the cooperative relationship may change to a coopetition situation. The longevity of the honeymoon situation depends on the degree of mutual sharing of resources, cross-cultural justice, mutual forbearance and trust (Luo et al., 2008, p. 434). The honeymoon state offers ‘accommodation’, ‘adaption’ and ‘compliance’ as potential strategic responses. The strategic response ‘accommodation’ is associated with the responsiveness and support for the needs of the partner, whereas ‘adaption’ refers to the acceptance of cultural, behavioral
differences of the partner as well as differences in values and standards. ‘Compliance’ as strategic response refers to the observation of the stipulated policies and procedures of the global strategic alliance partners involved (Luo et al., 2008, p. 434).

The coopetition situation constitutes of simultaneous cooperation and competition. As a result, the partners of a global strategic alliance have to reconcile their activities with those of the partnership (Luo, 2004, p. 117). According to Beamish and Banks (1987, p. 5), such state is likely to occur in global strategic alliances where firms of developed and developing countries participate since they are unequal in terms of competencies and therefore seek to private control instead of cooperation. However, the coopetition state also occurs in alliances with partners with similar resources and capabilities. For example, the automobile manufacturers Fiat of Italy and Peugeot of France started a joint van venture where the firms equally collaborated in terms of engineering, investment, and R&D, as well as marketing and production. However, tensions in the alliance occurred because Fiat preferred outsourcing of some car components while Peugeot preferred in-house production. Moreover, the respective firms competed for market share since they distributed the vans separately in their own networks in the same countries (Luo et al., 2008, p. 434).

This specific situation offers ‘Influence’, ‘Appeasement’ and ‘compromise’ as possible strategic responses. The first strategic response aims to influence representatives of partnering firms or external stakeholders to decide in favor of the influencing firm by providing services or resources that the overall global strategic alliance needs. ‘Appeasement’ refers to joint activities to settle specific problems of the partners or the alliance itself. The last strategic response deals with compromise as a tool for balancing conflicting interests of the partnership, for instance, alignment of resources necessary for continued cooperation and equal distribution of future payoffs (Luo, 2004, p. 118f; Luo et al., 2008, p. 435).

In the first part, global strategic alliances were provided with strategic responses with regard to private control developed by Luo et al. (2008), however, here the emphasis is placed on collective control measures. In particular, collective control is relevant in cooperating global strategic alliances since without cooperation such control measures would not be effective. The below stated Figure 22 exemplifies the collective control-cooperation typology offering the following four situational recommendations (Luo et al., 2008, p. 435):

- Loosely connected situation
- Equity hostage situation
- Tightly integrated situation
- Trusting situation

The loosely connected situation is characterized by low cooperation and low collective control, this often takes place with non-equity-based or contractual alliances, for example, international airline alliances (Luo et al., 2008, p. 436). According to Reuer et al. (2002, p. 140), the low complexity of the shared tasks within this quadrant leads to the development of inter-organizational routines. However, this specific state offers ‘expansion’, ‘acquiescence’ and ‘turnaround’ as potentially suitable strategic responses. The decision of what kind of strategic response should be undertaken depends on the decision to either deepen the collaboration or not (Luo, 2004, p. 120; Luo et al., 2008, p. 436).

![Figure 22 Typology of collective control and cooperation in global strategic alliances (Luo et al., 2008, p. 436)]

With regard to the state of equity hostage the global strategic alliance is characterized through a low degree of cooperation, but high collective control, this is often the case in equity joint ventures since the interests of the partnering firms are closely tied together (Luo et al., 2008, p. 436). This situation offers ‘Specification’, ‘Commensuration’ and ‘Positioning’. ‘Specification’ refers to codification and contracting as far as possible of all contingencies in order to minimize opportunism (Luo, 2002, p. 904). The strategic response ‘commensuration’ is similar to the previous one, but the emphasis is placed on the balance
of interests and risk. ‘Positioning’ is associated with planned processes to align the joint outcome of the alliance with those of the firm itself. The tightly integrated situation is one in which cooperation and collective control are both at a high level. This state is long-term oriented since the partnering firms jointly gain through close coordination and shared operations. However, ‘Transmission, ‘Assimilation’ and ‘Co-optation’ are potentially applicable strategic responses. The first strategic response is associated with the codification of history and routines into guidelines aiming to shape behavior (Levitt & March, 1988, p. 320; Luo et al., 2008, p. 438). ‘Assimilation’ emphasizes on the absorption of knowledge through collective sharing and learning. In this respect, Dyer and Singh (1998, p. 665) note that the assimilative capacity to integrate and apply knowledge from outside the firm depends on the previously related knowledge basis. Whereas the strategic response ‘Co-optation’ focuses on neutralization of conflicts and enhancement of mutual understanding and reciprocal forbearance (DiMaggio & Powell, 1983, p. 155; Luo, 2004, p. 124).

The trusting situation refers to high cooperation, but low collective control, this situation is often a result of a long-lasting and highly interdependent relationship. Therefore, it is proposed that in this state social norms are a powerful force to minimize transaction costs (Luo et al., 2008, p. 439). ‘Adherence’, ‘Imitation’ and ‘Socialization’ are considered as potential strategic responses to the trusting situation. The first strategic response refers to the internalization of social behaviors, norms, and values in order to improve cooperation. ‘Imitation’ may be a useful tool to overcome cultural differences between the partnering firms. In this sense, Oliver (1991, p. 152) propose that imitation is a suitable tactic to improve trust. The strategic response ‘Socialization’ aims to approach high cooperation through interpersonal relationships and low collective control by elevating inter-organizational familiarity and trust (Gulati, 1998, p. 86; Luo, 2001, p. 177; Luo et al., 2008, p. 439).

### 4.3 Centrality in Coopetition Networks

Following the coopetitive relationships subchapter and the above-described network approach, the emphasis is placed here on the effects of network centrality. Basically, in the network theory, there are three distinctive types of centrality (Wasserman & Faust, 1994, p. 178):

- Degree
- Betweenness
- Closeness centrality
The emphasis in this Master’s Thesis presented literature is placed on the degree centrality. However, the effects of network centrality and its underlying coopetitive network structures have been analyzed by Gynawali et al. (2006) with data from the global steel industry. In general, coopetitive networks can be defined as cooperative relationships of firms operating in the same industry (Gnyawali et al., 2006, p. 509). As already outlined in the subchapter above, collaborative relationships with competitors arise tensions at multiple levels. According to Gnyawali and Madhavan (2001, p. 432), inter-organizational networks of firms usually comprise three types of resource flows:

- Asset flow
- Information flow
- Status flow

The access and use of the network resources depends on the structural position of the firm, thus, the higher the centrality of the firm the more likely are the opportunities to learn and absorb knowledge from the coopetitors (Gnyawali & Madhavan, 2001, p. 435; Wasserman & Faust, 1994, p. 173). High status in inter-organizational networks resulting from the central position of the firm may have positive implications on the competitive opportunities and lead to decreased competitive flexibility for the involved firms with lower status (Fang et al., 2011, p. 776; Gnyawali et al., 2006, p. 511). As a result of the manifold direct ties of the central actor to the other firms within the coopetitive network, information and experience leakages are likely to occur, but this poses not a significant threat to the central actor unless all other participating firms share their unique knowledge (Gnyawali et al., 2006, p. 511f).

However, the quantitative research study focuses on the competitive actions of firms within the coopetitive network. In this respect, competitive actions are defined as “purposeful and observable moves undertaken by firms in order to improve their competitive position vis-à-vis their competitors in the industry” according to Gnyawali et al. (2006, p. 511). The concept of competitive actions, in turn, comprises of two key aspects competitive activity and competitive variety. Competitive activity refers to the total number of competitive moves of a firm, whereas competitive variety is referred to as the range or diversity of the undertaken competitive actions (Ferrier et al., 1999, p. 374; Gnyawali et al., 2006, p. 511). It is proposed that high network centrality enhances competitive activity, whereas high structural autonomy enhances the competitive variety of the central firm.
To provide a comprehensive analysis, Gnyawali et al. (2006, p. 515) have taken into account market diversity as a moderating role, since competitors often serve multiple market segments (Prahalad & Bettis, 1986, p. 494). Therefore, it is argued that a central actor with high market diversity reaps more positive effects than firms with low market diversity through competitive activity. Moreover, the researchers suggest that highly diverse and structural autonomous firms have positive effects on competitive variety than competitors with lower market variety. The empirical research has revealed a significant positive effect of network centrality on the competitive activities as well as a significant positive effect of structural autonomy on the competitive variety of the firm (Gnyawali et al., 2006, p. 521). The research results have revealed that high market diversity has a positive effect on the benefits gained through central network position, while high market diversity has a significant positive effect on the structural autonomy of the firm (Gnyawali et al., 2006, p. 523). Thus, the research results suggest that a firm occupying a central and structurally autonomous position within a coopetitive network becomes more aggressive in terms of competitive actions.

According to Sanou et al. (2016, p. 144), the knowledge about the performance implications of the structural position within coopetitive networks is still limited. As a result, the researchers have advanced the empirical study from Gnyawali et al. (2006) by investigating the effects on the market performance of the firm with data from the global mobile phone operator industry. In general, the market performance is measured by assessment of the market share or sales growth, however, in this research study market performance is measured by comparison of the number of the mobile phone operator’s subscribers and the average growth rate of subscribers (Sanou et al., 2016, p. 153). It is further stated that the industrial concentration and maturity of the domestic market, as well as the geographical location, potentially affect the competitive actions and market performance of the firms (Ferrier et al., 1999, p. 376; Sanou et al., 2016, p. 153).

Sanou et al. (2016) have conducted a quantitative research to examine how the structural position of a firm in a coopetition network affects its market performance and competitive aggressiveness in terms of competitive activity and competitive variety (Peng & Bourne, 2009, p. 383f; Sanou et al., 2016, p. 144). The respective researchers, therefore, propose that the higher the network centrality of the firm, the higher its competitive activity and competitive variety. Moreover, the researchers state that a central network position leads to greater market performance of the firm and that high competitive activity of firm within a coopetitive network leads to increased market performance of that entity (Sanou et al., 2016, p. 148f). However, the proposal that highly aggressive firms in terms of competitive...
actions may achieve higher market performance is based on the conditions that such firms continuously monitor the network members and their competitive environment. Therefore, the aggressive rival may have gained a better market understanding and thus may conduct more appropriate competitive actions (Ferrier et al., 1999, p. 373). Sanou et al. (2016, p. 152) have identified the following competitive actions in the global mobile phone operator industry:

- Signaling actions
- Pricing actions
- Capacity actions
- Marketing actions
- Product actions
- Service actions

The empirical research has revealed a significant positive relationship between network centrality and competitive activity. The competitive activity of a firm is significant negatively affected by the market concentration and geographical location, but significant positively affected by the maturity of the domestic market (Sanou et al., 2016, p. 153f). Furthermore, a significant positive relationship between network centrality and competitive variety has been identified. The geographical location, as well as the market concentration, have significant negative effects on the competitive variety, whereas the maturity of the domestic market is positively related to competitive variety. With regard to performance, the quantitative research has revealed a significant positive relationship between network centrality in coopetitive networks and market performance (Sanou et al., 2016, p. 154). In particular, network centrality has significant positive effects on the number of the mobile phone operator’s subscribers as well as on the average growth rate of subscribers. Moreover, significant positive effects of competitive activity and competitive variety on both market performance measures have been discovered (Sanou et al., 2016, p. 156).

Summing up, this chapter has given a comprehensive set of information regarding the management and implications of coopetition relationships. The partner selection processes, as well as the composition of inter-organizational relationships, have been reviewed. Therefore, the subchapter started with the from Oliver (1990) identified six contingencies why firms enter inter-organizational relationships. In order to show the different approaches of partner selection the from Emden et al. (2006) developed model for partner selection as well as Shah and Swaminathan’s (2008) model for partner selection and partner attractiveness are stated. Moreover, this subchapter also contains the model for
comprehensive alliance partner selection (Cummings & Holmberg, 2012) including the identified critical success factors for evaluating potential partners. Then, the from Kraus et al. (2017) identified relational factors to describe inter-organizational relationships are presented including results from the quantitative research study. In the end, results from Cygler and Debkowska (2015) and Zakrzewska-Bielawska (2015), which both have conducted a quantitative research study regarding the identification of coopetition areas, are stated with their corresponding significance values. The management of coopetitive tensions, emphasizes on the principles of integration and segregation and have been applied to identify potential problem-solving mechanisms by Fernandez et al. (2014) and Seran et al. (2016). Coopetitive tensions arising at different levels require different measures, insofar that inter-organizational relationships may have to be managed by an entrusted third party or through separation of functions or teams into either cooperative or competitive units (Fernandez et al., 2014, p. 232f).

In this sense, Seran et al. (2016, p. 33) have expanded the theory by taking into account internal formal and informal coordination. Those coordination mechanisms intend to prepare the employees of multinational corporations for relationships with competitors. Fernandez and Chiambaretto (2016) have extended research from Fernandez et al. (2014) and Seran et al. (2016) by emphasizing on the development of control mechanisms for critical and appropriable information. In their case study, the researchers describe how to simultaneously protect and share critical informational resources in coopetitive projects through a dedicated information system (Fernandez & Chiambaretto, 2016, p. 69f). Corresponding research from Tidström (2014, p. 262) has identified potential sources of tensions including their classification in Thomas and Kilmann’s (2017) model of conflict management in order to indicate a different viewpoint of managing tensions concerning coopetitive relationships.

The subchapter of coopetition strategy deals with applicable coopetition scenarios on the basis of deliberate and emergent actions at the inter- and intra-organizational level (Dahl et al., 2016). In addition, research from Lundgren-Henriksson and Kock (2016a) has revealed that coopetition strategy entails deviating managerial understandings with respect to the past, present, and future. In this respect, Lundgren-Henriksson and Kock (2016b) have investigated the development process of coopetition strategy from a strategy-as-practice perspective as well as the implications of sensemaking and sensegiving on the change process. The last subchapter emphasizes on coopetition at the global business level by providing strategic responses or tactical recommendations for partnering global rivals and global alliance partners. However, this theoretical input is necessary since the overall
intention of this Master’s Thesis is to investigate coopetition relationships in globalized business environments with regard to competitiveness.

5 In Search of Competitiveness

After the development stage of coopetitive relationships, the potential effects of centrality in coopetition networks and coopetition in globalized business environments have been described; this chapter deals with the potential outcomes of competition-cooperation relationships. The performance outcomes are distinguished into innovation, knowledge and traditional firm performance to ensure appropriate investigation (Bengtsson & Raza-Ullah, 2016). The following Table 10 comprises of the primarily applied research literature including their journal ranking.

<table>
<thead>
<tr>
<th>Name of researcher, Journal</th>
<th>Research method</th>
<th>Title of research paper</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bengtsson and Raza-Ullah (2016), Industrial Marketing Management (B)</td>
<td>Systematic literature review</td>
<td>A systematic review of research on coopetition: Toward a multilevel understanding</td>
<td>Identification of the outcomes of coopetition: • Innovation • Knowledge • Firm performance</td>
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<tr>
<td>Bouncken and Fredrich (2016), Journal of Business Research (C)</td>
<td>Quantitative research</td>
<td>Business model innovation in alliances: Successful configurations</td>
<td>Investigation of the effects of business model innovation on firm performance in alliances. The research study has revealed a positive relationship between alliance experience and financial performance of the firm. Short term alliances have higher effects on the firm performance than alliances with higher duration.</td>
</tr>
<tr>
<td>Enberg (2012), International Journal of Project Management (C)</td>
<td>Qualitative research</td>
<td>Enabling knowledge integration in coopetitive R&amp;D projects - The management of conflicting logics</td>
<td>Investigation of knowledge integration mechanisms in coopetitive R&amp;D projects: • Statement of work developed by the senior management • Project work on the basis of work packages • Impersonal and standardized reporting tools to ensure outflow from specific knowledge</td>
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<tr>
<td>Estrada et al. (2016), Industrial Marketing Management (B)</td>
<td>Quantitative research</td>
<td>Coopetition and product innovation performance: The role of internal knowledge sharing mechanisms and formal knowledge protection mechanisms</td>
<td>Development of a conceptual framework for innovation performance comprising of internal knowledge sharing mechanisms and formal knowledge protection mechanisms Findings: Strong support for collaboration with competitors</td>
</tr>
<tr>
<td>Hong and Snell (2015), Journal of World Business (B)</td>
<td>Qualitative research</td>
<td>Knowledge development through co-opetition: A case study of a Japanese foreign subsidiary and its local suppliers</td>
<td>Identification of cooperative and competitive routines for knowledge development in supply chain coopetition</td>
</tr>
<tr>
<td>Huang and Yu (2011), The Journal of Technology Transfer (B)</td>
<td>Quantitative research</td>
<td>The effect of competitive and non-competitive R&amp;D collaboration on firm innovation</td>
<td>Investigation of the effects of non-competitive and competitive collaborations on a firm’s innovation performance. Innovation performance is significant positive related to both types of collaborations. The effects are higher with non-competitive collaborations.</td>
</tr>
<tr>
<td>Kostopoulos et al. (2011), Journal of</td>
<td>Quantitative research</td>
<td>Absorptive capacity, innovation, and financial performance</td>
<td>Analysis of the role of absorptive capacity to transform external knowledge</td>
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<tr>
<td>Business Research</td>
<td>Tacit knowledge transfer in coopetition: an empirical investigation of the role of business group (BG) affiliation</td>
<td>Vertical Coopetration and the Sales Growth of Young and Small Firms</td>
<td>Co-opetition, distributor's entrepreneurial orientation and manufacturer's knowledge acquisition: Evidence from China</td>
</tr>
<tr>
<td>(C)</td>
<td>Investigation of the effects of tacit knowledge transfer on innovation capability in coopetitive relationships. The research study has revealed that the higher the degree of tacit knowledge transfer, the higher the innovation capability of a firm.</td>
<td>Investigation of the effects of vertical coopetition on the sales growth of small and young firms. Vertical coopetition with larger competitors and increasing exchange value between them are positively associated with sales growth. Intensive resource dependence of small and young firms is negatively associated with sales growth.</td>
<td>Investigation of the moderating effect of the entrepreneurial orientation on the manufacturer’s potential to integrate knowledge from distributors. Relationships based on cooperation and constructive conflicts have significant positive effects, whereas deconstructive conflicts have significant negative effects on the potential.</td>
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<tr>
<td>Authors</td>
<td>Methodology</td>
<td>Research Focus</td>
<td>Findings/Outcomes</td>
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<td>Nieto and Santamaria</td>
<td>Quantitative research</td>
<td>The importance of diverse collaborative networks for the novelty of product innovation</td>
<td>Empirical research study to explore the effects of collaborative networks on innovation. Results for collaboration with competitors are insignificant at the incremental innovation level and significant negative at the radical innovation level.</td>
</tr>
<tr>
<td>Ritala and Sainio</td>
<td>Quantitative research</td>
<td>Coopetition for radical innovation: technology, market and business-model perspectives</td>
<td>Investigation of the effects of coopetition on • Technological innovation • Market innovation • Business model innovation The study revealed a significant negative relationship for technological innovation, significant positive relationship for business model innovation and insignificant results for market innovation.</td>
</tr>
<tr>
<td>Ritala et al.</td>
<td>Conceptual framework and qualitative research</td>
<td>Tensions in R&amp;D networks: Implications for knowledge search and integration</td>
<td>Knowledge search and integration processes consist of dialectical and paradoxical tensions. The decision to share and integrate knowledge depends on the degree of openness and inclusiveness. Paradoxical tensions are associated with innovation goal alignment, coopetition and actor interdependence.</td>
</tr>
<tr>
<td>Tsai and Hsu</td>
<td>Conceptual framework and quantitative research</td>
<td>Cross-Functional collaboration, competitive intensity, knowledge integration mechanisms, and new product performance:</td>
<td>Analysis of the relationships between collaboration, knowledge integration mechanisms, performance and competitive intensity. Competitive intensity negatively affects the</td>
</tr>
<tr>
<td>Wu et al. (2010), Journal of Operations Management (A)</td>
<td>Quantitative research</td>
<td>Supplier–supplier relationships in buyer–supplier–supplier triads: Implications for supplier performance</td>
<td>Investigation of the effects of supplier coopetition relationships on supplier performance. The research study has revealed a significant positive relationship between supplier coopetition relationships and buyer influence. Moreover, supplier performance is lower when coopetition is high.</td>
</tr>
<tr>
<td>Yami and Nemeh (2014), Industrial Marketing Management (B)</td>
<td>Conceptual framework and qualitative research</td>
<td>Organizing coopetition for innovation: The case of wireless telecommunication sector in Europe</td>
<td>Development of a conceptual framework for coopetition related innovation. Multiple coopetition is more suitable for radical innovation, and dyadic coopetition is more suitable for incremental innovation.</td>
</tr>
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</table>

Table 10 Primary literature findings regarding competitiveness through coopetition

### 5.1 Knowledge-related Outcome of Coopetition

Knowledge sharing, creation, integration and acquisition are in coopetition research often asserted being the primary motivation of competitive collaborations (Bengtsson & Raza-Ullah, 2016, p. 29). Although sharing, creating, integrating and acquiring knowledge are in this Master’s Thesis treated as a competitiveness outcome itself, the value creation and value appropriation take place when knowledge becomes innovation (Bengtsson & Raza-Ullah, 2016, p. 31). For example, access to external resources was the main driver for the global operating rivals General Motors Company and Toyota Motor Corporation to cooperate in the field of joint fuel cell-powered cars, while they continued fierce competition in other market segments (Chin et al., 2008, p. 438).

According to Bengtsson and Kock (2000, p. 421), resource heterogeneity between coopetitors is a potential source of enhanced competitiveness. This competitiveness improvement may result from direct access to distinct resources and capabilities from the
cooperating competitor, which may lead to a reduction of development costs of unique resources. Moreover, it is argued that conflicts in coopetitive relationships are positively contributing to knowledge sharing between firms, as long as the tensions are on a constructive basis (Li et al., 2011, p. 130).

5.1.1 Knowledge Creation and Sharing

The research findings of whether or not competitive collaborations lead to enhanced value creation and value appropriation are still inconsistent (Estrada et al., 2016, p. 56). As a result, Bengtsson and Kock (2014, p. 181) propose the adoption of specific coopetitive settings where tensions between value creation and value appropriation are managed. Estrada et al. (2016) have conducted a quantitative research in order to identify the effects of internal knowledge sharing mechanisms and formal knowledge sharing mechanisms on the product innovation performance of firms engaged in coopetitive relationships. The data required to undertake the research study were provided from SEMATECH, which is a US-based consortium of the semiconductor industry targeting on joint development of groundbreaking (radical) innovations and recapturing of market share by US-based firms from Japanese competitors.

The conceptual framework, illustrated in Figure 23, hypothesizes that product innovation performance is positively influenced when the following mechanisms are in place (Estrada et al., 2016, p. 58f):

- Internal knowledge sharing mechanisms
- Formal knowledge protection mechanisms

These two presented mechanisms aiming to manage knowledge recombination and the risk of knowledge spillover (Argote et al., 2003, p. 575; Barney, 1991, p. 101; Estrada et al., 2016, p. 57ff). However, internal knowledge sharing mechanisms strengthen a firm’s capability to absorb and utilize knowledge and information from the competitor. Therefore, Estrada et al. (2016, p. 58) argue that recombination of recently received knowledge and subsequent internalization leads to benefits in innovation performance. In turn, formal knowledge protection mechanisms must be in place in order to prevent unintended knowledge spillover when maintaining coopetitive relationships (Cassimán et al., 2009, p. 219; Faems et al., 2007, p. 1701). Respective formal mechanisms for protection are, for instance, patents, copyrights, trademarks and industrial designs since they codify knowledge in the final product or services (James et al., 2013, p. 1124).
The product innovation performance is used as the dependent variable and the independent respectively explanatory variable is competitor collaboration, whereas internal knowledge sharing mechanisms and formal knowledge protection mechanisms are used as moderating variables (Estrada et al., 2016, p. 60). The quantitative analysis has revealed that collaboration with customers, suppliers and with government institutes have a significant positive impact on the firm’s product innovation performance, while results from collaboration with knowledge institutes are not significant at all. Collaboration with competitors also has a significant positive effect on the product innovation performance of the partnering firms. Moreover, it has been revealed by Estrada et al. (2016, p. 62) that competitor collaboration has only a positive significant impact when formal knowledge protection mechanisms, as well as internal knowledge sharing mechanisms, are in place.

In case of that only one corresponding mechanism is installed, coopetitive relationships have no significant impact on product innovation performance. However, in the case of joint absence of the two mechanisms, collaboration with competitors does not have a negative effect on the innovation performance (Estrada et al., 2016, p. 61f).

The researchers Hong and Snell (2015) have conducted a qualitative research study to investigate the effects of supply chain coopetition on the knowledge development of a manufacturing firm and its five core suppliers. In particular, the researchers have emphasized on the identification of the cooperative knowledge development routines enabling the firm to continuously improve the performance of its suppliers (Hong & Snell, 2015, p. 770; Wilhelm & Kohlbacher, 2011, p. 76). However, on the one hand, these routines
comprise of competitive aspects that the suppliers keep on striving to outperform the other supplier, and on the other hand, cooperative aspects to integrate the explicit and tactical knowledge (Dyer & Nobeoka, 2000, p. 352f; Khanna et al., 1998, p. 198; Nonaka, 1994, p. 206).

The qualitative research has revealed that cooperative routines can, in general, be distinguished into integrative and disseminating routines, whereas the competitive routines can be distinguished into selective and retaining routines (Hong & Snell, 2015, p. 774ff). The identified routines and their potential benefits for knowledge development are presented in the following Table 11:

<table>
<thead>
<tr>
<th>Function</th>
<th>Type of routine</th>
<th>Potential benefits for knowledge development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cooperative routines</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration</td>
<td>Combining co-specialized knowledge</td>
<td>Aggregating complementary specialist knowledge from diverse suppliers in order to improve productivity and quality</td>
</tr>
<tr>
<td></td>
<td>Socializing through training, coaching and role-modelling</td>
<td>Constituting a common platform that facilitates communication and joint problem solving and knowledge co-creation</td>
</tr>
<tr>
<td></td>
<td>Externalizing and harmonizing expectations and constraints</td>
<td>Resolving differences by defining and meeting a common learning need or goal</td>
</tr>
<tr>
<td></td>
<td>Joint experimentation and problem-solving</td>
<td>Pursuing collaborative learning though joint deliberation, action, and reflection</td>
</tr>
<tr>
<td>Dissemination</td>
<td>Mapping and guiding</td>
<td>Enabling suppliers to prepare for impending demands, and directs them to make relevant expert suggestions</td>
</tr>
<tr>
<td></td>
<td>Upgrading common practices</td>
<td>Renewing knowledge repositories and maintaining them through a shared frontier of best practice</td>
</tr>
<tr>
<td><strong>Competitive routines</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selection</td>
<td>Assessing and monitoring for eligibility</td>
<td>Ongoing screening to ensure that partners continue to pursue common goals and have compatible capabilities and resources</td>
</tr>
<tr>
<td></td>
<td>Internal benchmarking</td>
<td>Safeguarding and double-checking the authenticity of partners’ expert knowledge claims</td>
</tr>
<tr>
<td></td>
<td>Challenging and ranking</td>
<td>Pressurizing current partners to intensify their efforts and make further improvement</td>
</tr>
</tbody>
</table>
Retention | Incentivizing and rewarding | Motivating partners to make major investments in capability-building and capacity-extension Reducing inertia, and expediting necessary attrition among weaker partners
---|---|---
Reprimanding and shaming | Reducing inertia and expediting necessary attrition among weaker partners

Table 11 Identified cooperative and competitive routines for knowledge development based on Hong and Snell (2015, p. 774ff)

After successful development of knowledge, the knowledge transfer takes place. Therefore, Krylova et al. (2016) have investigated the knowledge transfer in knowledge-intensive organizations (KIO). The researchers argue that successful transfer and protection of knowledge depends on the improvisation processes of knowledge workers and not on implemented formal knowledge mechanisms.

In this sense, improvisation is defined as “creative and spontaneous process of trying to achieve an objective in a new way” (Vera & Crossan, 2005, p. 205). However, the transfer of both tactical and explicit knowledge inside and outside a firm arises problems since ambiguity, interference, and lack of equivalence constrain the convertibility of knowledge (Krylova et al., 2016, p. 1048). Although, the research study emphasizes on knowledge transfer within a knowledge-intensive organization the research findings will be treated in this Master’s Thesis in analogy to knowledge transfer in coopetitive business relationships.
Krylova et al. (2016, p. 1051) have developed a conceptual model to describe the role of improvisation in knowledge transfer and protection. The conceptual model comprises of knowledge transfer mechanisms in an organizational and group context. The experimental culture refers to the acceptance of competent mistakes and trial and error mentality in innovation. Standardization and highly hierarchical structures may hinder effective experimentation and successful knowledge transfer, therefore, implementation of minimal structures may provide autonomy and prevent chaos (Krylova et al., 2016, p. 1054).

With regard to group contextual factors storytelling practices are highlighted when it comes to transferring of tactical knowledge. The stories reflect organizational behavior, norms and values, thus, enabling for organizational learning. Shared mental models are among scholars widely accepted as the antecedents of effective improvisation (Krylova et al., 2016, p. 1056; Vera & Crossan, 2005, p. 206). The development of shared mental models takes place through knowledge articulation, dialogue and collective discussions within groups. As a result, these organizational and group settings allow for effective improvisation and thus may positively contribute to successful knowledge transfer and knowledge protection.

The role of knowledge transfer on business group affiliation has been empirically tested by Kumar and Dutta (2017). Therefore, the researchers included five aspects in their quantitative researcher study (Kumar & Dutta, 2017, p. 455):
The primary thesis of the respective research study is that tactical knowledge transfer is a primary driver for the innovation capability of a firm (Kumar & Dutta, 2017, p. 453). In this respect, the coopetitive relationship strength and the tactic knowledge transfer serves as the independent variables, whereas the innovation capability serves as the dependent variable. Business group affiliation and coopetitive experience constituting the moderating variables.

However, the coopetitive relationships strength is defined here as an interfirm relationship, comprising frequent interactions, extended history and intimacy or mutual confiding of the partnering competitors (Bengtsson et al., 2010, p. 200; Granovetter, 1973, p. 1361; Kumar & Dutta, 2017, p. 456). The tactic knowledge transfer refers to the processes associated with the transferability of tactical knowledge (Nonaka, 1994, p. 19). The researchers suggest that the higher the coopetitive relationship strength of a firm is, the greater the extent of the tactic knowledge transfer. The innovation capability is defined as the capability to utilize knowledge and skills for the effective and efficient development of novelties (Kumar & Dutta, 2017, p. 457). It is proposed that the higher the extent of the tactic knowledge transfer in coopetitive relationships, the higher the innovation capability of the firm. In this research study, business group affiliation is referred to as subsidiaries belonging to a parent firm and their potential effects of knowledge spillovers facilitating the development of innovations.

Kumar and Dutta (2017, p. 458) suggest that a group affiliated firm has a moderating effect on the positive relationship between the coopetitive relationship strength and tactic knowledge transfer between the firms. Moreover, it is suggested that when the coopetitive partner is affiliated to a group there is a moderating effect on the positive relationship between the coopetitive relationship strength and tactic knowledge transfer between the firms (Kumar & Dutta, 2017, p. 458). The coopetitive experience emphasizes on the organizational routines enabling to collaborate with competitors and to deal with emerging conflicts resulting from the dyadic relationship (Kumar & Dutta, 2017, p. 459). The researchers suggest when a firm has a high degree of coopetitive experience, the
relationship between the coopetitive relationship strength and tactic knowledge is higher than with firms with lower coopetitive experience (Kumar & Dutta, 2017, p. 459).

The findings from the quantitative research study suggest a strong positive relationship between the coopetitive relationship strength and the tactic knowledge transfer. Thus, a strong coopetitive relationship facilitates the transfer of tactical knowledge. A positive relationship between the extent of tactic knowledge transfer and the innovation capability of a firm has also been found (Kumar & Dutta, 2017, p. 463). The moderating variable of business group affiliation positively affects the relationship of coopetitive relationship strength and the tactic knowledge transfer of the firm and the coopetitive partner (Kumar & Dutta, 2017, p. 464). Contrary to the main findings of the research study is that when both of the partnering firms are affiliated to a group the higher the coopetitive relationship strength, then the lower the tactic knowledge transfer. The examination of the moderating variable coopetitive experience has revealed a positive effect on the relationship between coopetitive relationship strength and tactic knowledge transfer (Kumar & Dutta, 2017, p. 466).

5.1.2 Knowledge Acquisition and Integration

Li et al. (2011) have quantitatively analyzed the moderating effect of entrepreneurial orientation on the coopetitive behavior of distributors on the potential of knowledge acquisition of manufacturers. According to the authors, manufacturers and distributors maintain a dyadic relationship, in which cooperative, as well as competitive aspects, have to be balanced (Li et al., 2011, p. 129). Cooperation within supply chains takes place by the achievement of compatible goals and objectives, for example, attractive pricing, timely delivery conditions and product quality. In turn, competition within supply chain refers to conflicts of the interdependent entities, as, opportunism and differences or incompatibilities in goal setting (Li et al., 2011, p. 130).

The entrepreneurial orientation is defined as the tendency of a firm to gain competitive advantage by entering new business opportunities through taking risks, and innovative and proactive behavior (Lumpkin & Dess, 1996, p. 136). Furthermore, Li et al. (2011, p. 130f) propose that a coopetitive partnership with a supplier with a particular entrepreneurial orientation enhances the potential for transfer of valuable knowledge. Thus, resulting in favorable resource combination from external resources from the respective distributor and internal capabilities from the manufacturer. The following Figure 22 depicts the knowledge acquisition process from a distributor to the manufacturer within a coopetitive supply chain relationship.
The dyadic relationship consists of cooperative and competitive interactions as described above in this subsection, whereby the competitive interactions are divided into constructive and deconstructive conflicts. The empirical research study uses the entrepreneurial orientation of the distributor as moderating variable in order to analyze its impact on the manufacturer’s capacity of integrating knowledge (Li et al., 2011, p. 131).

The manufacturer’s knowledge acquisition is therefore used as the dependent variable, and the properties of cooperation, constructive conflicts, and deconstructive conflicts are used as the independent variables. The analysis has revealed that the property of cooperation has a significant positive effect on the manufacturer’s knowledge acquisition as well as the property of constructive conflicts. The property of deconstructive conflicts resulted in significant negative results. By taking into account the moderating variable of the distributor’s entrepreneurial orientation, the findings are consistent with the prior results. Furthermore, the analysis has revealed that the interaction of the properties of cooperation and deconstructive conflicts leads to negative effects as well as the property of cooperation and constructive conflicts on the manufacturer’s knowledge acquisition (Li et al., 2011, p. 138).

Mechanisms for knowledge integration in coopetitive relationships has been amongst others studied by Enberg (2012) and Ritala et al. (2017). Since the shared knowledge has to be integrated in order to be applicable for collaborating firms, Enberg (2012, p. 776) argues for implementation of pre-defined knowledge integration mechanisms (KIM). According to Olson et al. (1995, p. 50), knowledge integration mechanisms comprises of structures and formal processes that enable knowledge integration among the partnering entities. These
integration mechanisms should aim to simultaneously support information exchange and prevent specific knowledge from outflow (Enberg, 2012, p. 779).

The qualitative research study conducted by Enberg (2012, p. 775) emphasizes on the integration of knowledge in a coopetitive R&D project. The target of the R&D project is to identify future technologies for an advanced combat air system involving five firms from five different European countries. Since the firms competed fiercely in the same markets, the project was divided into five distinctive work packages. As a result, the project members of each firm merely discussed outputs of their work packages rather than inputs like processes and tools. Therefore, the chosen knowledge integration mechanisms relied on impersonal and standardized forms to report results at the group level (Enberg, 2012, p. 777). In order to hamper the formation of a common understanding of all involved project members, a statement of work containing restrictions and limitations was written by the board of senior managers at the beginning of the coopetitive R&D project. This manual for project work also defines the technical scope, technical interdependencies, inputs, outputs and outcomes of the work packages (Enberg, 2012, p. 779).

The integration of knowledge in coopetitive R&D networks has also been studied by Ritala et al. (2017). The researchers focused on the Dutch aerospace sector, where they have collected data from experts and managers responsible. The qualitative research study has revealed that tensions arising from coopetitive relationships can be distinguished into dialectical and paradoxical tensions (Birkinshaw et al., 2016, p. 54; Ritala et al., 2017, p. 315). Dialectical tensions are defined as “competing choices that cannot be fully resolved long-term” (Ritala et al., 2017, p. 315), whereas paradoxical tensions refer to a “persisting variety of contradictory organizing elements within the same context” (Ritala et al., 2017, p. 315). However, the deliberate decision of a firm to share and integrate knowledge depends on the degree of openness (open vs. closed) and inclusiveness (inclusive vs. selective). According to Ritala et al. (2017, p. 316), paradoxical tensions are associated with the innovation goal alignment, coopetition, and actor interdependence in coopetitive R&D networks. The following Figure 26 illustrates the above-described processes for dialectical and paradoxical tensions.
Corresponding research from Tsai and Hsu (2014) has empirically investigated the effects of cross-functional collaboration on new product performance (NPP) and the mediating roles of knowledge integration mechanisms on the competitive intensity in cross-functional collaboration relationships. In this sense, cross-functional collaboration refers to collaborative relationships within a firm (Tsai & Hsu, 2014, p. 295). The quantitative research study was intended to shed light on the performance implications of cross-functional collaboration since the from Troy et al. (2008) conducted meta-analysis has revealed inconsistent findings. For instance, Leenders and Wierenga (2008) and Li and Calantone (1998) have found significant positive effects of cross-functional collaboration on new product performance, while Nakata et al. (2006) and De Luca and Atuahene-Gima (2007) have found insignificant results. Therefore, the researchers Tsai and Hsu (2014, p. 294) have developed a conceptual framework for cross-functional collaboration and its effects on new product performance (Figure 27).

The conceptual framework is based on the structural contingency theory and its two views fit-as-moderation and fit-as-mediation (Venkatraman, 1989). However, the view of fit-as-moderation proposes that the strategic behavior of a firm depends on the environment. In particular, the conceptual framework suggests that competitive intensity shapes the cross-
functional relationship. The view of fit-as-mediation finds that the organizational design enhances the information-processing capacity and integration mechanisms of a firm (Tsai & Hsu, 2014, p. 294f).

The quantitative research study aims to find evidence for a high positive relationship between cross-functional collaboration and new product performance when competitive intensity is low. Furthermore, the researchers aim to find evidence for the hypothesis that knowledge integration mechanisms mediate the negative effect of competitive intensity on the relationship between cross-functional collaboration and new product performance (Tsai & Hsu, 2014, p. 295).

The empirical research has revealed a positive effect of cross-functional collaboration on the new product performance, whereby the size of the effect depends on the degree of competitive intensity. Thus, the negative effect of competitive intensity on the relationship between cross-functional collaboration and new product performance has been confirmed by Tsai and Hsu (2014, p. 298). With regard to the mediating effect of knowledge integration mechanisms, the results suggest that such mechanisms completely account for the moderating effect of competitive intensity on the relationship between cross-functional collaboration and new product performance (Tsai & Hsu, 2014, p. 299). Summing up, the quantitative research has revealed that competitive intensity has a negative effect on the performance of cross-functional collaboration. The knowledge integration mechanisms
mediate the impact of competitive intensity on the relationship between cross-functional collaboration and new product performance (Tsai & Hsu, 2014, p. 299).

5.2 Innovation-related Outcome of Coopetition

Global competition and technological changes have made it indispensable for firms to collaborate in terms of R&D, in particular when firms are confronted with insufficient internal resources (Huang & Yu, 2011, p. 384). Findings from Bengtsson and Raza-Ullah (2016, p. 31), which have conducted a systematic literature review, suggest that competitive collaborations in R&D positively contribute to the internal R&D resources and thus improves the innovation level of the respective firm. Moreover, findings from Bouncken and Fredrich (2012, p. 14) propose that coopetition has positive effects on radical innovation of a firm, while incremental innovation is less associated with competitive collaborations as a result of novel processes and mechanisms.

These findings are consistent with research from Ritala and Hurmelinna-Laukkanen (2009, p. 826), which state that radical innovations are associated with less competitive pressures than incremental innovations since high innovation novelty may have the potential for new emerging markets or market differentiation. According to Ritala and Hurmelinna-Laukkanen (2009, p. 822), Gast et al. (2015, p. 18) and Bouncken et al. (2015, p. 586), coopetition increases competitiveness through innovation, when competitors face identical market conditions and possessing a similar resource basis.

![Figure 28 Framework for innovation through coopetition](Yami & Nemeh, 2014, p. 258)
In this sense, Yami and Nemeh (2014) have developed a conceptual framework for coopetition related innovation. In general, the conceptual framework is distinguished into partners motives, implementation and processes, and outcomes, which are part of the underlying coopetition strategy according to the researchers (Yami & Nemeh, 2014, p. 251f). The data necessary for the development of this model was provided by the European wireless telecommunication industry. The qualitative research study focuses on what type of coopetition favors radical or incremental innovation. Therefore, Yami and Nemeh (2014, p. 258) have investigated multiple (three or more competitors) and dyadic (between two competitors) coopetition projects along their value creation and value appropriation dynamics. In this respect, the concept of social capital was implemented in order to describe the moderating effects on the issue.

According to Coleman (1988, p. 96ff) social capital is defined according to its function and beneficial effects on social aggregates. Social capital comprises of a variety of entities sharing two common characteristics: A certain aspect of social structure and facilitation of actions of actors within this social structure (Coleman, 1988, p. 100; Yami & Nemeh, 2014, p. 251). As a result, the social structure of the coopetition project shapes the dynamics of value creation and value appropriation and thus effects the type of innovation. However, the qualitative research has revealed that dyadic coopetition is more suitable for incremental innovation, whereas multiple coopetition is more suitable for radical innovation (Yami & Nemeh, 2014, p. 255f).

Corresponding research from Nieto and Santamaria (2007) have investigated the effects of diverse collaborative networks on the novelty of innovations. Therefore, the researchers have applied the degree of innovation described as high or low level as dependent variable referring to as either radical or incremental innovation. The first independent variable has been defined as ‘Collaboration and continuity’ representing engagement of a firm in technological collaboration. The second independent variable is defined as ‘Type of partners and diversity of networks’, which is categorized in (Nieto & Santamaria, 2007, p. 371):

- Collaboration with research organizations (technological institutions and universities)
- Collaboration with clients
- Collaboration with suppliers
- Collaboration with competitors
The results suggest that ‘Collaboration and continuity’ has a significant positive effect on the achievement of either low and high-level product innovation. In addition, the comparison of the two coefficients has revealed that the effect of collaboration is stronger at the radical innovation level (Nieto & Santamaría, 2007, p. 373). Furthermore, the effects of each type of partner on the degree product innovation have been analyzed: The highest positive significant effect on both types (radical and incremental) of product novelty has been revealed when firms forge partnerships with their suppliers. Collaboration with research institutions also has a significant positive impact on the probability to achieve product innovation, although the effect is stronger at the lower level degree (incremental) of product innovation. Collaboration with clients leads to similar results, but these findings are less significant than from the previous category.

In contrast, collaboration with competitors resulted in no significant effects on the likelihood of achievement of incremental innovation. Moreover, the analysis has revealed a significant negative effect on the attainment of a high-level degree of product novelty (Nieto & Santamaría, 2007, p. 373f). Since firms often maintain a heterogeneous set of networks, the effect on the degree of product novelty has been analyzed by taking into account all categories of the independent variable ‘Type of partners and diversity of networks’. The analysis has revealed that collaboration with diverse partners has the highest probability among all categories to accomplish radical innovation. The effect on incremental innovation is also significant positive, although it is slightly smaller than with the high-level degree of product innovation (Nieto & Santamaría, 2007, p. 374).

Kang and Kang (2010) have also investigated R&D collaborations with universities, customers, suppliers and competitors and their effects on product innovation. The quantitative research study, therefore, has applied the different types of partners as the independent variable and product innovation as the dependent variable. The researchers have used the data from the Korean Innovation Survey from 2005 to run the analysis (Kang & Kang, 2010, p. 952). The quantitative research investigates, on the one hand, the linear effects of R&D collaboration on product innovation and on the other hand the curvilinear relationship between R&D collaboration and product innovation. The research study has revealed no significant results for R&D collaboration with competitors and suppliers.

Whereby the collaboration with customers and universities suggest a significant positive relationship (Kang & Kang, 2010, p. 956). With regard to the curvilinear relationship between R&D collaboration and product innovation, the research study has revealed that R&D collaboration with competitors, as well as with suppliers is significant negative. These
Findings suggest that a firm’s innovation could trigger a crisis at the supplier or competitor insofar that the capabilities brought into the R&D collaboration become obsolete (Afuah, 2000, p. 388). Thus, the partnering firm may become reluctant to develop innovations. Furthermore, Kang and Kang (2010, p. 956) state that excessive collaboration in terms of R&D with suppliers may lead to longer development times and higher development and product costs.

Ritala and Sainio (2014) have conducted an empirical research study in order to investigate the effects of coopetition on the three distinctive types of radical innovation. Those different types of radical innovation are in the realm of technology, market and business model. Technological innovation radicalness is referred to as technological discontinuity providing its inventor with a clear advantage over the current existing type of technology (Chandy & Tellis, 2000, p. 2f; Ritala & Hurmelinna-Laukkanen, 2013, p. 160). According to Garcia and Calantone (2002, p. 119), the second type market radicalness is a required paradigm shift in existing markets or evolution of new markets, which is dependent from the associated risk of customer adoption and change in user behavior. Finally, innovation may require a new business model in order to create a new source of value for the customer (Teece, 2010, p. 175). In order to measure the effects on technological coopetition on the three types of innovation radicalness, the independent variable is divided into coopetition associated with R&D, NPD and technology development (Ritala & Sainio, 2014, p. 161f).

The analysis has revealed that coopetition is significant negatively related to technological radicalness and significant positively related to business model radicalness. Moreover, the research study provides insignificant results for radical market innovation. Finally, the authors state that coopetition is more likely to contribute to the development of incremental innovations than radical innovations at the technological stage, while innovation in business models suggests for radicalness (Ritala & Sainio, 2014, p. 164).

Huang and Yu (2011) have quantitatively analyzed the effect of non-competitive collaborations and competitive collaborations on the firm performance. Non-competitive collaborations refer to relationships with institutions, for example, universities and other research institutions, which have deviating objectives from the partnering firm (Huang & Yu, 2011, p. 385). Prior studies, which have investigated the performance effects on firms maintaining such type of collaborations and those without, have shown that those firms were outperforming their counterparts in terms of innovation (Zucker et al., 2002).
According to Huang and Yu (2011, p. 385) and Gnyawali and Park (2009, p. 309), insufficient resources and capabilities to achieve specified targets within a limited period of time are the key intentions to form competitive collaboration relationships. However, respective research study treats the R&D collaborations as moderating role, whereas other studies in this respect emphasize on the direct effect of R&D collaborations on the innovation performance, for instance, Un et al. (2010). In order to measure a firm’s innovation performance, Huang and Yu (2011, p. 389) have applied the total number of patents for a given time period as the dependent variable. Furthermore, the researchers have applied to measure in-house R&D, the absorptive capacity in terms of the number of R&D personnel in relation to the total personnel as the independent variable (Delmas et al., 2011, p. 121). In this sense, the absorptive capacity is defined as the “ability to recognize the value of new information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal, 1990, p. 128). As aforementioned in this subchapter, non-competitive and competitive collaboration are used as moderating variables.

The quantitative research has revealed that in-house R&D interactions with universities and other research institutions have a significant positive effect on the innovation performance of the firm as well as the interactions of inter-firm collaborations with in-house R&D. Moreover, the results of the quantitative analysis provide evidence that the effect on innovation performance is higher with R&D collaborations with universities than with competitors (Huang & Yu, 2011, p. 395f).

5.3 Firm Performance-related Outcome of Coopetition

Besides innovation and knowledge as potential outcomes of coopetition, the traditional firm performance is also subject to thorough competition-cooperation research activities (Bengtsson & Raza-Ullah, 2016, p. 32). In particular, the performance of the firm has been studied from the following angles:

- Financial performance (Bouncken & Fredrich, 2016; Kostopoulos et al., 2011)
- Sales volume and market share (Gnyawali & Park, 2011; Lechner et al., 2016)
- Efficiency (Belderbos et al., 2004; Liu et al., 2014; Sepehri & Fayazbakhsh, 2011; Wu et al., 2010)

5.3.1 Financial Performance

The researchers Bouncken and Fredrich (2016) have conducted a quantitative research study in order to investigate the effects of business model innovation (BMI) on the financial
performance of firms participating in alliances. According to Amit and Zott, a business model is defined as “an activity system that is designed and enabled by a focal firm, but which transcends the focal firm and spans its boundaries” (2010, p. 6). However, the empirical study applies the following variables firm size, age, relationship duration and alliance experience as independent variables to examine the impacts on the financial performance of the firm (Bouncken & Fredrich, 2016, p. 3585). The return on equity (ROE) is therefore applied as the dependent variable in order to measure the financial performance.

The data required for the empirical study was provided by firms from the global high-tech industry at large trade fairs in Germany in 2014. Bouncken and Fredrich (2016, p. 3585f) have hypothesized that the larger the firm and the greater the alliance experience, the greater the effects on the firm performance resulting from business model innovation in alliances. Furthermore, the researchers have postulated a negative relationship between the age of the firm and the relationship duration on the firm performance in terms of ROE.

The findings from the quantitative research study have revealed insignificant results for the positive relationship between the size of the firm and firm performance for firms participating in alliances. The same is true for the negative relationship between firm age and firm performance (Bouncken & Fredrich, 2016, p. 3587). With regard to the alliance relationship duration, the results have also revealed insignificant results. The postulated positive relationship between alliance experience and firm performance finds support. Moreover, the results strongly suggest that business model innovation in short-term alliances leads to high performance, whereas a longer relationship duration leads to opportunism and misalignment of the partnering firms. Smaller sized firms require higher alliance experience in order to increase profitability, while larger firms improve performance by business model innovation and lower experience (Bouncken & Fredrich, 2016, p. 3586f). The results from the research study are consistent with the findings from Peng et al. (2012, p. 548), which have also found evidence that coopetition leads to temporary higher firm performance.

Kostopoulos et al. (2011) have also conducted a quantitative research study emphasizing on the role of absorptive capacity to transform external knowledge from a collaborating party into innovation and financial performance. Among scholars, it is widely argued that the absorptive capacity of a firm involved in non-competitive as well as competitive collaborations is a means of superior innovation and financial performance (Brandenburger & Nalebuff, 1996, p. 6; Lieberman & Montgomery, 1988, p. 44). However, research studies exploring the interrelationship between innovation and financial performance are still scarce (Lane et al., 2006, p. 857). In order to investigate the role of absorptive capacity on the
performance of a firm, the researchers have hypothesized that external knowledge inflow is positively related to the firm’s absorptive capacity. Furthermore, it is argued that the absorptive capacity positively contributes to the innovation performance and therefore to the financial performance of a collaborating firm (Kostopoulos et al., 2011, p. 1336f).

According to the results of the quantitative research study, the absorptive capacity is positively correlated with innovation performance and in turn positively related to the financial performance (Kostopoulos et al., 2011, p. 1339). The financial performance of the firm is thereby measured with the financial indicators return on sales (ROS) and return on assets (ROA). These financial indicators have been applied since they are most prominent and provide informative data. The results of the research study provide strong evidence that absorptive capacity leads to tangible benefits regarding innovativeness and financial performance (Kostopoulos et al., 2011, p. 1338ff).

5.3.2 Sales Volume and Market Share

As already outlined above, firm performance related to coopetitive relationships could also arise in terms of sales volume and market share, as it was the case with Sony Corporation and Samsung Electronics. In 2004, Sharp Corporation and Royal Philips Electronics were ranked as the first and second largest LCD makers, while Sony Corporation and Samsung Electronics held the third and the fourth market position (Gnyawali & Park, 2011, p. 653). Samsung Electronics and Sony Corporation took over in 2008 and reached a combined market share of 40.9 percent in the fourth quarter compared to 18.4 percent in the third quarter of 2004. The coopeting firms also have won the industry standardization battle LCD technology standard against the PDP technology standard from Panasonic Corporation and LG Electronics (Gnyawali & Park, 2011, p. 655f).

Furthermore, the coopetitive relationship between the Sony Corporation and Samsung Electronics was advantageous in terms of market share and exchange of capabilities. Before the rivals have started to cooperate, the TV business segment of Sony Corporation suffered, while Samsung Electronics lacked reputation and marketing expertise in order to improve its market position (Gnyawali & Park, 2011, p. 658). It is asserted that the marketing expertise and the reputation of the Sony Corporation combined with Samsung's capabilities in design and technological innovation have led to a balanced coopetitive relationship, in which both partners have gained a favorable situation. Finally, the Sony Corporation has benefited from its focused investment in the LCD technology by entering the market within a short time and received high returns, whereas Samsung Electronics has taken over
market leadership and has become the largest manufacturer of TVs and panels (Gnyawali & Park, 2011, p. 656f).

Lechner et al. (2016) have investigated the effects of vertical coopetition and sales growth on small and young firms. According to Dowling et al. (1996, p. 157) vertical coopetition are supplier or buyer exchange relationships between competitors. However, it is argued that such vertical relationships with larger competitors positively contribute to higher sales and more stable supply of resources since competitors usually share the same opportunities and risks associated with their business models (Lechner et al., 2016, p. 69). Moreover, it is hypothesized that small and young firms excessively depending on the vertical coopetition relationship are negatively affected in terms of sales growth. Lechner et al. (2016, p. 72f) have defined the following independent variables:

- Competitor size
- Relative exchange value
- Perceived importance of the exchange resources for the small and young firm's competitive advantage

In order to measure the performance of small and young firms, the average sales growth is applied as the dependent variable. Moreover, the number of employees and the firm age are used as control variables (Lechner et al., 2016, p. 75). The German Venture Capital Association primarily provided the data required to conduct the quantitative research study.

The research study has revealed that vertical coopetition with a larger competitor has significant positive effects on the sales growth of small and young firms. With regard to the relative exchange value, the results suggest that vertical coopetition is significant positively associated with sales growth. Furthermore, the empirical study has revealed a significant negative relationship between the perceived importance of the exchanged resources and sales growth (Lechner et al., 2016, p. 78).

### 5.3.3 Efficiency

With regard to efficiency as an outcome of coopetitive relationships, Wu et al. (2010) have empirically investigated the effects of supplier coopetition relationships on the supplier performance. Therefore, the researchers have analyzed data from a large purchasing firm from the aerospace manufacturing industry. The buying entity maintains relationships with two suppliers producing precision machined components. The in Figure 29 illustrated buyer-
supplier-supplier coopetitive relationship shows the potential relationship directions (Wu et al., 2010, p. 116). In this respect, the researchers have postulated that in such triadic relationship (Choi & Wu, 2009, p. 263) the purchasing entity has a direct and positive influence on the supplier coopetition when the purchasing entity has strong buying influence. According to Wu et al. (2010, p. 117) buying influence is defined as activities to manage supplier coopetition relationships. However, the researchers have further hypothesized that within a buyer-supplier-supplier triad, the supplier coopetition has a direct and positive relationship on the supplier performance when supplier coopetition is high. Supplier performance is in this sense defined as the outcomes associated with the operations in terms of costs, support, responsiveness, quality and delivery (Wu et al., 2010, p. 117f).

![Figure 29 Buyer-supplier-supplier coopetitive relationship (Wu et al., 2010, p. 116)](image)

The quantitative research study has revealed significant results for the positive relationship between the supplier coopetition relationship and buyer influence. Thus, a buyer with a strong influence on its suppliers can shape the relational behavior between them (Wu et al., 2010, p. 120). With regard to the supplier performance, the findings suggest contrary to the expectations that supplier performance is lower when supplier coopetition is high. Furthermore, the positive relationship between buyer influence and supplier performance is not supported as well as the mediating role of supplier coopetition on supplier performance (Wu et al., 2010, p. 120f).

Liu et al. (2014) have undertaken research efforts in the field of coopetitive buyer-supplier relationships to investigate the effects of the phenomenon on relationships benefits and transaction costs. According to Cannon and Homburg (2001, p. 38f), suppliers grant their...
customers lower prices if they are willing to enter sole sourcing arrangements, in turn, the suppliers benefit in terms of guaranteed volume and stability. However, contrary to coopetitive relationships with competitors, the relationship between buyers and suppliers is based on cooperative notions (Liu et al., 2014, p. 446). In order to analyze the effects of such coopetitive relationships on relationship benefits and transaction costs, Liu et al. (2014, p. 447) distinguish coopetition in accordance with Luo’s (2007) coopetition typology.

This coopetition typology has already been subject to analysis in the subchapter above ‘Global coopetition’. In the following Table 12, the from Liu et al. (2014, p. 446ff) posited different relationship benefits and transaction costs per situational tactic are stated:

<table>
<thead>
<tr>
<th>Contending situation</th>
<th>Relationship benefits</th>
<th>Transaction costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>(High competition / low cooperation)</td>
<td>Low relationship benefits due to self-interest maximization</td>
<td>High transaction costs due to divergences in strategic interest</td>
</tr>
<tr>
<td>Isolating situation</td>
<td>Increased economic performance due to resource complementarity of buyers and suppliers</td>
<td>Minor transaction costs due to standardized contracts resulting from low frequency and volume</td>
</tr>
<tr>
<td>(Low competition / low cooperation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partnering situation</td>
<td>Increased investment in dyadic tangible and intangible assets to pursue cooperative objectives</td>
<td>Low transaction costs resulting from common strategic interests and goals</td>
</tr>
<tr>
<td>(Low competition / high cooperation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adapting situation</td>
<td>Low relationship benefits due to high levels of competition</td>
<td>High transaction costs due to environmental and behavioral uncertainties</td>
</tr>
<tr>
<td>(High competition / high cooperation)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 12 Effects of coopetitive buyer-supplier relationships based on Liu et al. (2014, p. 446ff) and Luo (2007)

The for the quantitative research study required data was provided by the largest Chinese home appliance manufacturer and its national distributors. However, the researchers have distinguished relationship benefits into economic performance, knowledge sharing and relationship satisfaction, whereby only the economic performance is from substantial interest in this Master’s Thesis. With regard to the transactions costs, Liu et al. (2014, p. 458) distinguish between negotiation and evaluation costs, contract enforcement costs and protection costs.
The findings from the quantitative research study suggest that cooperation between buyers and suppliers and economic performance (relationship benefit) is significantly positive, whereas competitive and coopetitive relationships between them have only provided insignificant results (Liu et al., 2014, p. 458). Furthermore, the results have revealed a significant positive relationship between coopetition between buyers and suppliers and all types transaction costs. Thus, competitive relationships are associated with higher transaction costs than with cooperative or coopetitive relationships. With regard to cooperative and coopetitive relationships, the results have provided insignificant results for all types of transaction costs. The only exception is the case with coopetitive buyer and supplier relationships and protection costs. In this case, the research study has revealed a significant positive relationship since mechanisms have to be implemented to restrain opportunistic behavior (Liu et al., 2014, p. 452; Williamson, 1981, p. 554).

Correspondingly, research from Sepheri and Fayazbakhsh (2011) also focus on inter-organizational collaboration between suppliers. The researchers, therefore, have conducted a quantitative research study by taking into account different cases of inter-firm relationships ranging from competitive to cooperative, whereas competitive relationships are the comparison base. However, in order to measure efficiency in a supply chain, Sepheri and Fayazbakhsh (2011, p. 67) have applied the total supply chain cost as performance ratio for each case. According to the results, cooperative supply chains outperform purely competitive supply chains. To investigate the effects on each member of the supply chain the average costs and cost variations have been computed and compared by the researchers (Sepehri & Fayazbakhsh, 2011, p. 68). The quantitative research study provides strong evidence that cooperative supply chains have lower average costs as well as cost variations than purely competitive supply chains. With regard to coopetitive supply chains, the results have revealed lower costs than with the competitive case. Thus, cooperative supply chains maintaining cooperative behavior surpass other types of supply chains in terms of total supply chain costs, average costs and cost variations (Sepehri & Fayazbakhsh, 2011, p. 68)

The researchers Belderbos et al. (2004) have empirically investigated the effects of R&D partnerships with competitors, suppliers, customers, universities and research institutions on the firm performance. The performance of the firm is therefore measured in terms of labor productivity growth and growth rate in sales of innovative products (Belderbos et al., 2004, p. 1480; Lööf & Heshmati, 2002, p. 62). The research study uses data from innovating firms in the manufacturing and service segment in the Netherlands. However, the labor productivity growth is referred to as growth rate in net value added per employee (Belderbos
et al., 2004, p. 1482). Furthermore, an R&D input measure defined as the percentage of total innovation expenditures and sales has been taken into account as control variable to control for the impact of external technology acquisition.

The quantitative research study indicates that collaborating firms have higher labor productivity increases (13 % difference) and growth rates in sales of innovative sales than their non-collaborating counterparts. Correspondingly, these reported results are even higher with firms maintaining collaborative relationships with their customers and universities (Belderbos et al., 2004, p. 1485). In more detail, only R&D partnerships with competitors have a significant positive impact on labor productivity growth, whereas R&D partnerships with universities have a significant positive impact on the growth rate in sales of innovative products.

It has been indicated that coopetitive relationships could increase competitiveness and financial performance. However, there are multiple risks associated with coopetition (Bouncken et al., 2015, p. 589). For instance, findings from Afuah (2000, p. 388) propose that cooperation with competitors can negatively influence the competitiveness and financial performance of the firm since it can become overly dependent on external capabilities of the partnering firm.

Competitiveness arising from coopetitive undertakings have been investigated from the innovation, knowledge and firm performance perspective. Research findings regarding coopetition indicate that collaboration with competitors has mixed effects on innovation. Huang and Yu (2011) have identified a positive relationship of coopetition on the innovation performance, whereas findings from Nieto and Santamaria (2007) have revealed a negative relationship. Moreover, Ritala and Sainio (2014) have investigated the effects of coopetition on technological, market and business model radicalness, where only business model radicalness has a significant positive relationship.

The knowledge related outcome of coopetition is further distinguished into knowledge creation and sharing, and knowledge acquisition and integration. With regard to knowledge creation and sharing, coopetition has a significant positive effect on innovation as long as formal knowledge protection mechanisms and internal knowledge sharing mechanisms are installed (Estrada et al., 2016).

Moreover, knowledge acquisition and integration have been analyzed from a supply chain coopetition perspective, which revealed that cooperation and constructive conflicts between
the actors have a positive effect on the capacity of the manufacturer of integrating knowledge (Li et al., 2011). Kostopoulos et al. (2011) have amongst others investigated the relationship between coopetition and financial performance, which revealed a significant positive effect on the financial performance of the coopeting firm. Business model innovation in alliances leads to higher financial performance of the firm when alliance experience is high, whereas the firm size and relationship duration have insignificant effects on the financial performance.

6 Conclusion

6.1 Summary of Main Findings

The term coopetition refers to simultaneous cooperation and competition and is subject to research since the 1990s. The researchers Brandenburger and Nalebuff (1996) have brought the concept of coopetition to traditional business practice. The seminal book ‘Co-opetition’ approaches coopetition from a game theory perspective involving various actors and their interdependencies. However, as the advancement of coopetition-research goes on, researchers have applied different underlying theories on the concept (Bengtsson & Kock, 2014, p. 181). In this Master’s Thesis, the following theories have been stated and brought in line with the concept of coopetition:

- Game theory
- Resource-based view
- Network approach
- Transaction cost economics
- Resource dependence theory

The examination of the theories has revealed that the expected outcomes vary among the different theories, whereas the risks associated with coopetition are similar to each other. However, the comparison of the underlying theories enabled to investigate the distinctive phases and levels of the concept of coopetition. In general, the current research literature distinguishes coopetition into the inter-firm, intra-firm and network-level, whereby the inter-firm and network-level receive most of the research attention (Dahl et al., 2016, p. 491).

A central framework of the concept of simultaneous cooperation and competition is Lado et al.’s (1997) model of syncretic rent-seeking strategic behavior, which provides behavioral directions for firms engaged in coopetitive relationships. Corresponding to this theoretical
approach, this Master’s Thesis includes a multilevel approach to the concept of coopetition developed by Bengtsson und Raza-Ullah (2016). The researchers, therefore, divided the concept of coopetition into actors and activities and integrated the findings into their DPO-framework. This framework comprises of drivers, processes, and outcomes of coopetition and leaves behind the criticized two-dimensional view of coopetition (Bengtsson & Kock, 2014, p. 181).

The management of coopetition relationships comprises the processes of partner selection, the tensions arising from the relationship and current research findings in the field of coopetition strategy. The processes of partner selection in coopetitive relationships have been amongst others researched by Emden et al. (2006). The researchers have in this respect developed a three phases model where technological, strategic and relational alignment of the potentially partnering firms may lead to value creation.

The management of tensions in coopetitive relationships has been subject to research by Fernandez et al. (2014) and Seran et al. (2016). The researchers have developed principles of separation and integration depending on the specific activities (Fernandez et al., 2014; Seran et al., 2016). Moreover, the coopetition literature has been investigated with regard to coopetition strategy. Such strategy is at the time researched through the strategy-as-practice lens and constitutes of deliberate and emergent elements (Dahl et al., 2016; Lundgren-Henriksson & Kock, 2016a). Coopetition in globalized business environments is investigated along with its intensity and diversity (Luo, 2007).

Therefore, situational recommendations for multinational firms engaging in coopetitive relationships and alliances have been provided (Luo, 2007; Luo et al., 2008). Furthermore, the effects of the structural position of the firm involved in coopetition networks have been investigated (Gnyawali & Madhavan, 2001; Sanou et al., 2016). The quantitative research study conducted by Gnyawali et al. (2006) has revealed a significant positive relationship between the structural position of the firm and competitive activities, as well as a significant positive relationship between structural autonomy and competitive variety (Gnyawali et al., 2006, p. 523).

According to Brandenburger and Nalebuff (1996, p. 6), the normative outcome of coopetitive relationships is the achievement of superior performance. Therefore, this Master’s Thesis was intended to investigate the research literature regarding competitiveness. Bengtsson and Raza-Ullah (2016) have classified the potential outcomes of coopetition into:
• Knowledge-related outcome
• Innovation-related outcome
• Firm performance-related outcome

This classification has been adopted to categorize the competitiveness-related research literature. The subcategories have been adapted to maintain a clear structure and enable proper distinction. However, the knowledge-related outcome of coopetition is mainly researched from a process level, and quantitative research studies are rare. Although several quantitative research studies are taking into account knowledge as an outcome of coopetitive relationships, the subject of analysis is on innovation performance. For instance, Estrada et al. (2016) have found that knowledge is a source of competitiveness as long as formal knowledge protection mechanisms and internal knowledge sharing mechanisms are in place. Moreover, the quantitative research study from Li et al. (2011) has revealed that cooperation, as well as constructive conflicts with coopetitive supply chain members, have positive effects on the manufacturer’s capacity of knowledge integration.

In general, the innovation-related outcome of coopetition is distinguished into radical and incremental innovations (Yami & Nemeh, 2014). The results from the empirical research study conducted by Bouncken and Fredrich (2012) suggest a positive relationship between coopetition and radical innovations, whereas results from Nieto and Santamaria (2007) suggest otherwise. In more detail, the research study has revealed insignificant results for collaboration with competitors and incremental innovation and significant negative results for radical innovations (Nieto & Santamaría, 2007, p. 373). Furthermore, Kang & Kang (2010) have identified a significant negative curvilinear relationship between collaboration with competitors and product innovation.

The firm performance-related outcomes of coopetition are categorized into financial performance, sales volume and market share, and efficiency. With regard to the financial performance of the coopeting firm, Kostopoulos et al. (2011) have investigated the effects of absorptive capacity on the innovation and financial performance. The research study has revealed a significant positive relationship between absorptive capacity and financial performance (Kostopoulos et al., 2011, p. 1338). Gnyawali and Park (2011, p. 665) state that coopetitive relationships could have positive effects on the sales volume and market share as it was the case with the Sony Corporation and Samsung Electronics. Moreover, the from Lechner et al. (2016, p. 75) conducted quantitative research study has revealed that vertical coopetition with a larger competitor has significant positive effects on the sales growth of young and small firms. Efficiency as an outcome of coopetitive relationships has
been amongst others subject to research by Wu et al. (2010) and Belderbos et al. (2004). Wu et al. (2010, p. 120) have found that supplier performance within a supplier co-opetition relationship is lower when co-opetition between suppliers is high. For instance, Belderbos et al. (2004, p. 1485) have revealed that R&D collaborations with competitors have significant positive effects on the labor productivity growth.

In the end, this Master’s Thesis has provided a comprehensive overview of the current literature ranging from the definition and theoretical foundations, co-opetitive relationships to co-opetition as a potential source of competitiveness.

### 6.2 Critical Reflection and Limitations

All in all, the concept of simultaneous cooperation and competition is a relatively young research topic (Gast et al., 2015, p. 2). Since Brandenburger and Nalebuff (1996) have brought co-opetition to conventional business practice in the 1990s, there is a growing amount of research studies in this field (Bengtsson et al., 2016, p. 4). However, the statement from Bengtsson and Kock that “co-opetition is either broadly defined as a value-net comprising a firm’s suppliers, customers, competitors, and complementors, or narrowed down to cooperation between two directly competing firms” (2014, p. 181) is still valid. Therefore, co-opetition research should aim to clarify and consolidate the manifold definitions in order to make the concept more applicable and to lead research in this field in the same direction.

In contrast, the research papers emphasizing on the underlying theories of co-opetition are still scarce. As a result, this Master’s Thesis has attempted to prepare the distinctive theoretical foundations in a way to fit the requirements of co-opetition. Moreover, the adapted theories have been indicated and compared with the other theories. The results of the comparison of the underlying theories have been indicated in Table 3. The processes of partner selection and the management of tensions are in this respect already well studied, whereas co-opetition strategy research papers are currently focusing more or less on the strategy-as-practice perspective. Co-opetition from a global business standpoint has already a well-founded theoretical background but still lacks on quantitative research papers investigating the effects of co-opetitive relationships on multinational firms.

Besides a lack of research papers in the field of underlying theories of co-opetition, the impact of the phenomenon on competitiveness is also an under-researched topic. Although some quantitative research studies have revealed a positive relationship between
coopetition and competitiveness, some empirical research studies suggest otherwise. In this sense, findings are mixed whether or not coopetition leads to enhanced competitiveness. Additionally, the research studies are not comparable in terms of sample size, industry, country specifics and measurable output. As a result, there are no meta-analyses available to provide statistical inference in this field. To stay abreast of changes, this Master's Thesis has applied the classification from Bengtsson and Raza-Ullah (2016) to allocate the different research findings into their respective category. Thus, this structuration enables the interested reader to get a synopsis of the coopetition research findings with regard to competitiveness.
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collaboration


