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DOCTORAL THESIS

An exploration of international acquisition and Joint Venture collaboration as means for closing strategic deficiencies of automotive suppliers

Providing an evidence-based advisory framework for cross-border transactions with US partners

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Abstract

Purpose/objectives: The study considered international Joint Venture projects ('IJV') and international acquisitions (for recognition purposes, the term of international Mergers & Acquisitions 'IM&A' is used even though mergers are not specifically part of the study) with a focus on automotive suppliers in the passenger car market and regionally on US partners. The objective was to analyse how suppliers in the automotive industry can close their strategic deficiencies through these IJV and IM&A transactions. The regional focus on US partners was chosen, as the USA is a major market for automotive suppliers (volumes/size and innovation-focus). The idea was to identify, categorise, and subsequently analyse decision-making parameters of the engagement in IJV and IM&A.

Design/methodology/approach: The research had two main areas: a general literature review and an empirical part with a case study approach. As the research drew on a constructivist perspective, the empirical part of the research was conducted with a qualitative approach. At the centre were three case studies of a major German supplier analysed in depth: one IM&A, one IJV and one 'hybrid' transaction. These studies examined good practices, highlights, and challenges through semi-structured interviews. Senior experts in the Business Units and collaboration teams involved in these strategic projects were interviewed. Documentation reviews and the researcher's own observations flanked these interviews.

Findings: Bringing together ideas from the existing literature, and enriching them with insights from projects in the real automotive world, the current study contains valuable considerations about these complex strategic transactions. In order to enhance the deliberate use of these collaborations, the research reflected on the possible alignments of the various parameters and strategic factors.

Contributions: The study represents a contribution to the practice and to the academic world, since it is a study to bridge the relevant theory/practice literature with real case-study-based insights of German-USA inter-firm collaborations in the automotive industry. On that basis, an 'advisory framework' was developed to enhance decision-making in that area of corporate strategy. It focuses on important factors to consider when engaging in cross-border IJV and IM&A in a specific industry.

Research limitations/implications: The research results would need to be further explored in practice, which could be the subject of future research. Limitations from the current study stem from the chosen research design and sample size.

Declaration of original content

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference in the text. No part of the thesis has been submitted as part of any other academic award. The thesis has not been presented to any other education institution in the United Kingdom or overseas. Any views expressed in the thesis are those of the author and in no way represent those of the University.

Signed _____ Date **March 25th, 2018**

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List of acronyms and abbreviations

Abbreviation	Description
ABS	Antilock Braking System
AD	Automated Driving
(A)DAS	(Advanced) Driver Assistance Systems
ALPHA	German tier 1 automotive supplier
ALS	Action Learning Set
BCC	Best Cost Countries
BETA	German tier 1 automotive supplier
bn	Billion
BU	Business Unit
ca.	Circa
CA	Confidentiality Agreement
CAGR	Compound Annual Growth Rate
Cf	Confer (lat.; in English 'compare')
CFIUS	Committee on Foreign Investment in the United States
CIT	Critical Incidents Technique
CV	Commercial Vehicle
DBA	Doctorate in Business Administration
DELTA	US-based OEM (DELTA IJV between DELTA and ALPHA)
e.g.	Exempli gratia (lat.; in English 'for example')
EJV	Equity Joint Venture
ESC	Electronic Stability Control
Et al.	Et alii (lat.; in English 'and others')
EUR	EURO (the Eurozone currency)
FDI	Foreign Direct Investment
GLOS	University of Gloucestershire
HMI	Human Machine Interface

HQ	Headquarter
IJV	International Joint Venture
IM&A	International M&A (in this study denotes international acquisitions); denotes international acquisitions and not international mergers
IP	Intellectual Property
IPO	Initial Public Offering
JV	Joint Venture
KPI	Key Performance Indicator
LAMBDA	US electronics company
LCV	Light Commercial Vehicle
Lhs	Left hand scale
LoI	Letter of Intent
M&A	Mergers and Acquisitions
MoU	Memorandum of Understanding
NAFTA	North American Free Trade Agreement
n.b.	Nota bene (lat.; in English 'note well')
NCAP	New Car Assessment Programme
NDA	Non-Disclosure Agreement
NYSE	New York Stock Exchange
OEM	Original Equipment Manufacturer (CV and PC)
p.	Page
p.a.	Per annum (lat.; in English 'per year / yearly')
PC	Passenger Car or 'passcar'
PEST(LE)	Political, Economic, Social, Technological, (Legal, Environmental)
PMI	Post-Merger-Integration
PPP	Public-Private-Partnership
RBV	Resource-based View
R&D	Research and Development
RD1	Research Degree Form 1 (of the GLOS)
Rhs	Right hand scale

X

RO	Research Objective
RQ	Research Question
SME	Small and Medium Enterprises (definitions vary, mainly below 250 employees or EUR 50m in turnover)
SMS	Strategic Management School
SWOT	Strengths, Weaknesses, Opportunities, Threats
UK	United Kingdom
USA	United States of America
USP	Unique Selling Proposition
VC	Venture Capital
VDA	Verband der Deutschen Automobilindustrie e.V. (Association of the German Automotive Industry)
VUCA	Volatile, Uncertain, Complex, Ambiguous
WFOE	Wholly Foreign-owned Entities
WTO	World Trade Organisation
ZETA	US-based automotive chassis technology start-up

Preface and acknowledgements

For over ten years, I have been working in the area of M&A and since five years in the area of Joint Ventures. During this time, I have actively advised on and executed international and cross-border transactions that were either part of internationalisation strategies or portfolio adjustments. The industry focus of these deals was mainly in the industrial and more specifically automotive area. During this time, I have come to know various industry experts.

During my engagement with these strategic transactions and also as part of this current study, I have become increasingly interested in the researched subject having read and analysed projects.

My conclusion is that in the automotive industry in particular the technology development and speed of change is gaining more and more momentum. This, paired with car manufacturers pressuring for regional footprints of suppliers and exposure, has led to increased competition within the industry, consolidation, and M&A activity levels. Hence, international Joint Ventures and international acquisitions will continue to be important strategic tools. They should therefore be thoroughly understood and deliberately used in the automotive industry.

"If one does not know to which port one is sailing, no wind is favourable."

Lucius Annaeus Seneca, Roman philosopher, diplomat, and dramatist
(ca. 4 BC – AD 65)

1. Study background

This chapter introduces the problem and motivation for the current study and then discusses its context and flow.

Introduction

There are a number of important issues underlying the current need for this study. A global industry, such as *the automotive supplier industry, faces significant challenges and increasing competition* and most companies cannot face these challenges alone. As a result, one can ascertain a surge in *inter-company collaborations with complex organisational strategic processes (analysis and decision-making).* These collaborations need to be set-up in an ethical manner, evidenced by recent discussions on potential anti-trust breaches of the German car manufacturers (Chee, 2017; Ewing, 2017). Within Europe (including Germany), the key strategy pillars of many suppliers are technology (and access to it) and regional footprint (incl. considerations of attractive markets for sale and Best Cost Countries ('BCC') for production location). The ultimate objective of these suppliers is to serve their customers and offer value propositions globally. Furthermore, in automotive the United States of America ('USA') is one of the key markets facing these challenges (Berrett et al., 2016; McKinsey&Company, 2012; RolandBerger & Lazard, 2013). This study considers international Joint Ventures and international acquisitions (as modes of equity collaboration where an investment in equity participation is considered) with a focus on automotive suppliers in the passenger car market and regionally on US partners. These are the key areas that are explored throughout the current study. The rationale for this focus is based on the experience of the author and a review of existing literature on strategic deficiencies and international collaboration in the automotive market.

The combination of these elements in the industrial and regional context are *only partly covered in existing literature.* This led to a holistic approach to the subject. It included an analysis of the literature on the relevant aspects currently available. This was then accompanied by close analysis of the case studies from cross-border collaborations by the exemplary Germany-based supplier, ALPHA. These transactions were conducted in the USA automotive market (n.b. that for confidentiality reasons code names were used

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throughout the current study). It followed a constructivist approach with an exploratory, qualitative methodology.

The motivation and aim of the study is ultimately to bridge management research and practice by developing an 'advisory framework' for automotive suppliers. If there is currently a mismatch between a company's strategic ambitions and their status quo. This concept incorporates the strategic analysis, decision-making and choice processes of companies in the automotive industry to close these strategic gaps. This closure can be, among other solutions, achieved through international equity collaborations. It is a base assumption, that the complex strategic deficiencies in the automotive industry cannot be closed with an organic growth strategy alone. Therefore, the focus is on collaboration modes that enable the partners to benefit from synergies and other strategic benefits (for example refer to Section 2.1on p. 24ff.). Hence, the purpose of the current study is on the analysis of and choice between international Joint Ventures (abbreviated 'IJV') as well as international acquisitions. Both of these modes are comprised in the umbrella term of international equity collaborations (please refer to the relevance tree, Figure 1 on p. 8).

As for the international acquisitions, for recognition purposes, the term used is international Mergers & Acquisitions (abbreviated 'IM&A'): what it shall mean for the current study is acquisitions only, since this is its focus; further information on terminology and definitions can be found in Section 2.1 on p. 24ff.). The regional focus of the study is the USA as one of the key automotive markets. Ideally, this advisory framework will provide an enhanced and more deliberate decision-making process and understanding for practitioners and a deeper understanding for academics. It is meant to be an 'ex ante' analysis tool prior to the formation of equity collaborations (as opposed to an 'ex post' tool, which would focus on the time after a successfully completed transaction). In many situations, an inter-company collaboration is opportunity driven, for example by the availability of a take-over target or a suggestion to jointly establish an IJV by a partner. However, this study intends to clarify the choices of collaboration tool. Furthermore, when an automotive supplier is in the 'luxurious position' of being able to choose between both collaboration modes; in any case, it can do so more deliberately and with a greater understanding of the implications of the collaboration tools.

Auto industry with significant international challenges

In their seminal paper, Prahalad and Hamel (1994) stated "no industry is free from the impacts of global competition" (Prahalad & Hamel, 1994, p. 8). In fact, globalisation has been important for the global economy for some decades. This phenomenon continues and gains ever more momentum. It affects individuals, institutions and companies (multi-nationals as well as small and medium enterprises 'SME') as well as whole industries (Black & Brainerd, 2002; Camuffo, 2004; Camuffo, Furlan, Romano, & Vinelli, 2007; Lung, 2001; Pla-Barber & Puig, 2009; Puig, Marques, & Ghauri, 2009; Rakita & Markovic, 2014; Sturgeon, Memedovic, Van Biesebroeck, & Gereffi, 2009).

For this study, automotive suppliers refer to tier 1 suppliers i.e. those that supply directly to the car manufacturers, if not stated otherwise.

The rapidly increasing internationalisation in the automotive supplier industry has further increased the need for companies to enhance their competitive position and close their strategic gaps (i.e. the difference between the strategy/vision and the status quo of a company). Academics and practitioners highlight the importance of closing strategic gaps for the companies in the industry, if they want to remain competitive and continue to shape the industry in the current environment and in the future. This is an important topic since the dynamic automotive supplier industry needs to adapt to its international challenges and structural technology changes. These changes and challenges result from the automotive trends and its increasing complexity (for example high dependence on a limited number of car manufacturers, global products/platforms gaining further importance, cyclicality, accelerating technological trends) (Berrett et al., 2016; McKinsey&Company, 2012; Melin, 1992; Michaeli, 2016a; Ringlstetter, 2015; RolandBerger & Lazard, 2013; Sadler, 1999; Sedgwick, 2013). This is elaborated further in Section 4.1.2 on page 115ff.

Considering all of these challenges, the automotive industry setting can be characterised as a volatile, uncertain, complex, and ambiguous environment ('VUCA' is a standard acronym, originally from the decision-making literature). Flexibility and risk monitoring are important in such an environment since a focus on classical concepts such as competition, price, cost, and customers has only limited value. This is particularly important for strategic, long-term projects such as inter-company collaborations (Deloitte, 2015; Hota & Pujari, 2012; Saini & Khurana, 2015). For the purpose of the current study, the focus is on the passenger car market (including electro-

vehicles) as different market drivers and dynamics apply for other segments such as commercial vehicles ('CV').

USA focus

The first question regarding the strategic gaps of innovation/technology and regional footprint in the automotive industry is which market to focus on. The major technology hubs in the automotive industry are in Europe, Japan, and the USA (i.e. classic 'triade') (RolandBerger, 2015; VDA, 2016). Additionally, in recent years there has been strong volume growth in China, some growth in the USA and decline/small growth in Europe and in the rest of Asia/South America. (e.g. RolandBerger & Lazard, 2013)

It is apparent from reading strategy papers that automotive suppliers strive for a balanced regional footprint (access to markets, technology, proximity to customers, factor costs, etc.). For European, in particular German, suppliers in this area, there is a clear exposure towards the triade. Either the Asian companies seem to be a more or less closed community (for example Japan) or they currently still seem to lag behind in terms of technology (for example China). In addition, Japan is a less actionable market since collaborations with third country companies are potentially difficult to accomplish (for example due to Keiretsu structures, and cultural factors; for example the Takata rescue attempt by Japanese automotive companies in 2015/16). (Mergermarket, 2016) Therefore, the USA remains as a sizeable and open market with technology potential and dynamics. It is currently (2014-18) highly attractive from an operating point of view (volumes, growth perspectives, achievable profit margins, etc.). Proof of the value the USA places on innovation in the automotive space is the number of innovations coming from Silicon Valley companies; for example, Google's presentation, and testing of their new autonomously driven 'Google car'. Additional examples include NVidia with their Artificial Intelligence car computer for self-driving vehicles, or electric car companies such as Fisker Automotive and Tesla Motors (having a very high market valuation exceeding some of the 'classical OEMs'), revolutionising the powertrain with their electrical cars. In fact, with these new companies, innovation happens quite differently to the 'classic model' of large corporate suppliers (see Section 4.1 p. 120ff.).

Further evidence of the importance of US M&A and collaboration as well as the appeal of US automotive is the continued interest of not only European players but also Asian

ones. A very recent example is the rumour about FiatChrysler Automobiles. Fiat and US-based Chrysler, or at least its US-based Jeep brand, are being eyed by Great Wall Motors and other major Chinese OEMs (Mergermarket, 2017b).

Additionally, the USA has a liberal collaborations/M&A market that facilitates collaboration with the firms (HSBC & PwC, 2012). However, this study was undertaken prior to the current global developments such as Donald J. Trump's election as 45th president of the United States of America. This makes it more difficult to base strategic decisions on likely impacts (adding to the VUCA context of collaborations in the USA). A potential 'Brexit', i.e. the UK leaving the European Union, might additionally affect the automotive industry. However, this is quite hard to predict at this stage.

IJV and IM&A as tools to bridge strategic gaps in the automotive industry and to internationalise

The two main challenges for automotive suppliers are keeping up to speed with technology related to global mega trends and accessing (regional and product) markets. Consequently, there is a need to increase footprint in countries with an adequate balance of cost base and market potential (Sedgwick, 2013).

A strategic gap is evident when a major supplier cannot address these challenges appropriately and there is a disparity between the desired and the actual performance. In order to successfully close these strategic gaps, suppliers should use global strategy approaches and internationalisation with organic growth, as well as collaborations. Since many automotive suppliers cannot face these challenges alone, they enter into inter-company collaborations in order to alleviate the pressure and gain further competitive advantages. Two major types of collaborations in the wider sense are international (equity) Joint Ventures and international acquisitions. (e.g. Capron & Mitchell, 2012; Melin, 1992; Sadler, 1999; Sedgwick, 2013; Wirtz, 2014) See Chapter 2 for definitions of terminology in light of this study (p. 24ff.). As such, these tools have become a core element of corporate strategy (e.g. Killing, 1982). However, inter-company IJV and IM&A are complex. Setting them up and managing them is difficult and challenging, particularly in the international context with additional challenges such as culture differences, including different corporate cultures. For these reasons, many of

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these projects fail or terminate pre-maturely (Bischoff, 2007; Blanchot & Mayrhofer, 1998; Lung, 2001; Whipple & Frankel, 2000). Some authors identify failure rates of 70-90% in M&A transactions. However, this is not exclusively the case in the automotive industry (e.g. Christensen, Alton, Rising, & Waldeck, 2011).

The literature reveals some different findings, which might be due to different research designs, such as sample size and focus (Datta, Hemnann, & Rasheed, 2002; Lui, 2001; Lui & Lu, 2002; Slangen & Hennart, 2007). However, among the reasons that are repeatedly discussed in the literature for difficulties in collaborations relate to having the wrong motives and making the wrong choice of partner and related to this the wrong choice of collaboration mode (see Table 7 on p. 145). In fact, some authors identify insufficient analysis of collaboration options (e.g. JV vs. M&A), as decisions are taken opportunistically and intuitively (Dyer, Kale, & Singh, 2004). In addition, previous experience regarding one of the other collaboration modes sometimes seemed to pre-determine a certain preference. The practitioners I discussed this with confirmed this finding, for example during M&A conferences or during the expert interviews (see Section 4.2 on p. 169ff.).

Furthermore, some authors argue that the appropriate choice and details of inter-company collaborations depend on the situation and circumstances (Lucks, 2017; Wirtz, 2014). In order to enhance the success of such activities, there is some merit in reconsidering them in the light of the specific industry and paying particular attention to the analysis as well as the decision-making process. Therefore, this study attempts to re-evaluate the puzzle of inter-company collaboration in the specific setting of technology and volume-driven strategy within the automotive tier 1 supply industry and the regional focus on the USA.

Ultimately, substantiating and supporting corporate decision-making with management research does not mean that managers should neglect their own experience and proven problem-solving skills as a source of evidence (Agarwal & Ramaswami, 1992; Tranfield, Denyer, & Smart, 2003). On the contrary, a triangulation approach to a complex task can enhance the quality of results (Dixon-Woods, Agarwal, Young, Jones, & Sutton, 2004). The example of international collaboration and acquisition to close strategic gaps between firms is definitively one of these complex tasks.

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The research subject

Due to the considerations above, the research subject of the current study has four *'building blocks'* (see Section 2.1). It is to be stated that the research process began based on the author's experiences (please refer to Section 2.4 and Appendix Section 7.3 on p. 256ff.), which were then further developed from the literature. The building blocks then became subject of further refinement and enhancement through the empirical phase using the experiences and expertise of others (Sections 3.2 and 4.2):

(1) Trends and challenges in the automotive supply industry (with a focus on the passenger car market);
(2) Cross-border focus / USA (general and automotive);
(3) Strategic gap analysis and (organisational) decision-making;
(4) inter-company IJV and international acquisition/IM&A as strategic tools

Figure 1 gives an overview of this context and highlights the relevant subject of this study. The left part of the figure depicts possible ways to address strategic gaps, out of which the international ones, addressing the international angle of the context, are further examined, while the others are not. International JVs are highlighted in orange and international acquisitions in red. On the right, the reader can see an overview of the context in which the transactions examined in the study are embedded: the tier 1 automotive supplier market with a focus on passenger cars, and secondly the transactions in which the partner is a US-based company.

Figure 1: The 'relevance tree' of the current study
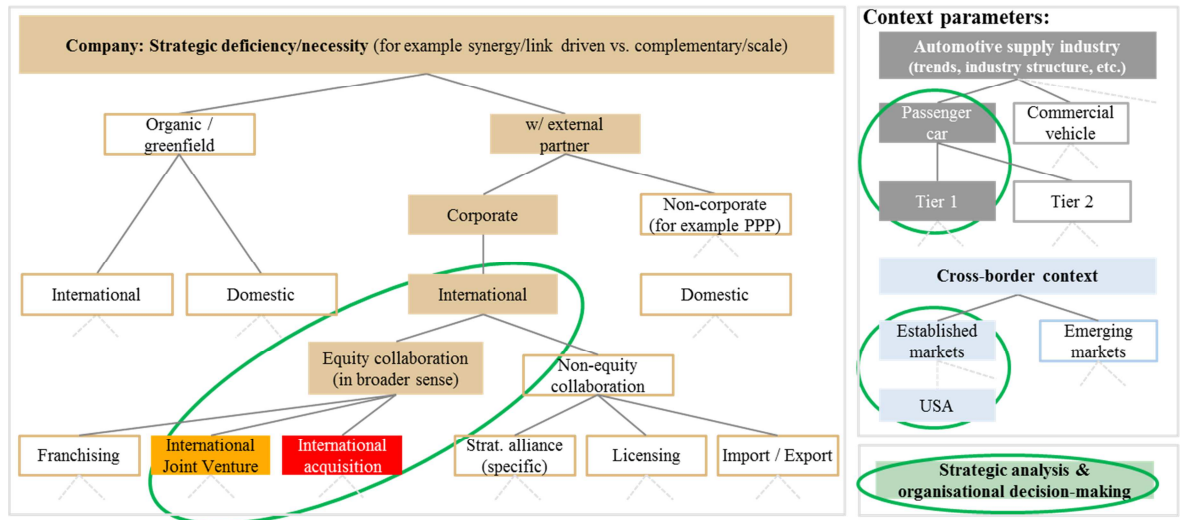
Source: author's own (2016), adapted from Cools and Roos (2005), Perlitz (2004), Wirtz (2014); n. b.:
PPP = Public-Private-Partnership; the green highlighted boxes are the focus of the current study

Limited literature coverage for the specific study topic

The review of the literature showed that there is an extensive amount of academic and practitioners' papers on each of these building blocks. However, there is hardly any coverage of the core of the current study, i.e. the intersection of the building blocks (see Section 4.1.1 p. 112ff.). This was the basis for the development of the empirical part of the study.

Flow and structure of the study

In order to understand the flow and structure of this study, one needs to understand that all the elements are closely inter-linked (for example the empirical part and the literature review). Figure 2 provides the necessary overview of all upcoming chapters as shows how they relate. After the introduction, a chapter follows, that gives an overview of the scope of research, its focus, research questions and objectives as well as relevant definitions. Subsequently, the three phases in the research sequence of the study include the methodology of the literature review and the empirical part (Chapter 3), the findings, and analysis of the literature review and empirical part in Chapter 4 (Sections 4.1 and 4.2 respectively). The literature review had already generated ideas for the analysis of the empirical data. Subsequently, the linking of the findings and

interpretation is presented (Chapter 5). The advisory framework for inter-company IJV and IM&A is based on these findings within the context of closing automotive supplier's (technological and regional) strategic gaps through transactions in the USA. Finally, Chapter 6 draws conclusions, appraises the contributions of the current study, and elaborates on ideas for future research.

Figure 2: Structure and flow of the research study
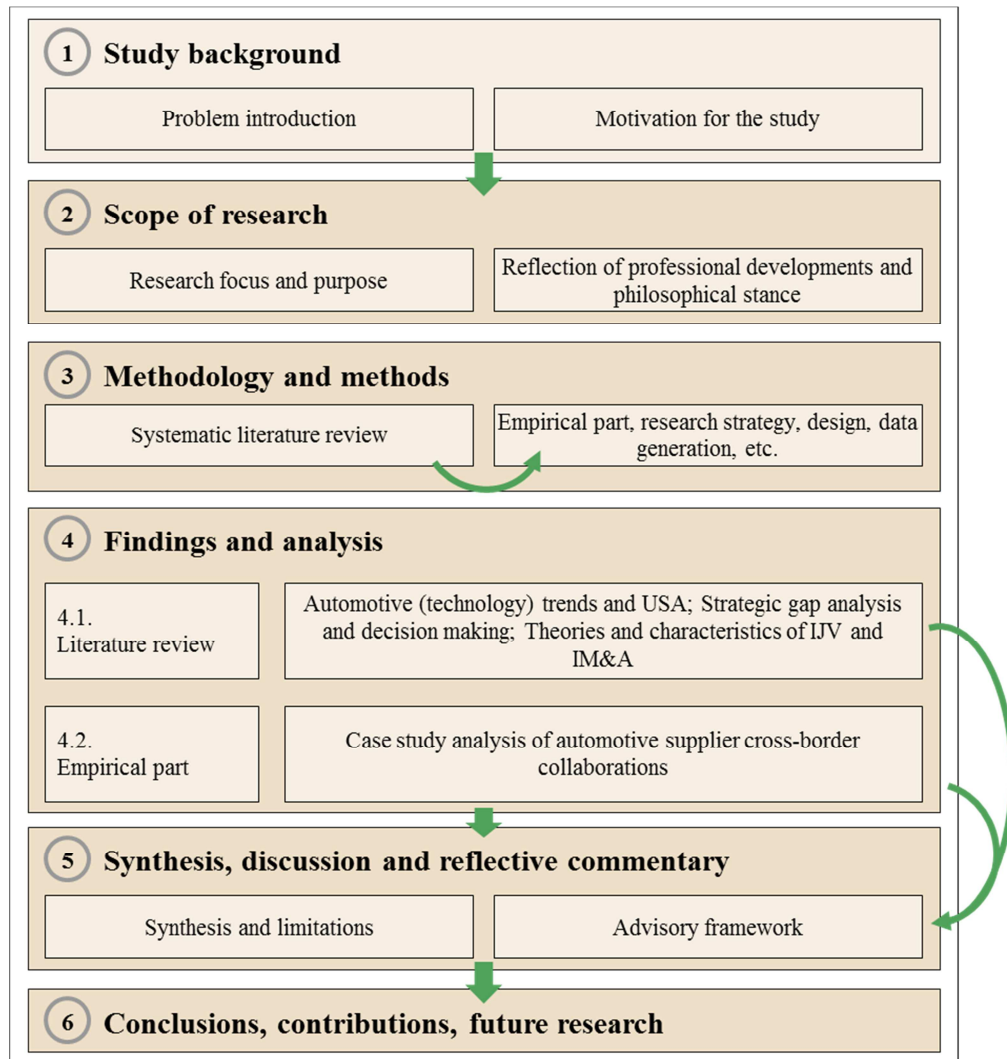
Source: author's own (2016); n.b. the green arrows indicate the flow and dependencies of the various sections

2. Scope of the research

The purpose of this chapter is to gain a deeper understanding of the study, including its research focus, objectives, and questions. Furthermore, it presents the philosophical underpinnings of the study and the reflections on the researcher's own professional development and its impact on the study.

2.1. Research focus

This section further clarifies the research focus of the study by introducing the necessary definitions of the elements being studied. Four 'building blocks' were analysed in this study: (1) Trends and challenges in the automotive supply industry (with a focus on the passenger car market); (2) Cross-border focus / USA (general and automotive); (3) Strategic gap analysis and (organisational) decision-making; (4) inter-company IJV and international acquisition/IM&A as strategic tools. In that regard, blocks (1) and (2) denote the context of the current study, in line with Figure 1 on page 8; at the same time also the organisational decision-making / analysis set up can partly be considered as part of the relevant context. Each of these blocks, which overlap in some respects, are considered below.

The research focus is the intersection of the four building blocks displayed in Figure 3. This central area of the crossover is purely an illustrative device and does neither denote levels of importance in the current study, nor does it represent a specific size of the crossover.

The main blocks in the centre show the tools of international JV and acquisitions/IM&A and finally the strategic gap analysis and organisational and process considerations. They are both embedded in the context of the automotive industry (specifically the tier 1 supplier industry for passenger cars) as well as the cross-border angle of the USA. The graph deliberately does not show all relations. For example, there is definitely a bilateral relation between cross-border contexts and IJV / IM&A, regardless of the automotive industry.

The corresponding research questions ('RQ') address the building blocks of the current study. They are introduced in the subsequent paragraph (see Table 1 on p. 12).

Figure 3: Focus of the current study

Inter-firm **IJV** and **IM&A** as strategic tools

Strategic gap analysis and (organisational) decision-making

Cross-border focus / USA
(general and automotive)

Trends and challenges in the automotive supply industry (passenger cars market)

Research focus
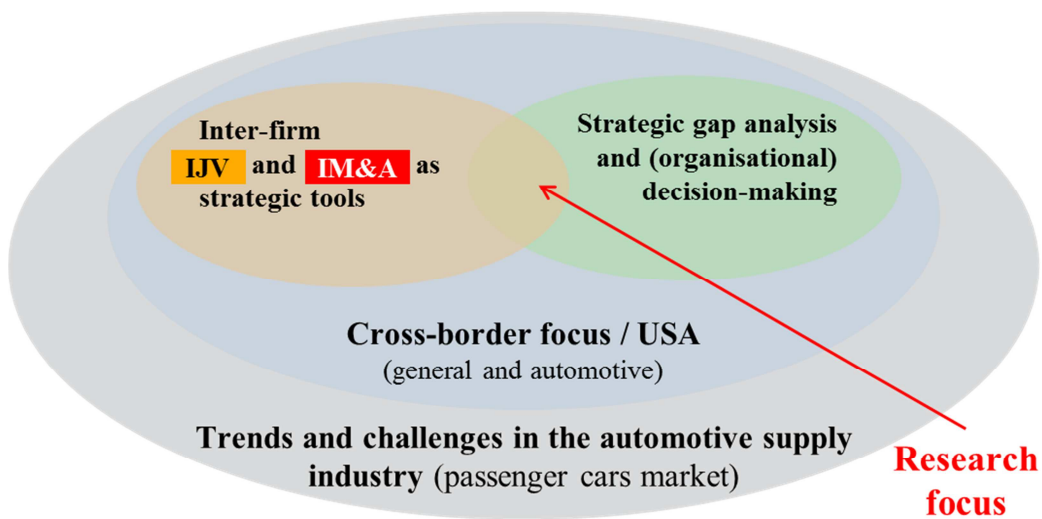
Source: author's own (2017)

Research questions and objectives

Research questions and objectives are central elements of every research endeavour and give structure to research projects (Dixon-Woods et al., 2004; Gläser & Laudel, 2010). As stated in Dixon-Woods et al. (2004), having a distinct intention of what to study is the key to any research. As this study's topic is multi-dimensional and complex, a set of pre-defined, but open research questions were a starting point for further investigation.

For the current study, the research questions ('RQ') and objectives ('RO') outlined in Table 1 below, served as guidance. They are the recurring theme throughout the current study. The first one deals with the choice question of IJV and IM&A as tools and therefore analyses the tools and motivations. The second question addresses the context in which the strategic collaborations are embedded. The third and last one discusses strategic gaps, decision-making processes and ultimately offers the previously mentioned advisory framework with approaches to the choice and assessment question between the two collaboration modes. Additionally, the table contains the research objectives corresponding to the research questions. The main investigative approaches are indicated too. Lastly, the table pre-empts links to the literature-based conceptual framework and the advisory framework introduced in Section 4.1.2 and 5.2 of the study respectively (see p. 164 / 217).

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Table 1: Research questions and objectives

Research Questions ('RQ')	Research Objectives ('RO')	Link to frameworks of 4.1 and 5.2
RQ#1: How can a clear choice between the two strategic development modes (IJV vs. an international acquisition) help in **closing strategic deficiencies** of companies in the automotive supplier industry?	RO#1: To investigate -from a constructivist perspective and using qualitative methods- **strategic deficiencies** of selected companies in the automotive supplier industry and potential **good practices/flaws in their analysis and decision-making to engage in IJV and international acquisition,** with a view to closing or narrowing those strategic gaps within the context.	Relates mainly to step (1) and (2)
RQ#2: How do **context factors, such as industry and regional focus, affect the choice of IJV collaboration and international acquisitions** to close strategic gaps?	RO#2: To examine **context factors** in the decision-making process of IJV and international acquisition, with a particular focus on the automotive supplier industry (passenger car market focus) and cross-border collaboration with US American partners.	Relates to the context indicated in areas of (A) and (B)
RQ#3: How might an **organisation's strategic decision-making process be enhanced** to make more suitable and deliberate choices between IJV and IM&A as collaboration modes?	RO#3: To develop an **advisory framework for IJV & international acquisition** with recommendations for practitioners and academics in order to enhance a deliberate decision-making and analysis process.	Relates to the analysis of (2) and decision-making process of (C)

Source: author's own (2016)

The following paragraphs elaborate on the building blocks of the current study and provide relevant definitions in order to better understand the research questions and objectives.

Building block #1: trends and challenges in the automotive supplier industry, with focus on the passenger car market (context)

For the purpose of the current study, the term automotive industry refers to all companies that primarily produce, maintain or sell cars and/or automotive parts (in line with Diez, 2012). Similarly, the German automotive industry association, (Verband der Deutschen Automobilindustrie or 'VDA') gives the following definition: "The definition of the automotive industry [...] encompasses both the supplier ($Tier_n$) and also the vehicle manufacturer (Original Equipment Manufacturers or 'OEMs')" (VDA, 2012, p. 4). With regard to automotive suppliers, Mentz and Schiereck (2008) refer to all companies that supply goods or services directly or indirectly to the OEM, while the tier 1 suppliers are those that deliver directly to the OEM.

For the purpose of the current study, the automotive market and its suppliers were narrowed down to the passenger car ('PC' or 'passcar') market, i.e. not including commercial vehicles. The reason for this decision lays in the different nature and drivers of PC vs. commercial vehicles, since the latter depends on other factors such as the global trade and economy, the construction industry, etc.

The automotive supply industry is diverse and complex. Hence, there is extensive coverage in practice-related and some academic literature. As outlined earlier, there is little coverage of international inter-company collaboration in the specific industry of strategic transactions with the clear objective to close (technology) strategic gaps. As one of the industry's major innovation hubs, the regional focus of the study selected was the USA

The current industry trends are introduced in the following paragraphs, specifically with regard to technology. These are followed by aspects of industry specific to the USA and then comments on current collaboration and consolidation trends in the industry. Finally, the major reference point of this study, the German tier 1 automotive supplier ALPHA is introduced.

Trends and technology

The automotive supplier industry is a very specific industry since it tends to be generally relatively mature (from an economic/commercial perspective with limited growth potential, consolidation and equilibrium in the value chain; but also products/technology since many products are at the end of their lifecycle and replacement risks are high). However, this is now changing dramatically for various reasons, such as increased competitive pressures, new technologies, market entrants, regulatory burdens, and new social mega-trends. In order to remain competitive, automotive suppliers need to have distinct strategies and close their potential strategic gaps. For example, there are limited ways to address the mega-trends and to further internationalise their operations at the same time (see Section 4.1 of the literature review).

The industry needs to adapt to its challenges globally. It has particular and increasingly complex issues such as OEMs / customers, global products/platform gaining further importance, continued market growth, accelerating technological trends, car manufacturers significantly reducing their supplier base, increasing M&A activity levels, etc. (e.g. Ostermann & Harvey, 2016; Sedgwick, 2013) One key trend is technology and technological changes. Technology trends relate to the automotive

product background (i.e. not production or other technology aspects). Aspects of the automotive industry considered particularly high-tech include powertrain, chassis and autonomous driving / (advanced) driver assistance systems ('AD' / '(A)DAS').

The 'Fraunhofer Institut für System und Innovationsforschung' ('ISI') defines 'high-tech' as products that have an innovation potential of at least 3.5% of their value (research and development or 'R&D' spent as per cent of sales). Within the high-tech sector, they differentiate between medium-high/advanced technology (or 'hochwertige Technik') with 3.5 to 8.0% R&D intensity and high/cutting edge technology (or German 'Spitzentechnik') with R&D intensity of > 8.5%. (Grupp, Legler, Jungmittag, & Schmoch, 2000; Kotzeva, Brandmüller, & Önnerfors, 2014) For reference, supplier ALPHA has an average R&D/Sales ratio of approximately 5% p.a. Another definition from the Anglo-Saxon world (Centre for Automotive Research) already counts R&D intensity above 3% for example high-tech and add parameters such as the concentration of engineers, knowledge and the share of new products (K. Hill, Menk, Swiecki, & Cregger, 2014).

Besides, technological changes keep accelerating. For example, there is increasing demand for autonomous driving products and technology and the advanced driver assistance systems mentioned above as a pre-step. These are electronic systems integrated into the vehicle supporting the driver and occupants. Furthermore, safety systems in general benefit from the increasing requirements of customers and regulatory bodies which are passed on to the OEMs and then ultimately to the suppliers. However, within this general trend there is a lot of uncertainty about which technology will ultimately be successful (for example Light Imaging Detection and Ranging / 'LIDAR' vs. Radar). (Gerra, Kallo, Leiker, Power, & Sebastian, 2016; VDA, 2012)

Figure 4 displays the classic automotive eco-system, showing the mutual interdependence between companies along the automotive value chain. To avoid too much complexity, only the tier 1-3 supplier segments are displayed, even though beyond tier 3 there are a number of further suppliers until tier$_n$. The complexity of the products and systems increases from left to right, and ultimately represents the passenger car sold to the end customer on the far right. Furthermore, it should be noted that this structure is changing since suppliers are increasingly specialised and OEMs are not dominating the automotive value chain as they did in former years. Instead, OEMs

today are considered as a partner to suppliers (tier 1 and others). Furthermore, new participants have entered and continue to enter the scene (Juergens, 2003; Ringlstetter, 2015). These new entrants are displayed around the classical value chain. Besides the ones listed here (Electronic conglomerates, Innovators such as the new Silicon Valley automotive market participants, software companies, new OEMs, mobility concept companies and telecommunications/telematics companies) there are more that are coming into the market. The main steps that are affected are the ones surrounded by a green square.

Figure 4: The automotive eco-system and value chain
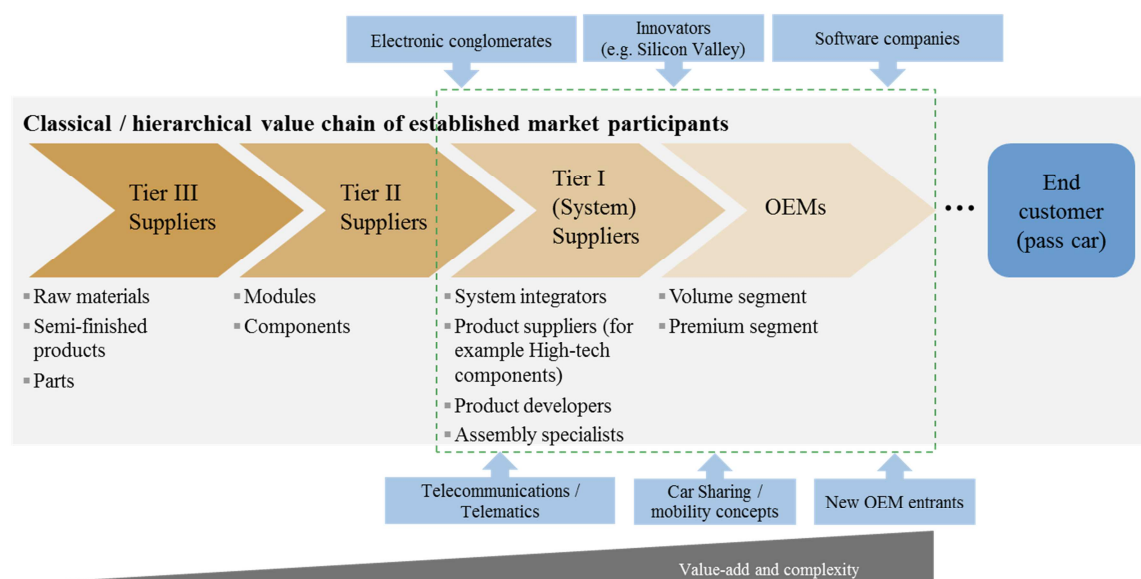
Source: adapted from Michaeli (2016a), PrimeResearch (2015), Ringlstetter (2015), VDA (2014), VDA (2012), Sturgeon et al. (2009), Mentz (2008) and Juergens (2003)

Consolidation in the automotive industry.

As a result of the factors described above, there are increased M&A and collaboration activity levels in the industry, with a focus on China but also on the USA and on Europe (e.g. Ostermann & Harvey, 2016; RolandBerger, 2015).

One of the reasons for this surge in M&A and collaboration levels is the R&D focus in automotive that necessitates financial resources. Budgets for the development of new cars are being cut while development times are reduced. Additionally, product systems such as axles and powertrains need to become more compatible to collaborations for

module multiplication and platform strategies of OEMs. Consequently, companies have to team up to face this. (e.g. Dannenberg & Kleinhans, 2004; Ringlstetter, 2015; Sedgwick, 2013; Trkman & McCormack, 2009)

Additionally, because of the trend outlined above, there is a tendency towards 'mega suppliers' and extended enterprises with broad product portfolios and sufficient financial resources to build true global footprints. For that purpose, companies employ organic as well as collaboration and M&A-driven internationalisation. Evidence for the on-going consolidation in the supplier industry is the M&A activity, with over 1,000 transactions in the last five years (for example the cumulated volume of over ca. USD 130bn in the same period; average deals per year ca. 200 at a ca. USD 26bn transaction volume per year) (Ostermann & Harvey, 2016). In addition, Mentz and Laabs (2008/09) stress the consolidation tendencies in the automotive supply industry (Laabs, 2009; Mentz, 2008). This observation is shared by Dannenberg and Kleinhans (2004), who add that the numbers of companies are still high in the fragmented supplier market. They see this as the growth and job engine due to higher levels of value-add for them as opposed to OEMs (Dannenberg & Kleinhans, 2004). Figure 5 shows the historical development of the number of OEMs and automotive suppliers in the global market place. By numbers, suppliers still outweigh the OEMs but the number of suppliers has significantly consolidated too: as a matter of fact, the number of suppliers had reduced significantly by ca. 90% between 1988 and 2015 (e.g. Statista, 2015). Likewise, the number of automotive car brands of the OEMs has reduced significantly (refer to Figure 52 in Appendix 7.1 on p. 231).

While OEM numbers have reduced since the 1910s, the overall number of suppliers increased up until the 1970s after which they began to consolidate.

Figure 5: Consolidation within the global automotive industry
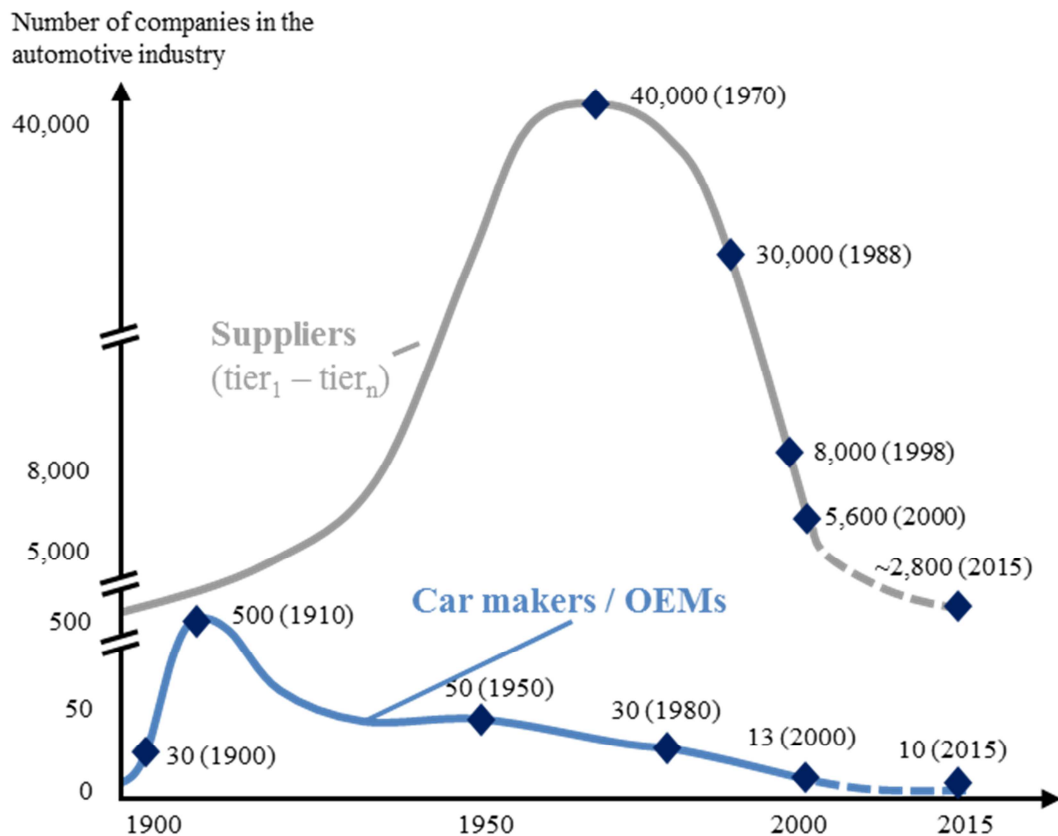
Source: Dannenberg and Kleinhans (2004); Ringlstetter (2015); Sedgwick (2013); Statista (2015);
n.b. the term 'Car makers/OEMs' refers to the classic, large volume OEMs.

All of the outlined trends and factors outlined above apply to a major Germany-based tier 1 supplier called ALPHA. This company is introduced in more detail in Section 3.2.1 on page 79ff.

Building block #2: Cross-border focus / USA, general and automotive (context)

For the purpose of the current study, a US partner is defined as the one that has desired assets (for example primarily located in USA) and the foreign (European) partner is the one who desires access to these assets and has one or more strategic gaps. Hence, from the perspective of a European partner and for the current study, the host country orientation (USA) is considered.

Additionally, the European-US collaboration can be defined as one where the US partner is the target/partner firm and the European supplier is the one who enters or

strengthens its US presence through cooperation or acquisition. In this study, the focus is on 'outbound inter-firm collaborations', i.e. a German company collaborating with or acquiring another company in a different country.

All of the industry trends outlined above, paired with the industry's cyclicality and cost or competitive pressures, encourage suppliers to move abroad, in particular to those countries with an adequate balance of cost base and market potential (RolandBerger & Lazard, 2013; Sedgwick, 2013).

As a result of the accelerated globalisation, technological developments and the automotive industry's structure, with OEMs requesting local presence of their suppliers, there is a lot of pressure on tier 1 suppliers to optimise and extend their regional footprints for example (VDA & IKB, 2015). In line with these thoughts, the German automotive association posits that there is increased volatility in automotive markets and that growth happens outside of Europe. In consequence, European suppliers, including the small to mid-sized companies and the large tier 1s, need to go abroad, as exports alone are not enough (VDA & IKB, 2015). For globally active tier 1 suppliers it is crucial to be present internationally, in particular in the USA.

Current volumes as well as size and growth dynamics spurred by innovations are two key aspects that highlight this. The USA forms part of the North American Free Trade Agreement ('NAFTA') with Canada and Mexico (Wirtschaftslexikon, 2016). Within NAFTA, the USA is the crucial market; the differences in dominance, size and volume, cultural as well as other factors makes it hard to make assumptions for other markets within NAFTA (for example USA seems close to Canada culturally but they are quite different to Mexico) (e.g. E. Meyer, 2014).

The US American market is crucial for all automotive suppliers in terms of size, volume and hence economies of scale. For example in 2015, the US automotive industry headed for record sales. (e.g. Woodall, 2015)

Figure 6 shows the size and growth of the US American automotive market, precisely the light vehicle of passenger car market by number of units sold. It underpins the statement that the USA is a dynamic market with market share of around 17-20% of global automotive sales.

Figure 6: US American automotive sales overview
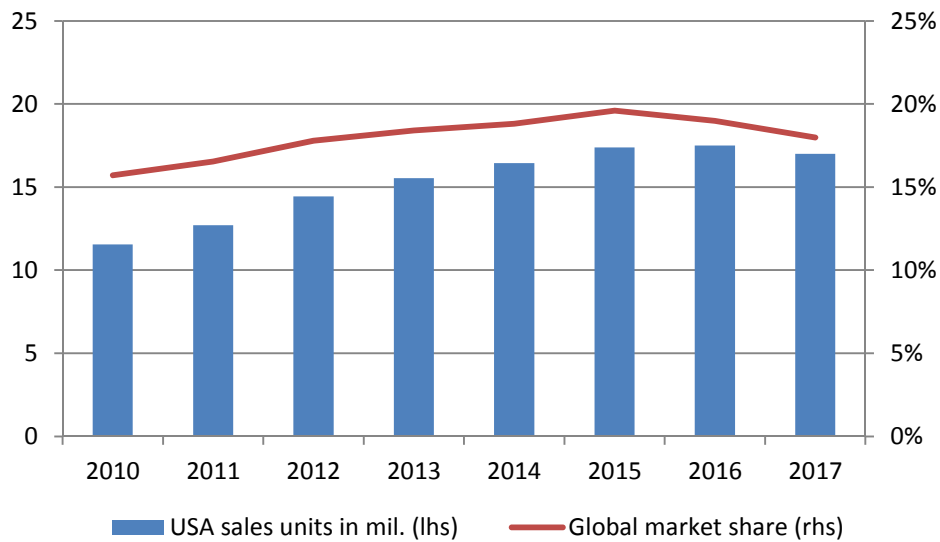
Source: Lache, Levin, and Salmon (2017) and Lache, Nola, Levin, and Babikov (2016); light vehicles: regular passenger cars, sport utility vehicles and light trucks, not including heavy trucks and commercial vehicles

Another fact that illustrates the importance of the US American market is that out of the Top 50 largest tier 1 global automotive suppliers (ranked by 2015 revenues), 9 are headquartered in the USA, 1 is based in Canada but none in Mexico. This is only surpassed by Japanese companies and followed by German ones (see Figure 7 below) (Sedgwick, 2016; Statista, 2016). Other countries contribute between 1 and 4 suppliers. However, almost all of the top tier 1 suppliers are global already and so a clear definition of what is a US supplier cannot be drawn. The question is rather what determines a company. Is it the headquarter ('HQ') or the majority of sales/employees or the listing location of a public company (for example Johnson Controls that have their headquarter in Ireland but have major sales in the US and Europe as well as employees across the globe, and public listing at the New York Stock Exchange)?

Figure 7: US American automotive suppliers within the global Top 50
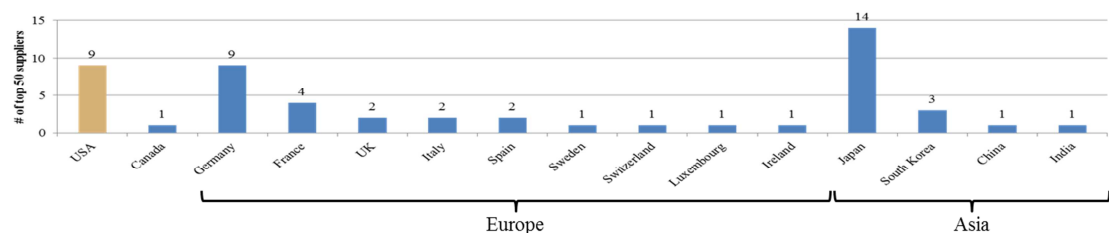
Source: Statista (2016)

Additionally, the USA is characterised by transparency with regard to legal and political systems plus almost equal treatment of domestic and international companies, for example with regard to tax issues (HSBC & PwC, 2012). An additional indicator of the importance of the US American market for European, in particular German, companies is the trade balance. The US is the most important export market for Germany (followed by France) in 2015 with a trade volume of ca. EUR 114bn (Destatis, 2016).

However, following Donald J. Trump election to be the 45th president of the USA, the trading policies changed with the 'America first' policies. On the other side of the Atlantic, it remains to be seen how business partners react to the new situation (e.g. Böll et al., 2018)

Another most prominent political event of 2016/17 in Europe was that the UK citizens voted for Great Britain to leave the European Union ('Brexit'). Both of these events, in the US and Europe might have impact on free trade and ultimately the automotive supplier industry and the collaboration activities within it (however, these are beyond the scope of the current study).

Generally, the USA is an economic region characterised, besides volume, by high growth and dynamics and among the most technologically advanced (HSBC & PwC, 2012). Two of the key automotive trends for the next decade will be autonomous driving and active safety. In this regard, US American companies and suppliers will play a key role, resulting in the increased importance of automotive innovation from Silicon Valley companies paired with the increased importance of software/IT in automotive. Hence, it is strategically essential for all globally active suppliers to get access to this innovation and for talent-potential to stay cutting edge in terms of technology.

Consequently, the US American automotive market is expected to grow (ca. 3% p.a.), paired with good operating performance of the market's suppliers (sales growth and EBIT margins of 6-10% (EBIT = Earnings before Interest and Tax) and strong share price performances (RolandBerger, 2015; RolandBerger & Lazard, 2013).

For German companies in particular, the connection to US-focused automotive innovation is crucial. Traditionally, German companies tend to be strong in mechanics, an area in which US companies tend to be fast followers (Europe leading). In the

IT/Software area, it is the way around: US companies tend to lead and European companies tend to be fast followers. (e.g. Brower-Rabinowitsch & Buchenau, 2016)

JVs and acquisitions, presented in more depth in the next paragraphs, can be means to counter and alleviate some of the impact of these trends. They can also strengthen the US footprint as they can bring further competitiveness and other strategic benefits.

Building block #3: Strategic gap analysis and (organisational) decision-making

When a company's strategic goals differ from its actual positioning, there is a strategic gap. For example, with regard to technological product capabilities this can be the case. Perlitz (2004) posits that "a strategic gap is identified when a company realises that its potential is not enough to succeed with the objectives of the company's management." (Perlitz, 2004, p. 159). In the strategic gap analysis, these gaps have to be identified, including the reasons for them, for example, lack of (R&D) capabilities, poor management, timing constraints, corporate set-up or budget limitations. After the analysis of the gaps, policy makers need to analyse the different ways to bridge them and make decisions regarding choice i.e. which of the different ways analysed is the most appropriate for the respective situation and context.

Building block #4: International equity collaborations (IJV) and international acquisitions (IM&A) as strategic tools embedded in corporate strategy

In order to address the demands and challenges of the automotive industry successfully (some of them mentioned above) and to close their existing strategic gaps, the automotive industry companies should use global strategy approaches and internationalisation using organic growth and equity collaboration routes. In these equity collaboration modes, the partners invest in equity, which means that they typically get ownership rights with the implication of governance rights, access to profits, synergies, etc. This transaction type is opposed to debt investments or other contractual agreements. When choosing the equity collaboration routes, decision-makers need to ensure that internationalisation/collaboration activities are strictly aligned with and embedded into the overall strategy process (for example through balanced scorecard approaches) of an automotive supply company (C. W. Hill, Hwang, & Kim, 1990; Melin, 1992). These strategy processes should take into account the

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specific context of an industry, region, and company (Janczak, 2005). However, in practice the collaboration decisions are often made intuitively and are driven by opportunities rather than thorough prior strategic analysis. This can be observed and read in the literature (e.g. Dyer et al., 2004).

Collaborations need to be well understood, in particular the implications with regard to the chosen collaboration, as it is usually far more difficult and complex than a stand-alone strategy. The question of strategic decision-making and choice is important as it is analysed in the context of an organisation (e.g. Eisenhardt & Zbaracki, 1992). Figure 8 shows a typical framework for the different sequential strategy process phases and their interdependences. The first key process step is strategic analysis to define strategy. This is followed by strategic collaboration / M&A analysis if the first phase reveals that an external partner is needed. After this analysis, a strategy with regard to collaboration / M&A is formulated, which is in the focus of this study, since the collaboration mode is decided. When the advisory framework is introduced later, it is a given that the strategic analysis revealed a strategic gap that only trough in-depth international equity collaboration can be solved; this is where the advisory framework and focus of the current study come in. Finally, the collaboration / M&A strategy is executed. Interestingly, Dyer et al. (2004) argue that the corporate set-up with one team dealing with all types of equity collaborations (here JV and M&A) is beneficial as opposed to different teams, as there is merit in re-thinking which collaboration to use in which situation. If these decisions are based on 'gut feeling', there might be mistakes, resulting in poor performance of the strategic endeavour. (Dyer et al., 2004) In any case, collaboration / M&A needs to be embedded in the corporate strategy (see Figure 8). This process overview is in line with the conceptual framework in the findings of the literature review (see Section 4.1.2 on p. 165f.). In essence, a phase of strategic analysis is followed by strategy formulation and a collaboration and M&A strategy phase (see advisory framework). The final step of the process describes how the collaboration or M&A strategy is executed.

Figure 8: Schematic corporate strategy and collaboration process
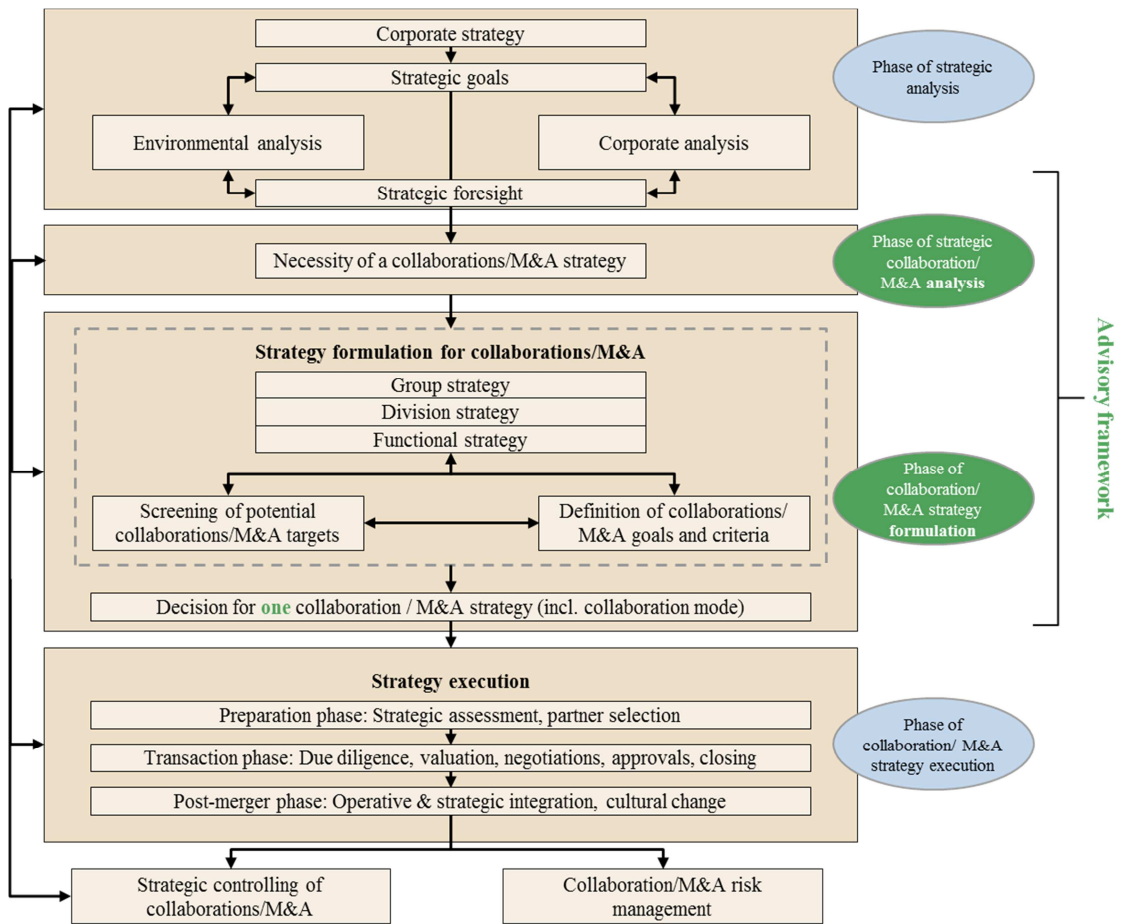
Source: adapted from ALPHA-M&A-Team (2005); Deiss, Müller-Stewens, and Spickers (1999); Eulerich (2009); Gomez and Weber (1989); Jansen (2008); Lucks and Meckl (2002); Müller-Stewens (2010); Picot and Picot (2002)

Strategic analysis, which is not the main focus of this study, can be conducted through analysis of the market-based view, such as Porter (1979) 'Five Forces' model. Another approach can be the strategic impetus of cost leadership vs. differentiation (Porter (1996) with the aim of gaining economies of scale and scope or differentiation with enhanced value-add for customers (for example quality or innovation).

These strategies translate into motives for collaboration / M&A. They are likewise various; for example embedded in Ansoff (1970) matrix for product and market. Central elements are growth and internationalisation of the companies, due to the importance of economies of scale, volumes, fix cost digression, etc. This is particularly important in the automotive industry. Collaboration is an elementary way to support the internationalisation of the suppliers considered in this study. The VDA posits that the

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decision to go abroad with investments involved, besides exporting, is a key decision and increasingly important for large, small and mid-sized suppliers (VDA & IKB, 2015).

Overview and definition of collaborations in the context of this study

There is a variety of terms for what is analysed in this study. Some authors discuss alliance/partnership/collaboration constructs but a broad and pragmatic definition is used for the purpose of this study: two or more partners collaborate for a strategic reason (see Lui & Lu, 2002; Parkhe, 1991).

The modes analysed in this study are JV and M&A. It is important to note that throughout the current study these terms will be used when they denote the collaboration mode itself. The terms IJV and IM&A are used when there is a cross-border angle specifically, for example a German supplier collaborating with a corporate partner in the USA.

Figure 9 shows the different types of inter-firm collaborations. The involvement of equity investment is one of the main differentiating factors. Within the modes involving equity, the various possibilities of stake size denote the different terms within the JV and M&A categories; these are shown to the right. For the current study, all of the sub-forms are relevant (even thought 'mergers' with its sub-facets are considered explicitly in the current study). This overview corresponds with Figure 1 (p. 8), which showed the 'relevance tree' for the current study.

Figure 9: Overview of collaborations and entry modes
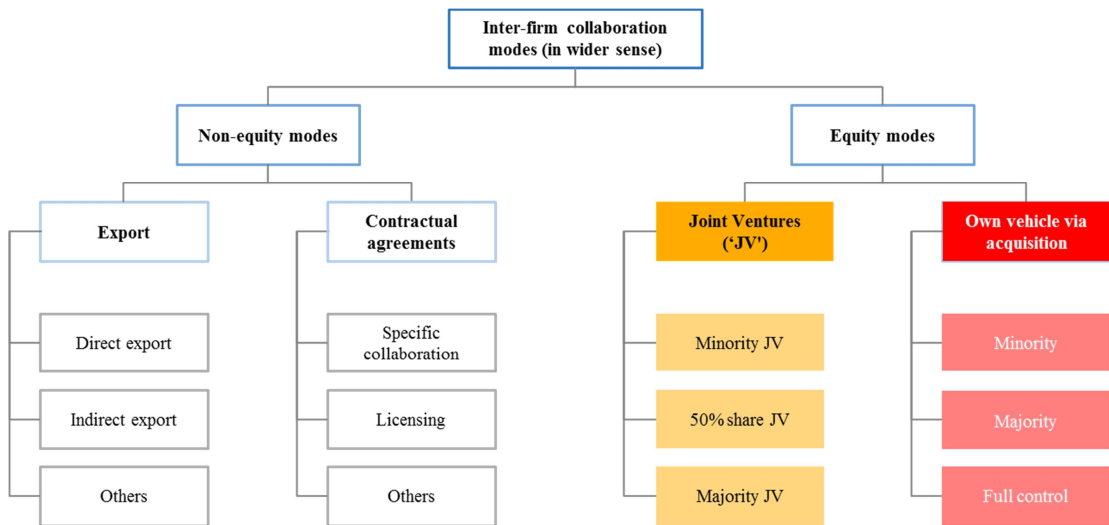
Source: adapted from Pan and Tse (2000); Wirtz (2014); n.b. relevant modes for the study are shaded

Joint Ventures ('JV') definition

JVs are usually characterised as jointly owned entities for a specific purpose, often with limited duration. The JV partners contribute to the vehicle in the form of capital, resources, knowledge etc. and hence spread (financial) risk and benefits. The underlying rationale is that the endeavour has greater strength together than alone. (HSBC & PwC, 2012) A rather technical definition is given for this by the International Accounting Standards ('IAS'). They describe a Joint Venture as a contractual arrangement whereby two or more parties undertake an economic activity that is subject to joint control (IAS 38).

Since equity investment, as used for this study, is a key element in the common definition of a JV, some authors use the term 'equity JV' or 'EJV'. This is an equity-based agreement requiring the formation of separate legal entities where management responsibilities and costs and profits are shared (Hughes, 2000, p. 180). However, this study sticks to the term 'JV' meaning a JV with equity stakes involved.

Looking at JVs from a more technical point of view, specifically in the USA, one can note that they can be in the form of a corporation (a separate legal entity with no personal liability of its shareholders and the most popular company form in the US), a Limited Liability Company ('LLC'; provides limited liability for investors) or a

partnership (where investors can be business entities or individuals). The foundation of the JV is based, like elsewhere, on a JV contract. (HSBC & PwC, 2012)

Mergers and Acquisitions ('M&A') definition

M&A are part of the external growth strategy of a company. While the distinct focus in the current study is on acquisition transactions exclusively, the umbrella term of M&A will be used for recognition purposes. However, this paragraph will nevertheless set the scene with elaborating on some considerations on M&A definitions. Definitions of M&A are quite broad and vary significantly. Other authors, such as Bischoff (2007) for example, discuss M&A without focusing on the mergers or acquisitions side explicitly.

Definition examples for M&A include the ones of Achleitner and Charifzadeh (2000, p. 141); Lucks and Meckl (2002, p. 23); Müller-Stewens (2010, p. 4). All of these examples comprise structural changes in corporate control, corporate governance, and shareholder structure of a company because of an M&A transaction. A re-allocation of resources is usually another result of M&A activity. For example, Mentz (2008) provides the following definition, which can be used for the current study: in a M&A transaction ownership, control and management changes (partly or fully) from the target to the acquirer.

The difference between acquisitions and mergers is that acquisitions are transactions in which one company buys the other (sometimes referred to as 'takeover') and mergers are transactions in which two companies join and form a quasi-new company. Mergers, not looked at specifically in the current study, typically denote transactions in which two or more legally and economically independent partners combine their activities. Mergers are less common in the automotive supplier space. An example from automotive OEMs is the merger between Daimler and Chrysler in 1998. (e.g. Bischoff, 2007; Kutschker & Schmid, 2010)

A majority acquisition is a transaction in which one (or more entities) acquires the majority of a company (target company), i.e. at least 50%. Examples from the automotive industry include the acquisition of Siemens VDO by Continental (2007), HellermannTyton by Delphi, TRW Automotive by ZF Friedrichshafen AG (both 2015)

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and FTE Automotive by Valeo (2016). Minority stake acquisitions could be considered as part of acquisitions in the wider sense, even though control is not acquired directly.

As a side note, minority investments need even more attention than in regular majority acquisitions for example with regard to determining an appropriate price, contract drafting, partner selection, etc. (e.g. Bamberg, 2016). As control is not acquired in these cases, this is not a topic of the current study.

Some dimensions along which M&A activity can be characterised further are geographical distance (domestic, intra-region or extra-region), direction (vertical, horizontal, concentric or conglomerate), mode (friendly, hostile) and payment (share deal, cash). Apart from the last two M&A-specific characteristics, these dimensions also apply to other types of collaborations. (Hockmann & Thießen, 2002; Kutschker & Schmid, 2010)

Another term that is frequently used besides 'co-operation' or 'collaboration' is 'entry mode'. This describes a situation where a company wants to enter a new (geographic) market and uses inter-company collaboration as a vehicle. For this study, both situations, i.e. a company newly entering or having a presence, are analysed since the focus is on strategic gap closure. This objective can be achieved either by entering into a new market or by considering co-operating in a market where the company is already present.

Now, the crucial question is which tool to use when. Sometimes this is merely a question of which one is feasible or which partner/target is available. Another limiting factor is the available funds of the company that wants to engage in inter-firm collaboration or M&A activities. However, if both tools are generally available, it is worthwhile considering the analysis process, in particular in a specific context, such as the automotive supply business. This is evident in the USA, which generally tends to have a relatively liberal market in terms of regulations and for its companies to be perceived as having an open mind-set regarding all types of collaborations. In any case, the implications from both collaboration / interaction forms, need to be well understood in order to make the best decisions possible.

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The current study therefore focuses on the international Joint Venture and international acquisitions as they ensure the necessary level of control and so are the most useful to close strategic gaps. Furthermore, they are the most relevant to the automotive supplier industry in the USA and elsewhere (see Hughes, 2000).

Other types of contractual collaborations, such as franchising, are less important in the automotive supplier industry. Franchising is more often used in other industries, such as the entertainment industry for example hotels and restaurants, as posited by Luthans and Doh (2009). Besides these collaborations, the non-equity collaborations of outright sales/exports are also important. However, in this study they are considered business relationships, as opposed to in-depth inter-company collaborations, with all the commitment by all partners that comes along with them.

Furthermore, there are additional reasons why it makes sense to look at JV and M&A transactions in one approach: (1) they are the most similar alternatives within the group of collaborations to address the strategic gap and reach a strategic goal as well as to establish the main characteristics of the transaction modes (e.g. risk, control, commitment); (2) in most companies the same department is involved in both transaction types; (3) similar strategic and operative procedures apply (for example project reviews for top management at suppliers); (4) often a JV ends in an acquisition, like a pre-step to full acquisition, which is a common route. (e.g. Dyer et al., 2004; Kogut, 1989; Reuer, 2002)

The next step is to look at JV and M&A more closely. JV and M&A ('equity collaborations' in the wider sense) are both part of what Starr (1991) defines as 'strategic alliances', as opposed to 'tactical alliances' without equity commitment (Starr, 1991). In a similar way, Wirtz (2014) differentiates into combinations in the wider sense (including collaborations such as JV) and the closer sense defined as pure and outright M&A. Hennart and Reddy (1997) also see acquisition and JV as two alternative ways of "pooling similar and complementary assets" (Hennart & Reddy, 1997, p. 1). According to them, a JV is a good approach when the asset of interest is difficult to separate from a larger unit for example another large firm.

As stated before, this study focuses on acquisitions (minority and majority) but it uses the umbrella term of 'M&A' since this is the internationally commonly used term as a superordinate concept.

International (or cross-border) collaborations are characterised by partners that have different nationalities. This broad view is not the focus of this current study on automotive suppliers specifically, but will certainly continue to be an interesting area of future research. In contrast to other internationalisation strategies, within international JV and international acquisitions there is a focus on the host country and stronger integration levels (e.g. Kutschker & Schmid, 2010). When analysing the USA ('host country' here) from a European perspective, focusing on 'international' or 'cross-order collaborations' (both terms mean the same), we can add, as previously mentioned, the prefix 'I' for international to the transaction type to indicate the international nature of IJV and IM&A.

Challenges of collaborations

The set-up and management of collaborations is a difficult and complex task, particularly in an international context and so many of them terminate pre-maturely and fail. (Blanchot & Mayrhofer, 1998; Bleeke & Ernst, 1990; Brouthers, van Hastenburg, & van den Ven, 1998; Dyer et al., 2004; Killing, 1982, 1983; Laabs, 2009; Lung, 2001; Tallman & Shenkar, 1994; Vaidya, 2011; Whipple & Frankel, 2000; Xiaosong & Jinming, 2011) In his work in 1982, Killing refers to the 'joint venture paradoxon' whereby managers tend to dislike JVs due to their difficult manageability and complexity but see their importance at the same time (Killing, 1983, p. 1).

Two of the main reasons mentioned in the literature for why collaborations fail are having the wrong motives and making the wrong choice of collaboration mode (e.g. Dyer et al., 2004). In order to enhance the success of such activities, there is merit in re-thinking them in the light of the specific industry and paying particular attention to the analytical as well as the decision-making process. Recent prominent examples of failed JV deals in the automotive industry include many major tier 1 automotive suppliers (for example Bosch, Continental, Johnson Controls, and Magna) who intended to move into batteries for electrified vehicles. Table 2 on the following page gives an overview of

recent JV examples including the year of operation, the perceived rationale, a short deal description, the perceived challenges, and ultimate outcome. It underpins the difficulties that automotive Joint Ventures face, and that applies to international as well as domestic JVs (e.g. the Bosch Mahle, Fisker Nanotech, or the Fuji Isuzu Joint Ventures). The reasons why the JVs struggle are diverse and range from external challenges, such as declining markets, to JV/partner-related difficulties such as different expectations and views on strategic direction.

Table 2: Failed recent (I)JV deals in the automotive industry

Partners (country)	Name	Year(s)	Perceived rationale / Description	Perceived challenges / outcome
Fisker (US) and Nanotech (US)	Fisker Nanotech	2017	Development and production of graphene batteries permitting Fisker EMotion to have 400-mile range	Excessive involvement for Nanotech (start-up/UCLA spin-off) by Fisker; Fisker and Nanotech continue to collaborate on the development of graphene batteries
Bosch (DE) and Mahle (DE)	Bosch Mahle Turbo Systems (BMTS)	2008-2017	Develops and manufactures turbochargers	Failure to achieve economies of scale due to difficult market conditions and strong competition – JV to be sold to Asian PE FountainVest Partners, which is convinced that the turbocharger market will continue to grow given its key role in emission reductions
Continental AG (DE) and SK Innovation (KR)	SK Continental E-motion	2013-2014	Create a supplier of battery systems	Low sales volumes in comparison to competitors and failure to achieve economies of scale; SK Innovation took over South Korean assets of the JV and Continental over the German assets
Bosch (DE) and Samsung (KR)	SB LiMotive	2008-2012	Joint development and production of lithium-ion based batteries	Differences in expectations and corporate culture – end of the collaboration; Assets shared between the former partners and JV absorbed by Samsung
Magna (CA-AT) & GS Yuasa (JP) & Mitsubishi (JP)	–	2010	Joint production of lithium-ion batteries for electric vehicles in Europe and North America	Three party JV (GS Yuasa, Mitsubishi and Magna) creation unsuccessful; however, further cooperation between Magna and GS Yuasa
Bosch (DE), GS Yuasa (JP) & Mitsubishi (JP)	Lithium Energy and Power GmbH & Co. KG	From 2013	Joint research & development and production of lithium-ion based batteries	Still active
Johnson Controls Inc. (IE) & Saft Group SA (FR)	Johnson Controls-Saft Advanced Power Solutions LLC (JCS)	2006-2011	Develop and manufacture lithium-ion motive battery solutions	Disagreement about the future and the scope of the parameters – legal dispute; Johnson Controls acquires the remaining stake from Saft in 2011
Fuji Heavy Industries (JP) & Isuzu Motors (JP)	Subaru Isuzu Automotive ('SIA')	1987-2002	Share of production facilities in the US	Significant decline of Isuzu SUV vehicle sales in North America; shares held by Isuzu Motors in SIA were transferred to Fuji Heavy Industries

Source: author's own (2017); based on industry research; n.b. this overview represents a selection with no claim to be exhaustive

In addition to the respective deal-related information given in the table, according to public statements, this was due to deteriorated and delayed market growth expectations for e-mobility in Europe, different objectives and strategies for the JV and differences between the partners. Another automotive collaboration failure is the battery collaboration intended to be forged under leadership of Daimler AG. No one wanted to join the collaboration, so the collaboration could not even be started. On the other hand, a positive example is the joint acquisition transaction by Audi, BMW and Daimler in acquiring the Dutch mapping company 'HERE' from Nokia in 2015 (n.b. the company,

is now a JV of all three OEMs, plus Bosch, Continental, Intel and Pioneer who joined the group of owners later. After the acquisition, HERE continues to follow the growth path and remains acquisitive, for example through the acquisition of the company Micello, a provider of indoor maps (HanserAutomotive, 2018). Hence, the engagement can be considered a strategic success for the time being, as it reduces the owners' dependence on other mapping companies, such as Google Maps. (BMWGroup, 2015; Haegler, 2015; Mergermarket, 2017c, 2018b)

However, it remains to be seen if this is a long-lasting engagement since, as outlined above, the majority of JVs fail prematurely.

IJV and IM&A specifically

There are three key ways to differentiate between these approaches. One is the choice of partner: a partnership between competitors is 'horizontal', otherwise it is 'vertical'. For example, Burgers, Hill, and Kim (1993) and Dussauge and Garrette (1995) focus on vertical partnerships between partners at different stages of the value chain. This type of collaboration between partners at different steps of the value chain seems to be the predominant form within the automotive supplier industry. Recent examples of these activities at ALPHA include a R&D collaboration and subsequent M&A discussions of a supplier with a US-based active suspension start-up, a JV collaboration with a Chinese OEM in the chassis space and the licensing of a transmission product to a US OEM. Figure 10 shows this systematisation. The main dimensions of the figure are the different steps of the value chain between collaboration partners and domestic vs. cross-border deals, in the figure the quadrants that are relevant for this study are shaded in beige that is the horizontal and vertical international collaborations.

Figure 10: Systematisation of collaborations in the automotive value chain

Source: adapted from R. Smith and Walter (1998) and Central Bank (2000); n.b. relevant modes for the study are shaded

A second line of thought links inter-firm collaboration modes to entry into markets abroad and internationalisation. Consequently, the term 'entry modes' is frequently used. In its broader sense this furthermore encompasses organic entry modes such as Greenfield investments (e.g. Kutschker & Schmid, 2010).

A third common distinguishing factor is the separation into non-equity and equity modes, with their different levels of commitment, associated risk, etc. (Luthans & Doh, 2009; Pan & Tse, 2000; Wöhe, 2005) In particular, outright M&A as the ultimate form of 'collaboration' leading into the combination of two companies is a special form of collaboration. As such, it is posited that M&A is a structural, permanent way to cooperate and can be differentiated from less committed strategic alliances, that are between firms to reach a common goal (Bugnar, Mester, & Petrica, 2009). For example, Dussauge and Garrette (1995) explicitly exclude M&A transactions, that lead to the loss of autonomy of one partner, from their analysis.

For the purpose of this study, a taxonomy based on this third way of differentiation shown in Figure 11 (on the next page) applies. The focus on either the home or the host country differentiates the collaboration modes. The other differentiating characteristic is how the collaboration modes are located on the continuum of risk, commitment, and control. As the exposure towards the host country increases (which tends to be the case for equity collaborations), the level of control, risk and commitment increases. The

location of each collaboration mode on the continuum of the dimensions of increasing or decreasing control, commitment, and risk is shown in Figure 11 (cf. Figure 9 on p. 25). Furthermore, as discussed, the analysis centres on the JV collaboration / entry mode and the international acquisition as the most relevant to ensure closure of strategic gaps in the automotive supplier industry. (Pan & Tse, 2000; Tse, Pan, & Au, 1997)

Figure 11: Commitment levels of international collaboration modes
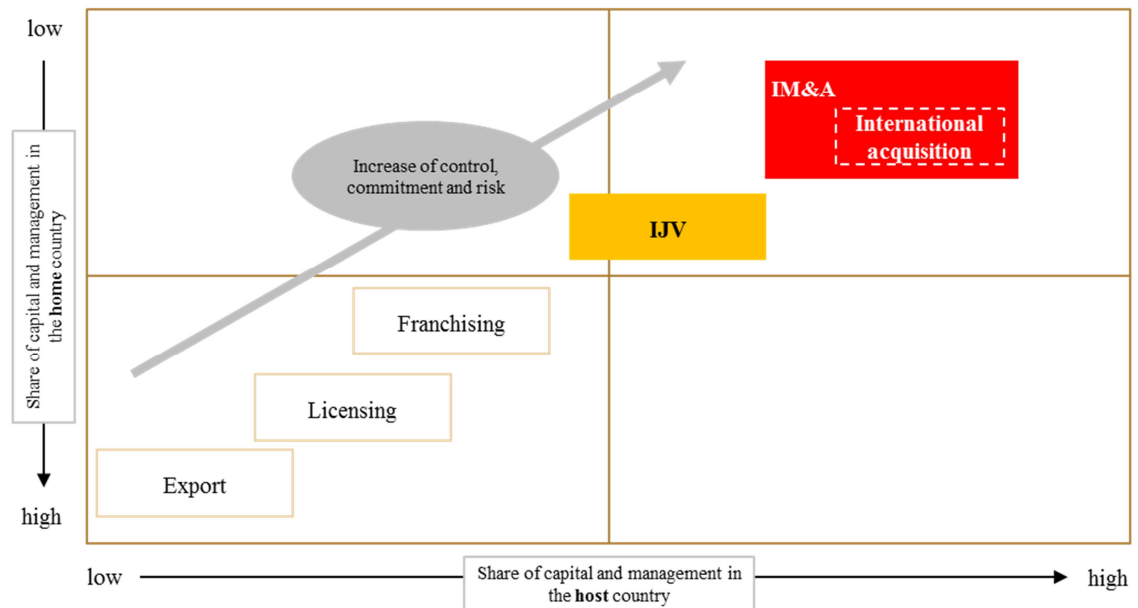
Source: adapted from Meissner and Gerber (1980) and Pan and Tse (2000); n.b. relevant modes for the study are shaded; the size of the squares does not denote the relevance or size of the modes, this is merely for illustrative purposes to show that international acquisition are part of the IM&A family

Collaboration and M&A activity need to be considered within the context of a specific industry (e.g. Hagel, 2006). In the context of automotive suppliers, products are tangible, often difficult to ship and/or safety-critical, and knowledge driven. Additionally, the industry is driven by price and quality and therefore localisation is often unavoidable economically or explicitly requested by OEM clients. For this reason, it is part of the literature review and empirical analysis (see Chapter 4).

Moving one level deeper in the analysis, the following paragraphs will present some definitions of the key co-operation modes in this study.

2.2. Significance of the research

In the available literature on international inter-firm equity collaboration there is either a different focus (than the one of the current study) as well as a tendency for quantitative or descriptive analysis. This became evident through extensive literature review (see Section 4.1 on p.112ff.). Hence, the current study is unique in its approach and research focus.

In that regard, the purpose of the current qualitative multiple case study was to determine which factors are essential in analysis and decision-making to improve inter-firm collaboration (see Chapters 3 and 4). These empirical findings were used to substantiate, validate, enrich, challenge, and enhance the findings from an in-depth literature review in the field. The goal was to develop an advisory framework for academics and practitioners in the area. Foundations for the study are the analysis and presentation of IJV and IM&A with their characteristics, and motives. The similarities and differences of the two collaboration modes were also looked at along selected the transaction-related criteria that are available to systemise the collaboration modes, e.g. risk, commitment, and control implications.

The results of the study have implications for practitioners and academics in the automotive supplier industry that face strategic gaps in their companies and intend to pursue inter-company equity collaborations in order to address these. The study is well founded on academic research and theories, substantiated and backed-up with in-depth insights from selected automotive companies and the transaction case studies. It can therefore help to improve and make more deliberate strategic analysis and decision-making as it takes into account the context of the automotive industry and makes recommendations on how to enhance success rates of the collaborations. Furthermore, it should help to improve the success of European and US American managers in their respective IJV and IM&A efforts. The advisory framework was cross validated with experts in the field, my doctoral supervisors and members of an Action Learning Set of the university of Gloucestershire ('ALS').

For elaborations on the current study's limitations, see Section 5.3 on page 218f.

2.3. Philosophical stance

The following section will present the research paradigm underlying the current study and then illustrate and compare different research approaches and their philosophical fundaments. Finally, it will introduce the study's methodology, discussed further in Chapter 3.

Research paradigm underlying the current study

A brief systematic overview of the research paradigms, philosophies, and concepts was made in order to conduct a thorough and sound analysis of the various research approaches. For example, Creswell (2013) argues that a clear research strategy is necessary when conducting research.

The notion of paradigm is determined by underlying beliefs, assumptions and perceptions as well as the researchers' shared values. The researcher follows their own paradigm when conducting research as it lies at the heart of how they view knowledge and gives guidance for research (Foucault, 1970; Guba & Lincoln, 1994; Hatch, 2002; Kinash, 2006; Kuhn, 1962).

In his seminal work, Guba (1990) posits that the following three pillars determine research paradigms: Ontology (the study of being and the view on the nature of reality), Epistemology (the study of knowing and the way to uncover knowledge) and Methodology (the study of the strategy of how to find out things, i.e. the set of research approaches and scientific techniques). Specific methods, such as techniques for data generation and its analysis are derived from the methodology. In any case, a distinct philosophical underpinning is important to conduct sound and diligent research in management science (as in other areas). Otherwise, discussions centre on procedural levels only and lack the necessary underlying depth and justification. One example is a 'black-and-white' discussion of whether to use quantitative or qualitative methods (Ciao, 2011; Creswell, 2013).

In recent years, the word 'paradigm' has been over-used and misused, in particular in combination with the term 'shift'. For example, in the manufacturing and design sector 4D printing is now being postulated as the new 'paradigm shift' (after 3D printing; 4th

dimension being time: to 'print' objects that can assemble themselves or re-shape over time), or the increasing focus on 'e-mobility' (i.e. electrified driving) in the automotive supplier sector (Pei, 2014; Tuohy, 2008). In both cases, 'paradigm shift' refers to transformation of an industry sector but misses the original meaning of the term (Hatch, 2002).

My own research paradigm

In order to discuss the choice of research approach a researcher has to firstly identify his or her underlying research paradigm (e.g. Holden & Lynch, 2004; Trauth, 2001). Many discussions on definitions, terminology and interpretations as well as selection of research paradigms have been conducted for this purpose (Creswell, 2013; Easterby-Smith, Thorpe, & Lowe, 1994; Hassard, 1991; Knox, 2004; Sarantakos, 2012). According to Knox (2004), methodology should follow philosophy and not the other way around.

Prior to embarking on this doctorate 'cruise' (I use maritime metaphors occasionally to illustrate thoughts and concepts), I found myself confronted with considerations of my underlying (philosophical) basis to give guidance and direction to the doctorate study, like a compass at sea. I have undergone a fundamental change from a pragmatic realist to constructivist/relativist (see Section 2.4 of the study and my description of academic/educational background and management style in Appendix 7.2 and 7.3 on p. 231ff.). The reasons for this are newly gained insights and reflections on the following:

Ontology: I am a constructivist since I believe that individuals in groups create reality and that context is crucial to understanding. This is particularly important in complex management research.
Epistemology: Discovery and interpretation of the underlying meaning of events and activities as there is not one truth but subjectivity.

For me, it became therefore obvious during the modules of the doctoral programme that the constructivist paradigm best represented my view of the world. This paradigm is justified by my belief in context, interpretation and social interaction and the aim to discover meaning as well as to gain a deep understanding of the researched matter.

Consequently, I can be classified as a constructivist researcher with relativist ontology and subjectivist epistemology. (e.g. Burrell & Morgan, 1979; Guba & Lincoln, 1994; Hatch, 2002)

Three main management research approaches were analysed in order to decide on an approach prior to reaching this conclusion and in the course of finding the right paradigm and philosophy. These were, firstly the *constructivist*, secondly the *interventionist* (as a *pragmatic* approach; see Appendix for further information) and thirdly the *realist* (see Appendix for further information, since this one is not in-line with my research paradigm). All three are based on specific philosophies with different ontological and epistemological assumptions. The first and the third approaches cover the two main contrasting positions in research: interpretivism and positivism (Ciao, 2011; Easterby-Smith, Thorpe, & Jackson, 2008). The more recent interventionist approach is usually based on pragmatism but it can also fit into the interpretivist philosophy.

Even though some authors still see "paradigm wars" going on (Shepherd & Challenger, 2013, p. 226), particularly between the extremes (realists vs. interpretivists/constructivists), most authors strongly suggest bridging the approaches in a multi or mixed methods approach in order to maximise and promote advances in research. Promoters for mixed method approaches are Moses and Knutsen (2007), who "encourage methodological pluralism" (Moses & Knutsen, 2007, p. 288). Other academics push for clear boundaries of the paradigms, hence one can note that the discussion of school of thoughts in research is far from over (e.g. Bhaskar, 2010; Norris, 1996).

Link to research philosophy and methodology of the current study
After clarification of the philosophical background, the specific choice of research strategy is a complex function of various parameters apart from the research philosophy (see Section 3.2 for in-depth information on methodology choices and their reasoning (p. 60ff.). Other factors also play an important role such as the cultural background, history and experience of the researcher, the organisational set-up, the personal and

evidential properties (for example networks, audiences), the financing of the research and political properties (e.g. Buchanan & Bryman, 2007).

After careful consideration and analysis of the various research methodologies, I decided to conduct case study-based research, within the qualitative research sphere (for further information see Section 3.2, p. 60ff.).

A qualitative research method is appropriate for the study because the approach allows an explorative and in-depth analysis. The multiple case study design is appropriate for the study because establishing an equity collaboration is a business process and the multiple case study design provided the means to investigate this complex process while retaining the real-life characteristics of the processes in the company under study (Reddy, 2015; Yin, 2003).

With regard to data generation and analysis, the primary methods are expert interviews paired with documentation reviews and observations. The analysis is conducted through text coding and heuristic analysis. The sample of the case studies was determined by rigorous criteria with a geographical focus on the USA (see Section 3.2.1, p. 83ff.).

After having developed a personal strategy for coping with the philosophical fundamentals of research and having identified my *ontological and epistemological* views, the following thought related to *my view on management research and my research topic* more specifically. The current study deals with strategic transactions, which are characterised by high levels of complexity and individual processes. Each collaboration transaction is unique with its own benefits and problems, for example strategic rationale, context, timing, partner etc. It should be considered ideographic, i.e. context specific, with a focus on the 'flow of experiences' rather than be considered robust and with static structures. Furthermore, these processes involve many different stakeholders, sometimes with conflicting interests. For example, headquarter vs. business division perspective mean that for many larger companies, the set-up of collaboration project teams is often a joint effort of central department and business division experts.

The last part relates to *my role as researcher*. Since I am a practitioner in the field of my research topic, I considered an emic approach to the topic i.e. where the researcher is

part of the system and researched area. (e.g. Holian & Coghlan, 2013; Trowler, 2011) (see Section 3.2.1 on p. 65f.)

At the same time, I encountered significant *external barriers* to conducting an active or interventionist approach, since the transactions analysed are of high strategic importance and do not represent an opportunity to conduct a change-based approach, and I see the risk of personal bias, which I aim to keep at a minimum. Therefore, I considered an emic approach but at social distance, which gave the research subjects a high level of personal responsibility.

Another reason why I could not use an interventionist approach relate to the nature of international JV or M&A projects. They are crucial to a company's development and they cannot be altered for research reasons and potentially endanger the projects. Therefore, it would be almost impossible to get the necessary releases. Another matter is timing as many projects and their decision-making take a long time.

Based on these considerations, I concluded that the most appropriate method for the current study and its context would be a qualitative with a constructivist stance. Furthermore, the selected approach should add value to knowledge, as previous studies showed a tendency towards quantitative approaches, focused on quantitative hypothesis testing and were rather descriptive (as outlined in the literature review, see Section 4.1.1 on p. 114f.). In other areas, such as project management research, the focus is more on subjective and interpretative approaches, supporting the idea, that this can add value (see Biedenbach & Müller, 2011).

An example where constructivism is important for policymaking is international relations, as it stresses that the key aspect of international systems is social and based on ideas rather than material forces. In this area constructivism gained much momentum after the end of the Cold War (see R. Jackson & Sørensen, 2012; Van der Pijl, 2009).

The connection of research philosophy and the approach used in the current study is summarised and presented in the Venn diagram in Figure 12, which shows my respective position in terms of ontology, epistemology, and methodology as a constructivist researcher. An important element linked to methodology is the

researcher's view on values and ethics (Axiology). This is also an important element in this study and is discussed under Section 3.2.1 where the research methodology of the empirical work is presented.

Figure 12: Research paradigm underlying the study
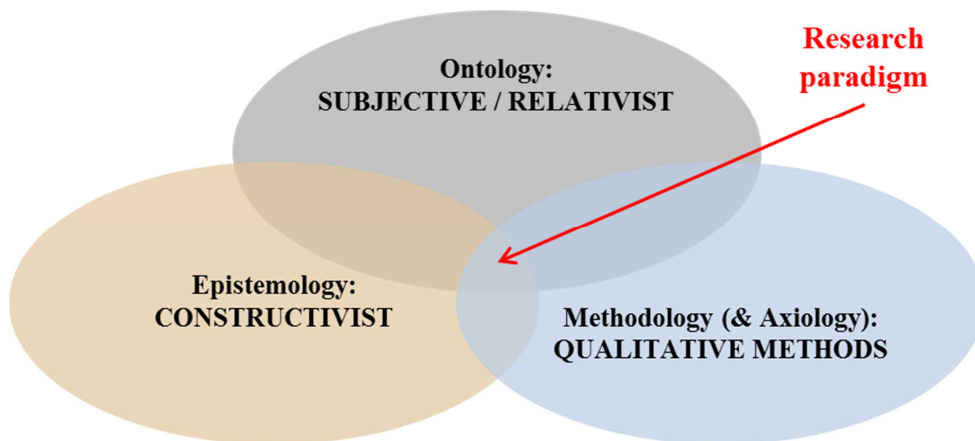
Source: author's own (2016), adapted from Guba (1990) and Creswell, Plano Clark, Gutmann, and Hanson (2003)

2.4. Reflective professional practice

This section provides a summary on the insights into my academic journey and its influence on the research topic and the approach of the study.

I would like to share my reflections on my professional development and its influence on the current study. For further information, see Section 7.3 page 256ff. in which the authors research journey is described with paragraph on the past, present and future along the lines of a virtual sailboat cruise, analogous to a research journey.

Taking one step back in this summary section, the crucial question one might ask is, 'Why does management research into strategic inter-company collaborations in automotive matter?'. The answer to this question should be twofold: Why is the topic important generally? Why does the research topic matter to me as a researcher?

The issue of the general importance of the topic was addressed in the introductory Chapter 1. Additionally, as a professional practitioner and senior manager in the field of the research topic I have continuously come across strategic questions concerning collaborations. In addition, on some occasions in the 'professional world' there seems to

be a lack of regard for systematic analysis of strategies, motives and international collaboration options as well as decision-making, best execution practices and monitoring of success.

For these reasons, I decided to approach the topic in order to develop a more systematic and profound approach to the strategic analysis of two particularly prominent and often used tools in collaborations; international JV and international acquisition. This was also intended to relate to decision-making, with the ultimate goal to contribute to management science, narrow the academic gap in the field of study and to ultimately add value for academics and practitioners active in the field of collaborations.

Therefore, I critically reflected on my own professional development during the doctorate. I always reflected on three different and mostly interdependent dimensions: (1) the academic; (2) the professional; and (3) the private life. This triangle of dimensions is shown in Figure 13. It also serves to structure some of the summary reflections in Figure 14, the 'doctorate lighthouse'. These dimensions will accompany the reader as a recurring theme throughout other parts of the study (e.g. axiology and ethics issues, Section 3.2 on p. 60ff. and Appendix Section 7.3 on p. 256ff. on personal reflections). It summarises the highlights of personal experience and developments in these three dimensions during the research journey and how beliefs, paradigms, ideas, and approaches were refined and sometimes changed over time. Thus, it reflects on the impacts on me and on my study. Where appropriate reflections on the organisation in which I work (European tier 1 automotive supplier) are also mentioned. All three dimensions are strongly related and depend on each other. The private dimension was added to the reflections, as the personal background is also important to understand the first two dimensions. After all, personal and professional experience both affect research and the question is how to place and benefit from that experience most effectively (Morse & Richards, 2002). Reflection helps bring awareness of the fact that the researcher is part of the process and thus helps to manage subjectivity issues (Etherington, 2004; Mays & Pope, 1995).

At this point, I would like to also re-iterate that I had no personal agenda for this research study and project and it was conducted in an explorative and open-ended way.

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Furthermore, I had no financing from third parties, which ensured my independence as a researcher.

Figure 13: Triangle of reflection dimensions
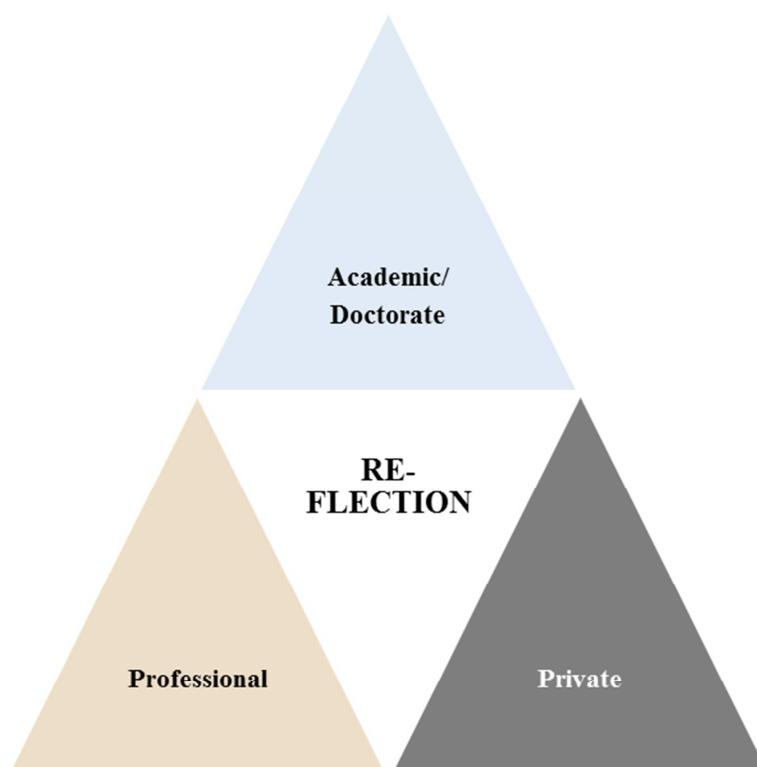
Source: author's own (2015)

All the experiences related to these three dimensions have paved the way for some changes and new perceptions in my life and its priorities as well as time management (Beckhard, 1969; Lewin, 1946).

A summary of all the reflection dimensions during the past, present and future is shown in Figure 14 – using the lighthouse metaphor. It is organised in a matrix format. While the rows represent the three reflection dimensions, the columns represent the different times looked at. From left to right, the past represents the time before the doctorate, followed by the present of the doctorate phase. Ultimately, on the far right, some considerations about the future and a prediction of potential future developments complete the picture (for further information please refer to Appendix 7.3 on p. 256ff.).

Figure 14: The doctorate lighthouse

	PAST	PRESENT	FUTURE
Academic/ Doctorate	▪ German master / studies abroad ▪ International strategy topics ▪ De-facto realist	▪ Doctorate research ▪ New views: philosophy & methodology ▪ Change in research paradigm	▪ Potential further university and academic involvements
Professional	▪ Investment banking (as adviser) ▪ In-house manager collaborations / M&A ▪ Automotive / other industry experience	▪ Now, on the principal side, closer to decision making and strategies ▪ Further automotive experience	▪ Implementation of analytical framework in practice ▪ Directorship within the organisation
Private	▪ Various changes (environment, location, etc.) ▪ International experiences	▪ Private projects including real estate investment, girl-friend moving in, marriage ▪ Time management gaining further importance	▪ Family foundation ▪ Settling down

Source: author's own (2015); n.b. MH = Michael Hagel (the author)

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2.5. Summary and interim conclusion

The research focus, the three research questions, and objectives were introduced in the second chapter of the current study. This was an important step since they will be guiding the reader throughout the current study in the upcoming chapters and sections. They were all centred on inter-firm collaboration to close strategic gaps of technology-oriented companies in the automotive industry. As such, the four building blocks of the study were the automotive supplier industry (tier 1) and its trends and challenges, including changes in the industry structure, significant technology changes, and consolidation. Secondly, the focus was on international contexts with the USA as a key automotive market due to its size and dynamics. Thirdly, the concept of strategic gap analysis was introduced, alongside considerations of organisational decision-making and the discussion of choices. Most importantly, the strategic tools of international M&A / acquisitions and international Joint Ventures were also introduced. These strategic tools were embedded in the context of overall corporate strategy. Furthermore, there are various challenges to these collaboration activities within an international context.

Moreover, the significance of the current study with its advisory framework to support academics and practitioners in the field was introduced. It is based on an in-depth literature review paired with empirical evidence and analysis.

The author's research paradigm underlying the current study was constructivist as it followed a multiple qualitative, context-specific, and case-study based approach. As a practitioner in the field, I can be considered an 'insider' with all the benefits and challenges that come with this emic approach.

Finally, a summary of my academic journey was presented in the form of a 'doctorate lighthouse', which summarises reflections on academic, professional, and private dimensions. Besides discussing past and current developments that led to the current study and its influences, it dares to look at the future, in which some of the gaps in research could potentially be approached further.

3. Methodology and methods

Having discussed my philosophical stance in Section 2.3 on page 35ff., this chapter will present the methodology and methods for the literature review that formed the academic basis of the current study (see Section 3.1). It will also guide the reader through the methodology and methods that formed the empirical part of the current study (see Section 3.2). These two sections form the basis for the findings and analysis in Chapter 4 of the current study.

3.1. Literature review and academic basis

The two main aims of this chapter are to lay the foundation of the study with regard to literature (as definitions are not in the scope here, see Section 2.1 of the study (on p. 10ff.) and to educate the author for the subsequent empirical part of the current study. A literature review of the field of international inter-firm ('inter-company') collaborations and strategic alliances was conducted to provide the theoretical background. The systematic initial search was accompanied by an on-going and iterative thematic scan of relevant literature throughout the research period. Within this broad field, four specific areas were in focus to address the research questions: (1) the automotive supplier industry with its strategic (technology) trends and challenges, with focus on the passenger car market; (2) the US American market as a key growth and innovation driver for the global automotive industry and US companies as collaboration partners (Sturgeon et al., 2009); (3) strategic organisational decision-making in its relation to (4) inter-firm IJV and IM&A as tools to address strategic gaps and deficiencies. The review starts with an overview of the applied review methodology. The different review levels are covered from broad to specific; per building block, pairwise reviews, and specific (3.1.1). These are followed by the search strategy (3.1.2). The final step described in Section 4.1 and 4.2 is the descriptive and thematic synthesis, assessment, and interpretation of the findings including a literature-based conceptual framework of the research.

3.1.1. Literature review approach

Dixon-Woods, Agarwal, Jones, Young, and Sutton (2005, p. 47) posit that research questions should serve "as compass rather than anchor". This idea is in line with my constructivist research paradigm, which itself is determined by a relativist ontological and an interpretivist epistemological position. The following questions served as guidance for the literature review:

(1) What does the academic landscape with regard to this specific study topic look like? i.e. *the automotive supplier (tier 1) industry* and its (technology) trends and challenges as well as *on cross-border activities, primarily in the USA*

(2) What literature exists *on strategic organisational decision-making* within companies?

(3) What *general literature* regarding international inter-company collaborations exists and which empirical *studies* have been conducted?

(4) Within this literature, what is being posited on *specific features* of such collaborations?

In order to analyse and answer the above, the initial literature review followed a structured and systematic approach as it intended to provide profound and scientific research (Bryman & Bell, 2007). As an alternative, narrative reviews could promote the bias of the researcher, as they sometimes "lack thoroughness and are not undertaken as genuine pieces of investigatory science" (Tranfield et al., 2003, p. 1). Instead, the literature review is a tool to provide a reliable and reproducible knowledge and evidence base for decision-makers and practitioners to map the existing literature landscape (Denyer & Tranfield, 2006; Tranfield et al., 2003). Furthermore, as stated by Armitage and Keeble-Allen (2008, p. 109), a systematic methodology offers a way to deal with the fragmented "ontological and epistemological tensions" in management science, centred around the key characteristics of qualitative research. This in essence posits that all meaning is contingent and emergent from a certain context. (McDermott, Graham, & Hamilton, 2004).

The review is based on an interpretivist approach and is not meant to be exhaustive but aims at identifying selected key studies as basis for further thought (Dixon-Woods et al., 2005).

In the past, the focus of academic research was generally on quantitative studies (Britten et al., 2002; Noblit & Hare, 1988; Tranfield et al., 2003). This is also true for the area of this current study (see Section 4.1.1 p. 112ff.). However, it has become increasingly important to include not only quantitative but also qualitative data into analysis, in order to generate a holistic view of certain topics. This can be noted not only in medical science but also in management science, where it is now recognised as being very useful for evidence-based management research (Pawson, Greenhalgh, Harvey, & Walshe, 2004; J. Thomas & Harden, 2008). However, qualitative research is hard to synthesise, as it depends on a specific context (Sandelowski, Docherty, & Emden, 1997). It is not possible to make generalisations from it but it can provide insights into specific research questions.

A *meta-synthesis approach* was conducted for the current study since an indicative scoping of the field revealed that both quantitative and qualitative studies are found in the field of international inter-firm collaborations and alliances. Meta synthesis offers the researcher freedom and flexibility for multi-strategy and triangulation research. It is able to integrate both approaches and to increase confidence in the results (Britten et al., 2002; Dixon-Woods et al., 2004; J. Thomas & Harden, 2008).

In my opinion, qualitative approaches can add value to research if used and analysed appropriately given their context. They can provide in-depth understanding of the research area, which can later be used by academics and practitioners. Furthermore, the use of triangulation to a specific topic, i.e. a multi-dimensional approach, can significantly reduce bias and enhance the authenticity and objectivity of the results as it analyses a research topic from different angles (e.g. Denzin & Lincoln, 2009). This should then help to produce a piece of trustworthy, authentic and pragmatic research, as argued by Tranfield et al. (2003).

The methodological steps to conducting this literature review, in line with Tranfield et al. (2003) included: (1) definition of search strategy including filtering of results (in particular using inclusion and exclusion criteria), (2) analysis of the findings and

assessment of their quality, (3) integration and synthesis of the results, (4) drawing of conclusions. The following sections will provide further insights.

3.1.2. Search strategy

The following four sequential steps were followed for the research strategy, as suggested by Tranfield et al. (2003). Firstly, the search outline was defined. Then the search was conducted and the results pre-checked for relevance. Next, a defined set of inclusion/exclusion criteria was applied in order to identify the most relevant literature. Finally, the quality of the literature was assessed.

Step #1: Definition of search outline

All possible solutions to the outlined multi-dimensional and complex research questions were explored in a morphological analysis of the topic, including the construction of a 'relevance tree'. The starting point of the strategic thinking process is usually a definite strategic gap or necessity. For example, the current performance of a company does not yet completely reflect its desired performance as defined in its strategy process (vision and objectives) (Turban, Sharda, Aronson, & King, 2008). For automotive suppliers, this typically originates from both, the companies' and the industry characteristics (see Sections 2.1 and 4.1.2) (ALPHA-M&A-Team, 2005; Perlitz, 2004). The questions, which subsequently emerge, include: Do we close the gap internally or in collaboration with another corporate or non-corporate partner? Can the gap be filled domestically or does it need to be in an international collaboration approach? Is an equity investment needed? Figure 15 shows the 'relevance tree' (see also Figure 3 in the introductory Section 1.1 on p. 11). It gives an overview of the four building blocks introduced earlier and of the study's context and it highlights the relevant subject of the study (highlighted in red).

Figure 15: The 'relevance tree' and the four building blocks
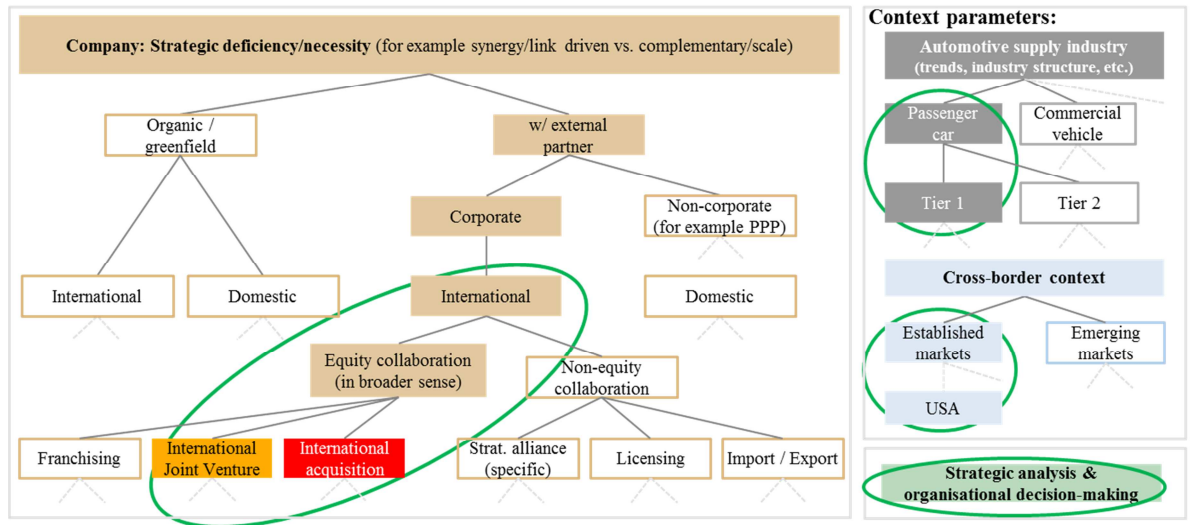
Source: author's own (2016), adapted from Cools and Roos (2005), Perlitz (2004), Wirtz (2014); note: PPP = Public-Private-Partnership

Three main review levels were analysed. Firstly, each topic or building block was analysed individually in order to get a broad understanding of the theories and concepts (B). Secondly, combinations of the building blocks were analysed in pairs (P) in order to identify any common themes as a basis for later data analysis (location of publication; approaches (qualitative vs. quantitative). Finally, a specific search was made for any intersection of the four building blocks (S), aiming to identify gaps in the literature and check the contribution to knowledge of the study. Figure 16 shows the illustrative overview of the structure and flow of the literature review. It analyses the various search levels along the parameters of review level, visualisation, and a short description of each level. Even though the b3 and b4 are embedded in the context for illustrative purposes, they are shown separate here.

Figure 16: Flow of the literature review

Review level	#1: Basics (B)	#2: 'Pairwise combinations' (P)	#3: Inter-section / specific (S)
Visualisation	b1 b4 b2 b3	Inter-firm IJV and IM&A — p1 Trends and challenges in the automotive supply industry (pass car); p2 Cross-border focus / USA; p3 Strategic gap analysis and (organisational) decision-making	s1
Short description	Basic literature for each building block	IJV and IM&A as key parameter, paired with each of the other building blocks	Research contributions, that address all building blocks

Source: author's own (2016)

Step #2: The searches

The literature searches aimed at identifying a broad base of literature in the field from practitioners' papers and reports (such as industry experts and consultants) as well as from basic academic literature, papers, and studies.

The initial searches were conducted between June and August 2014 (first review). After that, the topic gained further definition with a regional focus on the USA and equity collaborations (i.e. IJV and IM&A) as opposed to analysing other types of inter-firm collaboration such as franchising or licensing. Therefore, refined searches were run between January and April 2016 (second review). Both results were considered in the further analysis as appropriate.

In line with the concept of triangulation, a variety of databases and other sources was researched. A comprehensive search for relevant literature, both published and unpublished was conducted, as suggested by Tranfield et al. (2003).

Source: Computerised searches

The computerised searches, which were the central element of the reviews (2014 & 2016), consisted of three main steps:

(a) Search in *key bibliographic databases* for journals, papers, books, and thesis. The key sources were 'Business Source Complete / eBook collection (EBSCO host)' and 'ABInform/ProQuest', which are among the most comprehensive academic databases in the market
(b) Search for Internet sources mainly '*Google scholar*', as well as *Google*
(c) Use *Additional resources*, including conference papers: three other sources ('ideas.repec' – Mainly working papers and texts; 'ethos' – the national thesis service in the UK; 'Zetoc Conferences' – Conference papers).

A multiple keyword approach was used for the searches and they were deliberately broad. Since initial searches in the main texts yielded too many irrelevant results, the main searches were only conducted by titles. Unfortunately, some of the titles found were not available as full texts. However, from title and short description these texts did not seem to be key.

After the computerised searches, a more manual 'funnel' or 'filter approach' was used. Again, the title was checked for relevance, followed by the short overview, and finally the abstract. If all other steps showed that the text seemed relevant, the full text was checked.

Source: Additional search approaches

Two complementary and continuous search approaches were followed in order to reduce the risk of overlooking potentially relevant texts that do not meet the inclusion/exclusion criteria (outlined in step #3) or because they could not be found in systematic computerised searches. One was a manual search, based on the screening of the Internet as well as the libraries of an automotive supplier company and a European university, i.e. to identify seminal books. The final pillar of the search strategy was the 'snow ball' approach to literature search (an iterative search approach or 'method of concentric circles'), which was based on reference lists of other papers on the subject in

order to complete the picture (Peterßen, 1999; J. Stahl & Kipman, 2012). These two approaches were used continuously throughout the study period.

Some general considerations and details on the broad and pairwise/specific searches are described below.

Search details for the Broad searches (b1-b4)

For illustrative purposes, Figure 17 shows the research building blocks introduced in Chapter 2 and their respective broad and topic-individual searches. This is the first review level (B). As the name suggests, these searches aimed to lay the basis for further analysis. The searches, in terms of searched words, were therefore broad.

Figure 17: Literature searches per building block
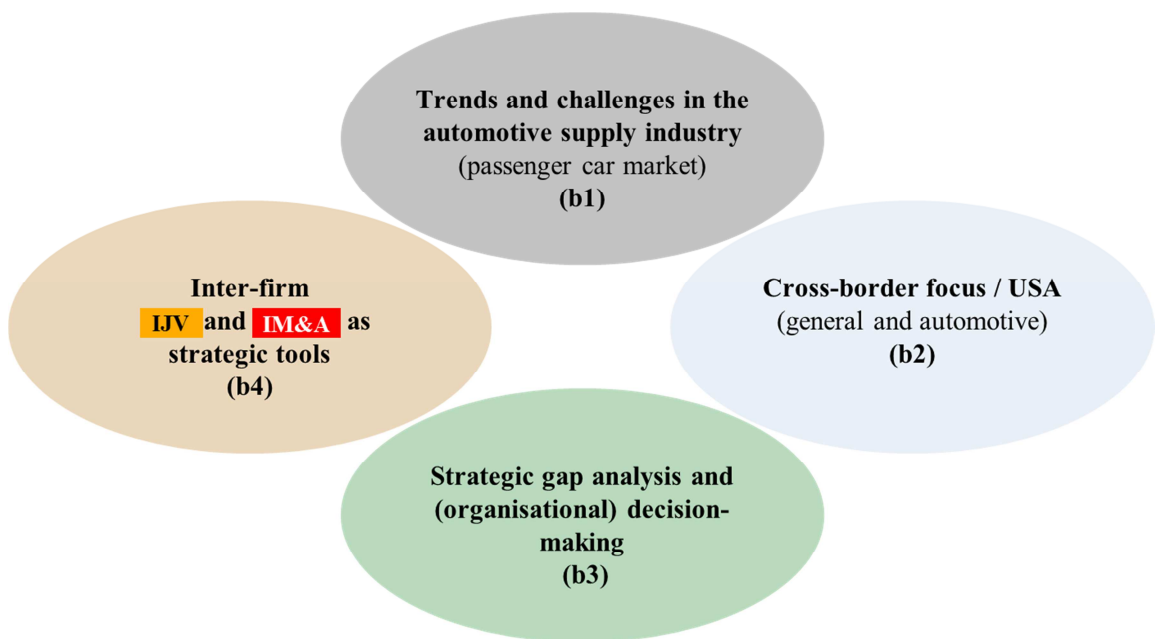
Source: author's own (2016)

For the computerised searches, the search terms and key words, combined by operators, were grouped in line with the four building blocks of the study in order to capture the different aspects of the research questions:

(b1) Industry: automotive OR industry OR inter-firm OR corporate. (The term 'corporate' was used to avoid any literature focused on company-public collaborations (e.g. PPP – Public Private Partnerships or specific collaborations between companies

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and universities), n.b. Google Scholar in particular offers a non-case specific search, for example 'co-operation' and 'cooperation' were searched and other spelling variances thus covered.)

(b2) Geographic: global OR international OR cross-border OR North America OR USA OR United States OR NAFTA

(b3) Decision-making: decision OR process OR organisation OR strategic gap

(b4) Collaboration mode: collaboration OR co-operation OR cooperation OR strategic alliance OR joint venture OR JV OR acquisition OR M&A.

For the searches per building block only single search terms were used for example 'inter-firm equity collaboration' or 'strategic gap'. Different terms and orthography were used for the same topic in order not to miss out any texts due to spelling differences or different terms used for example alliance vs. co-operation vs. cooperation.

Restrictions on time horizons were not relevant here as most of the underlying theories and seminal papers on the topics for example internationalisation and collaborations, date back some decades (e.g. Dunning, 1976).

In addition to the computerised searches, seminal (identified by number of citations and references), books on strategy, inter-company collaboration and internationalisation were analysed such as Porter (1990) or Kutschker and Schmid (2010). This was to complement the overview.

One observation from these searches was that in the broad searches the delimitation between the blocks is quite fuzzy. For example, in the regional topic of the USA we are certainly also interested in the specifics of the local automotive market, hence this was at the core of the study.

Search details for the Pairwise and Specific searches (p1-p3, s)

Combinations of the search terms above were used for the pairwise and specific searches, as discussed above. The dominating term (building block) that was always part of these searches was the international inter-firm collaboration (IJV and IM&A).

Step #3: Application of the inclusion/exclusion criteria and the research funnel

The next step was the application of the *inclusion/exclusion criteria* shown in Table 3, in line with the approach suggested by Bryman and Bell (2007). In this step, a distinction was made between the Broad and the Pairwise/Specific approaches, since not all of the parameters were applied to the Broad searches, as this was indeed meant to be 'broad'. Furthermore, there are studies that did not meet all inclusion/exclusion criteria but gave fruitful insights into collaborations. These papers were still considered and cited where appropriate in order to partly offset the limitations of a systematic review. Table 3 shows the criteria for inclusion and exclusion along the dimensions of language, text type, time frame, sample, collaboration/entry mode, collaboration partners, geographic reach and the strategic organisational decision-making (process). The table also shows to which search level the criteria apply (B, P, S), and the respective parameters.

Table 3: Overview of inclusion/exclusion criteria for the literature review

No	Search step	Parameters	Inclusion criteria	Exclusion criteria
1	B, P, S	Language	English and German	Other Languages
2	B, P, S	Text type	Primary texts (qualitative, quantitative)	Reviews on books or papers and similar
3	P, S	Time frame	Studies from 1990 and earlier	Studies prior to 1990
4	P, S	Sample (industry/sector)	Auto* (automotive-related industries), Industry* (more general)	Industries unrelated to automotive (for example healthcare)
5	P, S	Collaboration/entry mode	(I)JV, (I)M&A	Strategic alliance, Licensing, Import/Export, Franchise
5b	P, S	Collaboration partner(s)	Inter-firm / inter-company	Partner(s) that are not companies
6	P, S	Geographic reach	International/global/cross-border with focus on established market (US America)	Explicitly domestic only
7	P, S	Strategic organisational decision-making (process)	Process, decision making and results (success/failure etc.)	Studies with no information on process or results

Source: author's own (2016); n.b. B = Broad searches, P = Pairwise searches, S = Specific searches

In order to provide a better overview of the criteria and their rationale, some elaborations on each criterion are presented below:

(1) Language: The key literature is published in English. German literature was also considered.

(2) Text type: As suggested by Tranfield et al. (2003), the focus was on primary research. Book reviews etc. were generally excluded, unless they provided valuable insights, and the proper books were not available, that might be transferred to the study object. Studies analysed included quantitative as well as qualitative ones.

(3) Time frame: By 1990, the theory building in the studied areas was mainly concluded. Furthermore, after 1990 the M&A and collaboration activity levels in the automotive supply space increased significantly (Sturgeon et al., 2009). Therefore, this year was selected as the cut-off for the pairwise and specific searches. Also, the 1990s are sometimes referred to as the "era of corporate alliance" (Samli, Kaynak, & Sharif, 1996, p. 23), partly due to certain political developments, such as the fall of the Iron Curtain, less protective industrial policies internationally and China's accession to the World Trade Organisation ('WTO'). Another reason for covering this period is cyclicality. The collaboration / M&A market as well as the automotive industry itself are genuinely cyclical. The literature published since 1990 covers at least two cycles (decline at the beginning of the 1990s and subsequent recovery; decline at the beginning of 2000s and recovery; decline of 2008/09 following the global financial crisis). Furthermore, seminal texts on theories prior to 1990 were analysed in the broad searches, as the theories, for example, on internationalisation and alliance stability were mostly developed by authors such as Kogut (1989) and Dunning (1976) in the 1960-80s. In the period that followed, the focus was on application and testing of these theories and specific aspects (e.g. Agarwal and Ramaswami (1992).

(4) Sample / industry: The study focus is on the automotive supplier industry. Therefore, other industries were generally excluded unless studies of other (manufacturing) industries were perceived to add value, as the findings are perceived to be transferable to the automotive industry.

(5) Collaboration / Entry mode: This study focuses on JVs as the most relevant inter-firm collaboration mode in the automotive space and acquisitions. Since exporting/importing was not considered a close collaboration form, this mode was not analysed further. Furthermore, franchising is not common in the automotive space, so

this mode was exempted as well. Often JV collaborations are alternatives to outright M&A transactions and so they can be analysed together (Cools & Roos, 2005; Dyer et al., 2004). Licensing also plays a role in automotive but it is a collaboration form with much less commitment (as shown in Chapter 2). However, it is important to be aware of how licensing agreements can impact other future forms of market handling (see Mulotte, Dussauge, & Mitchell, 2013). The findings of Hughes (2000) also support the notion, that equity JV and M&A are the key collaboration modes, while other types play a lesser role in the automotive supplier industry in the USA. For example, "new style collaboration" such as co-development/production (Hughes, 2000, p. 169).

(5b) Collaboration partner(s): Collaborations between companies and third parties that are not other companies, such as Public-Private-Partnerships, were not considered, since these have different additional parameters to consider (such as politics, social funding, etc.). Even though corporate culture and cultural differences are not the central element of the current study, they are nonetheless important and are hence briefly covered in Section 4.1.2 on p. 147f.

(6) Geography: The study is concerned with international collaborations (with specific geographic focus on the USA as the key automotive market, regarding volumes as well as dynamics. As such, the study focuses on established as opposed to emerging markets. However, many studies are generally on collaborations with no specific geographic focus. Therefore, studies that exclusively focus on domestic collaborations were not excluded outright, but were rather analysed on a case-by-case basis.

(7) Strategic organisational decision-making (process): As one of the goals was to analyse the decision-making and choice of collaborations, it is essential to analyse publications that clearly report on processes, results, and success. Furthermore, appropriate decision-making is essential for the analysed collaborations. (e.g. Dyer et al., 2004)

A '*research funnel*' approach was used to determine the key literature in the field of study. This approach followed a sequence of steps. The broad searches (b1-b4), as described above, yielded a total of over 200 texts, in particular the one on inter-firm IJV and IM&A. The pairwise searches yielded over 100 texts. After manually eliminating redundant hits first and then all studies that were exclusively focused on too specific questions such as a specific technology aspect only, a further manual title-analysis was conducted. This approach reduced the number of relevant papers to a manageable

amount for b1-b4. For the pairwise searches, the number of texts was reduced to 49, which were further analysed. In order to identify the seminal studies, the number of citations were also considered (see Redner, 1998). As for the specific searches, no texts were found. This indicated a literature gap.

Some research papers that met all inclusion/exclusion criteria were still, in light of the research questions of this study, too closely focused on specific aspects of collaborations. These were of limited use for the purpose of this review and so were not analysed in-depth.

Step #4: Quality assessment

As quality assessment is a difficult task, particularly for qualitative research, all studies were accepted for further analysis and synthesis, filtering the ones with the highest relevance and rigour through further analysis. However, some papers were not further considered, as in the quantitative area in particular some statistical analysis with limited value-add had been detected in some studies. This is in line with the suggestions of J. Thomas and Harden (2008) who urge researchers to avoid unreliable conclusions based on unreliable sources.

With regard to scientific relevance, it is important to distinguish between scientific publications and those published in sources that are more practice-related and descriptive, for example based on findings in strategic management consulting projects (for example KPMG, McKinsey or PwC). These papers were also analysed as they provide valuable insights from the professional practice and complete the picture.

For the qualitative papers, the 'Quality screening questions based on the National electronic Library for Health (NeLH)' gave general guidance. They had clearly stated aims, clearly specified design, distinct account of the process, sufficient data used and appropriate method of analysis, as cited in Dixon-Woods et al. (2005). For example, Blanchot and Mayrhofer (1998) excluded some case study based research in their meta-study from their sample, as they considered them not sufficiently scientific.

The number of citations is usually a good indicator of research quality (Redner, 1998). For the basic literature, some of the seminal papers were cited extensively with a couple of thousand Google scholar citations (for example Dunning, Eisenhardt or Kogut) partly due to the publication some time ago. As for the pairwise search results, some of the identified key papers in the context of this literature review were scarcely cited, most likely due to the specific context of the study focus. Furthermore, the total number of citations is dependent on when the paper was published. As the key studies analysed in this literature were up-to-date, the number of citations tends to be a less adequate measure of paper quality.

Another way to assess research paper quality is to look at the quality of the journal or other source where it was published in the Association Business Schools Journal Guide (Cremer, Laing, Galliers, & Kiem, 2015). For the *'Pairwise searches'* (p1-p3) in the systematic research there was a subset of 49 key papers identified, 20 were published in journals ranked grade 3&4 (according to the Cremer et al. (2015). 13 texts were directly published by university scholars (academic books, working or conference papers). Only three papers were published in grade journals ranked 1 or 2, and 10 in journals without ranking. The remaining three texts were published in industry publications (not ranked). Figure 18 gives an overview of the Pairwise search results, indicating the number of publication per publication type (journals, academic publications and industry applications) besides the grades of the journals mentioned above.

Figure 18: Summary of literature review findings (pairwise ones only)
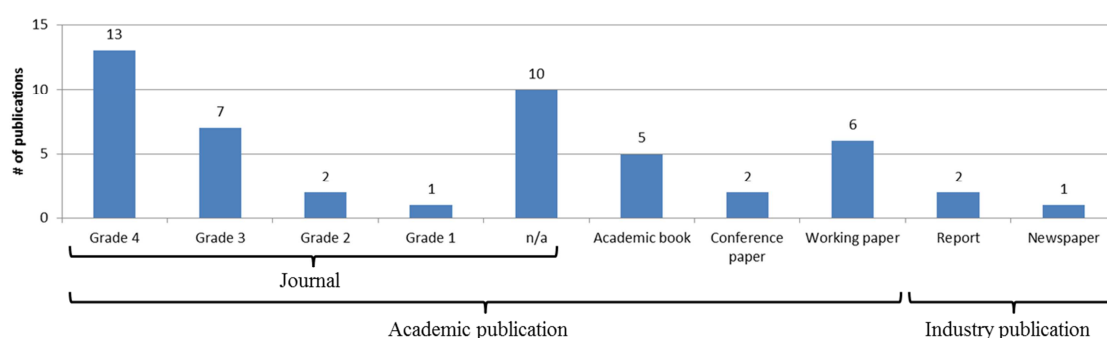
Source: author's own (2016)

For this review, no studies were excluded on the basis of approach and subjective judgment, as suggested by Sandelowski et al. (1997).

Data presentation

The data presentation can be found in Section 4.1, which deals with the findings and analysis from the literature review. The presentation is done in a narrative form, flanked by illustrations through charts, figures, and tables.

3.2. Empirical methodology and methods

Section 3.1 introduced the methodology of the literature review on the topic, which, paired with Section 4.1 (p. 114f.) revealed a rather quantitative focus and specific aspects of collaborations in the current literature, was the starting point of the qualitative empirical investigations of the current study including its research questions. Consequently, the following section presents the methodology for the empirical part. Its aim is to explore in depth three sample case studies for automotive tier 1 collaboration / M&A that aimed at closing strategic gaps in a US American context. As such, the intention is to either confirm or disconfirm what can be found in the literature. The aim is also to add to it by expanding the knowledge base in the area of companies and transactions analysed, through the commentaries as well as experiences of those who have actually been involved in the decision-making i.e. the expert interviewees. The selection of the appropriate qualitative methodology of the current study was a sequential process, as outlined in Figure 19. The choices made for the current study are highlighted in green. They range from ontological and epistemological considerations through methodology, research strategy, and method choices to the final data generation, analysis and presentation. The figure also guides the reader to the respective sections of the current study where the respective elements are elaborated on in detail (see red section numbers).

Figure 19: Map of research methodology (selection) & choice of approach
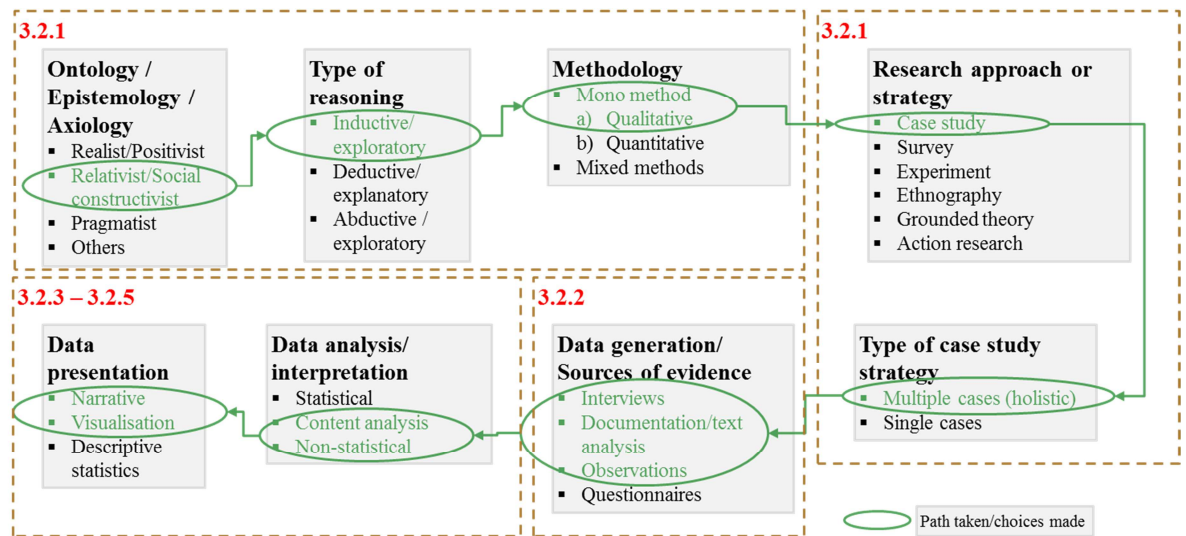
Source: author's own (2016)

Section 3.2.1 describes the line of thought leading to the choice to conduct case study research and also presents and discusses the research design. Section 3.2.2 gives an overview of the data generation methods used. Finally, Sections 3.2.3 – 3.2.5 focus on the data analysis and presentation.

3.2.1. Choice of research methodology and approach

The purpose of this section is to establish a philosophical and methodological basis for conducting the current study effectively and efficiently, expanding on the elaborations in Chapter 2. The ultimate objective is to develop strong conclusions through methods appropriate to the research objectives and questions.

Following the research topic outlined in the previous chapters and sections above, the reflections about the research approach, including the subjective choice on methodology and its justification, will be presented. Furthermore, there is critical reflection on the choices made during the doctoral programme at the University of Gloucestershire ('GLOS') and its impact on the current study. Therefore, as a first step, *paradigms* and *research approaches* are assessed and critically analysed.

Figure 20 re-iterates the research focus of this study as the intersection of four building blocks: the process and decision-making analysis of international JV and M&A in the arena of the automotive tier 1 supplier industry (also see Section 2.1, p. 10ff.). This central area of the crossover is purely an illustrative device and it does neither denote levels of importance in the current study nor does it represent a specific size of crossover.

In addition to the building blocks, the respective research questions, which address the respective building blocks, are indicated in red.

Figure 20: Research focus and link to the research questions
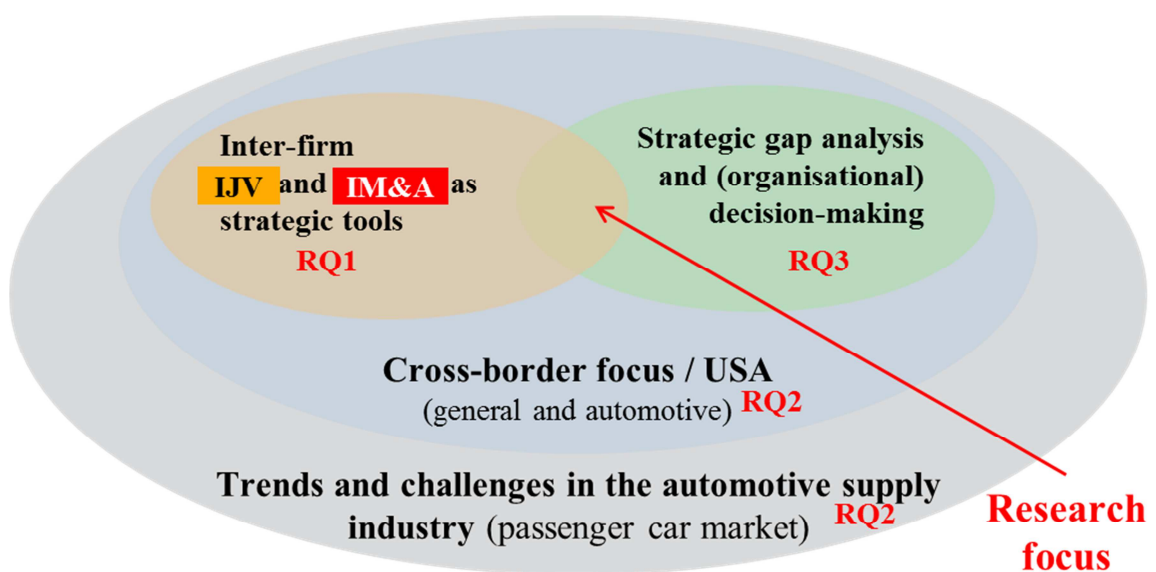
Source: author's own (2017)

Rationale for using qualitative research

In order to identify an appropriate research methodology, methods, and research design, the general research approaches were firstly revisited. Because of the engagement with these various approaches, an informed decision was made to use a qualitative approach since it reflects my philosophical stance in the best way and it is less often used in the area under research. Comparing the current study with a sailboat trip through the ocean of knowledge, the philosophic fundamentals can be seen as the firm and solid hull of the boat on which the endeavour is undertaken.

As discussed previously, the most appropriate choice should comply with the following considerations, as it:

- should fit with the researcher's philosophy (ontological and epistemological position) and experience;
- should fit the purpose of the current study (i.e. address the key questions and problems) and
- should address the audience of the research

Additionally, when the decision is made, the research should be conducted in an ethical, diligent, and systematic manner, for example, with record keeping in place (see Section 3.2.2 on p. 86ff.). (Creswell, 2013; Gläser & Laudel, 2010; Saunders, Saunders, Lewis, & Thornhill, 2011)

Trauth (2001) added further thoughts on the important choice of a qualitative research approach: *the research problem (& research questions), the degree of uncertainty surrounding the researched object, the researcher's skill set (and the access to data) and academic politics*. These parameters were also taken into account in the process of selecting a method, apart from academic politics, which was less important for the current study, since it was done externally to the university and was entirely self-funded. An exploration and subsequent critical analysis of the different philosophical fundamentals and its methodologies, in the light of the current study, follows.

As a general comment, in the world of research, the distinction of approaches is often not that selective as there are always grey areas. For example, in using triangulation or mixed methods approaches in order to enhance research quality, the respective researchers soften up the pure approaches. The following only presents information on the constructivist approach that was actually applied.

Analysis of the constructivist research approach

The following aspects were considered for the analysis of the research approach in light of the current study: (1) overview of the respective research approach with elaborations on ontology, epistemology, methodology; (2) the role of the researcher and his/her values (axiology) and the necessary skill-set to perform the respective research

approach; (3) relationship between research approach and findings; (4) the critical reflection and analysis in the light of the current study.

As a constructivist, my philosophical underpinning is in interpretivism and relativism. Reality is not seen as objective but rather as the result of interaction between individuals. It is (socially) constructed (e.g. Creswell, 2013; Easterby-Smith et al., 2008; Habermas, 1970; R. Jackson & Sørensen, 2012). Therefore, reality is subjective, relative and context-specific as well as being influenced by social developments and experiences (cf. Crotty, 1998; Moses & Knutsen, 2007). This is the ontological fundamental of this approach.

With regard to the constructivists' epistemological concept, it is important to stress that the focus is on gaining a deep understanding of the research subject and to uncover experiences through interpretations. Constructivists agree with Max Weber's concept of 'Verstehen'/interpretative understanding as the key to knowledge. There might be multiple outcomes of this open process since reality has multiple interpretations, as each individual constructs it on his/her own and assigns meanings to it (see Bryman & Bell, 2007; R. Jackson & Sørensen, 2012; Van der Pijl, 2009). Weber (1949) even goes so far as to posit that reality is linked to rationality. Neither exists in a universal, objective way, as the world cannot be known. It is inherently irrational.

Consequently, constructivists tend to apply a qualitative, exploratory methodology and methods in research, such as case studies, interviews, open surveys and participant observations that ideally allow the researcher the conclusion to a theory or concept. This can be done either by induction or by abduction. With inductive reasoning, the researcher starts from the specific that then leads to the general. Here, as opposed to the realist approach, conclusions are not guaranteed and are not logical necessities due to the uncertainty that all evidence has been analysed, i.e. the findings are cogent but not generalisable.

In abductive reasoning, the start is typically an incomplete set of observations. From here it proceeds to the likeliest possible explanation for the set. A famous representative of this method is the fictional detective Sherlock Holmes. His primary intellectual detection method is abduction (see Moses & Knutsen, 2007). One famous quote of Sherlock Holmes that summarises this is "when you have eliminated all which is

impossible, then whatever remains, however improbable, must be the truth." (Doyle, 1890, p. 111)

As the objective of the current study is to draw conclusions from the literature review and the specific transaction examples, I chose to use inductive and exploratory reasoning.

My role as a researcher, values, and research competence/skill-set needed to perform this research approach

In my constructivist approach to this study, I myself am part of the research arena, as stated above in Section 2.3. Therefore, I have an emic (insider's) view. There is a close link to the research subject as my values and way of seeing the world are important to constructivist knowledge generation. One observation on me as a researcher is that I can be considered a practitioner within the field of the research topic. This was also taken into account with methodology decisions (Holian & Coghlan, 2013; Trowler, 2011).

However, in my study I collected data about certain aspects of the strategic decision-making that were previously not entirely known to me, hence I was neither a complete outsider nor insider. On the one hand, the main advantages of such an approach, as stated by Trowler (2011) are access to the data and capability of critically reflecting on it. Furthermore, it is logistically easier and has a higher potential to have a practical impact. On the other hand, this approach is challenging, as the researcher needs to maintain neutrality and avoid personal biases, ensure confidentiality and deal with potential role conflicts of professional vs. researcher or 'role duality'. (Holian & Coghlan, 2013; Trowler, 2011)

There is never an easy solution to these challenges. However, for the current study there was limited conflict between myself as a professional and as a researcher since the researched subject and case studies were outside my everyday work. Furthermore, confidentiality and ethical issues were taken care of through self-reflection (see Section 2.4) as well as a rigorous and transparent methodology to increase authenticity. For example, the coding system was cross validated by a fellow researcher in March 2017 (see Section 3.2.3 on p. 99ff. for further information).

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Therefore, ethical, as well as political considerations play an important role (Angen, 2000) (see Section 3.2.2.1, p. 96ff.). For this research approach, I needed to demonstrate skills with regard to data collection. For example, technical skills such as how to conduct interviews were crucial. On the analysis side, I needed interpretative skills paired with an in-depth knowledge of the research subject (cf. Moses & Knutsen, 2007; Yin, 2003).

Relationship between research approach, findings, and critical reflection in light of the current study

The ultimate goal of my constructivist approach was to gain a deep understanding of the specific research area outlined above. The approach was therefore not necessarily incremental but allowed leaps in knowledge generation within a certain context.

After critical reflection, I concluded that the constructivist approach seemed to be the most appropriate one for the current study for several reasons:

- **Ontology and epistemology**: In complex problems there is no black and white; there are always shades of grey. Thus, the current study was not led by the aim to find a universal truth, but rather to pragmatically analyse problems and advisory approaches to inter-firm collaborations in an international (US) context.
- **Methodology**: It offered a good approach to analyse complex and unique transactions, as it was flexible and adequate to gain an inducted deep understanding, without artificial data collection.
- **Value-added**: I could make use of the valuable experience of expert practitioners and corporate knowledge combined with a sound theoretical underpinning.
- **Efficiency**: The constructivist approach was feasible within my scope as a researcher within a company setting.
- **Researcher's position**: It is an appropriate approach, where the researcher was an emic person.

The concrete research strategy or, '*case study*', seemed to be appropriate for the current study, since the unit of analysis is a contemporary phenomenon and the case study strategy reflects my limited control of the subject (Schell, 1992; G. Thomas, 2015; Yin, 2003). It was in line with the constructivist philosophical underpinning, paired with the overall research aim and its objectives/questions. It also takes into account my skills and logistical possibilities, including limited control over the subject studies, as I conducted *inductive and exploratory research* within selected companies of the automotive supplier industry (Gray, 2013; Trauth, 2001).

As I aimed to gain in-depth understanding, identify themes, discover meaning, and ultimately develop an advisory framework, an *exploratory case study* seemed an appropriate research strategy. Theory building can be a result of this approach, as argued by Yin (2003). According to Maxwell (2012) and others, the development of an advisory framework can be considered to be like a theory (Maxwell, 2012; Trim & Lee, 2006; Yin, 2003). This particularly true when there is a *high degree of uncertainty*, i.e. not much is already known about a specific problem in a specific industrial setting (e.g. Gray, 2013; Saunders et al., 2011; Schwenker & Wulf, 2013; Trim & Lee, 2006).

In line with Creswell (2013) and Trauth (2001), I considered *the following parameters to be relevant to the current study*: (1) relevance with regard to the research questions/objectives; (2) data that is actually available and suitable for analysis; (3) the access to the relevant data and skillset to generate the data.

(1) All of the trends and factors in the automotive supply industry outlined in the introduction (see Chapter 1) apply to the companies with whom I conducted the research: Mainly the Germany-based global tier 1 supplier company ALPHA (for confidentiality reasons the real name has been coded and the same applies for any precedent transaction studied). Therefore, considering cases from this company seemed appropriate (further information on ALPHA can be found on p. 79f.).

(2) The focus of the case study analysis was on ALPHA, as ALPHA has made use of all types of equity collaboration in Europe, the USA, and Asia-Pacific in order to address its strategic challenges and close strategic gaps. ALPHA is an exemplary company representing the large company segment of the tier 1

automotive supplier industry. Therefore, precedent ALPHA transactions (IJV and IM&A) that have a certain history were used.

(3) Given that I am a practitioner in the field of equity collaborations myself, I have access to data and can conduct an emic research approach through expert interviews, observations, and documentation review. Details of the data access were negotiated with the respective companies studied. Pre-meetings showed that practitioners from the companies agreed that the study was a win-win situation, partly due to a later dissemination of the research results. I acquired the necessary skillset through test interviews and analysis with an Action Learning Set ('ALS), discussions with supervisors and a pilot interview.

For the complex and real-life topic, case studies were perceived to be more explanatory than surveys, experiments and other quantitative approaches (G. Thomas, 2015; Yin, 2003). The case study was used as an appropriate research strategy to generate a deep understanding of the topic and ultimately additional knowledge, rather than merely being a device of evidence collection. This knowledge generation through representative case studies was primarily based on a single organisation, ALPHA (e.g. Bryman & Bell, 2007; Yin, 2003).

Theoretical considerations about the case study research

Using a case study is a research strategy or approach of inquiry, as part of qualitative methodology (e.g. Denzin & Lincoln, 2000; Eisenhardt, 1989; Merriam, 1998; Schell, 1992; Yin, 2003). However, some authors view it as purely a choice of which case to analyse rather than a methodology. I would like to present my thoughts on the theoretical considerations about this research approach in light of the current study.

Case studies have become a popular and frequently used research approach, which have resulted in extensive literature coverage (e.g. Kohlbacher, 2006; Moses & Knutsen, 2007; Schell, 1992; G. Thomas, 2015; Yin, 2003).

Case study research enables the analysis of complex, contemporary phenomenon in real life. Furthermore, it stresses the importance of the context (Morris & Wood, 1991; Robson, 2002; Schell, 1992; Yin, 2003). In fact, inter-company collaboration is a complex issue to research and these complex phenomena can be elusive, non-linear and vague (Law, 2004). An example of this precedent is Killing (1982) who qualitatively analysed JV case studies in international contexts, even though he had no specific industry focus.

Case studies can be used in a realist/explanatory or relativist/exploratory approach as they can offer 'what, why, how' questions (Saunders et al., 2011; Schell, 1992; Stake, 2005; Yin, 2003). There are different ways to distinguish types of case studies. For example, Moses and Knutsen (2007) posit that there are types of deductive cases (verification / falsification) as well as generalising and inductive cases (for theory building). The dimensions that Yin (2003) uses are the units of analysis (holistic with single unit vs. embedded with multiple units) and the number of cases examined (single vs. multiple case studies). Whereas single cases can be unique, extreme and revelatory, the multiple cases approach supposedly gives stronger evidence (Yin, 2003). Figure 21 below shows the case studies of the current study in light of Yin's taxonomy, along the dimensions of single vs. multiple cases designs in the first place and secondly, along the number of units of analysis. The approach of the current study can best be described as a multiple case design completed in a holistic way, i.e. with a single unit of analysis (equity collaborations of IJV and IM&A).

Figure 21: Current study in light of basic types of case designs
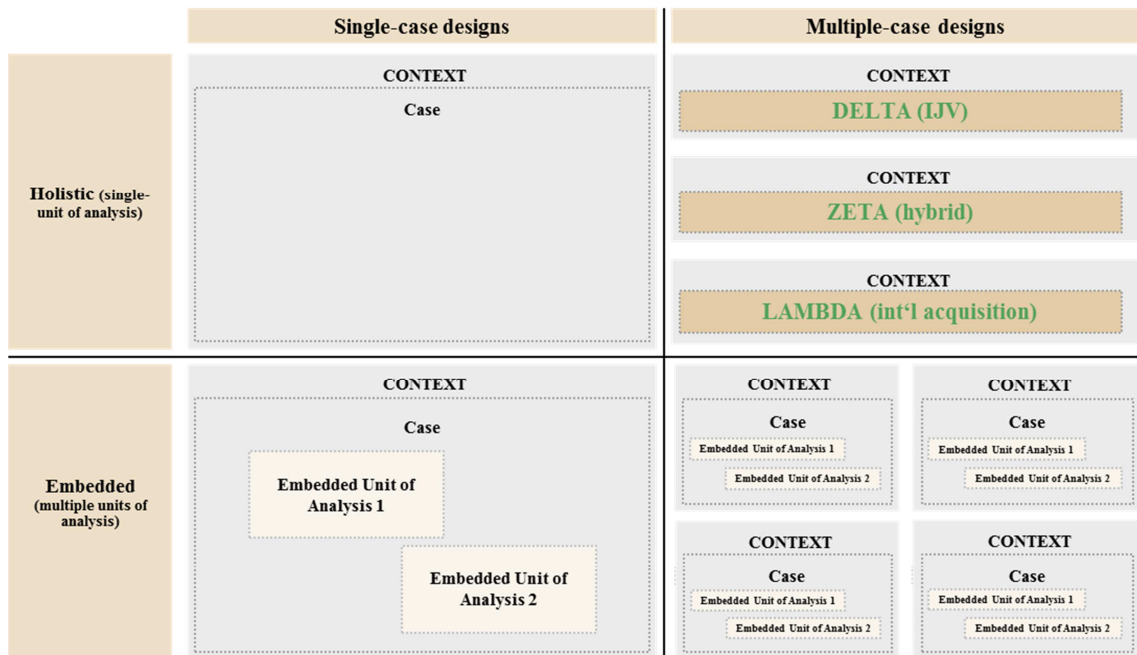
Source: adapted from Yin (2003); n.b. this study's cases are highlighted in green

Reddy (2015) analysed the use of case studies in M&A analysis in the form of a review of case study approaches in M&A literature. He found that many studies use it increasingly, with a particular focus on emerging markets. It is used for building new theories and concepts as well as for exploring existing ones (Reddy, 2015).

Concerns of a qualitative case study research approach and mitigating factors for the current study

The key concerns and advantages of case study research are closely related to the process of qualitative research. These include research questions, selected subjects, collection of data, interpretation of data and the conclusions and in some cases the development of an analytical framework or a theory. The researcher has to be prepared to be confronted with these concerns, criticisms and challenges (e.g. Creswell, 2013; Denzin & Lincoln, 2008; Patton, 1990; Yin, 2003).

To start with, a lot of confusion stems from unclear definitions and uncertainty about the different research methods (see Saunders et al., 2011; Schell, 1992). With regard to the case study research, the key *criticism and challenges and mitigating factors in the current study* were considered.

Quality/inter-subjectivity: Poor validity/reliability results from an inadequate research design and/or other flaws. Inter-subjectivity is a key criterion for research quality, according to Swanborn (1996). He posits several criteria to account for inter-subjectivity: (1) research needs to be controllable; (2) independence of the researcher(s); (3) internal and external validity. While some authors argue that point 3 cannot be achieved through case studies (e.g. Campbell, 1975; Swanborn, 1996; Yin, 2003), others such as Mitchell (1983) consider this criticism to be inappropriate as these, in line with being context-specific, are key characteristics and boundaries of qualitative research. For the application in the current study, see also the Section 3.2.4, p. 107ff. on data quality considerations and Section 5.3 on p. 218f. on limitations of the current study.

Verschuren (2003) proposes a distinct foundation for the research design, consisting of a conceptual design (RQs, ROs, theoretical concepts) as well as a technical design (data generation, analysis, and interpretation) in order to counter the arguments. Key to him is that the concepts are elaborated in a professional and trustworthy manner. As suggested by Mayring (2002), a qualitative content analysis was conducted that combines process and analytical knowledge (for example coding procedures, frequency analysis) with interpretation. This should reduce inter-subjectivities issues (Mayring, 2002).

Incomplete evidence: The question here was how many cases should be looked at, since they were placed in a bounded system (such as an organisation or company), which can exist as cases on their own (Creswell, 2013). The selection of cases clearly focused on the problem appeared to be adequate, as posited by Creswell (2013); Glesne and Peshkin (1992). In any selection of specific cases, the selected case studies and their limitations should be emphasised in order to enhance research quality (Creswell, 2013).

Difficult transferability and generation of theories: This concern is particularly related to external validity and is inherent to the qualitative research approach, as it is subjective and context-specific (see Section 3.2.4). My intention for the study was to generate specific, deep understanding of certain cases (within the automotive tier1 supply industry) and not to find universal truths (e.g. Creswell, 2013; Denzin & Lincoln, 2000; G. Thomas, 2015; Yin, 2003). The general transferability of the findings is not the aim of this study but rather to develop a better understanding of analytical

mechanics (e.g. through the 'advisory framework'), which can be valid in the context studied. It should serve practitioners and academics in this specific strategic field within the management of automotive suppliers.

Besides these broader considerations, I also analysed the case study strategy more specifically *in light of precedent IJV and IM&A transactions,* including the following challenges and ideas for mitigation:

Confidentiality: This was important but as all transactions happened in the past, this was less of an issue than might be the case with research of on-going projects. Further mitigation was ensured through clear standards: consent of interviewees at all times; confidentiality agreement (between the University of Gloucestershire / my supervisors / company ALPHA / me) in place; use of code names; interview questions to reflect the consideration of sensitive information; data storage only on external devices and a research log book. Additionally, there is an embargo on the sensitive information in relation to the current study for duration of the confidentiality agreement plus additional three years.

Different times: The transactions were conducted at different times as the advisory framework intended to address the decision-making of IJV and IM&A. It was independent of timing, but certain specifics regarding timing of the case studies were accounted for.

Potential bias by the sampling process and incomplete evidence: This was another valid argument. In the current study, it was intended to be mitigated by a distinct sampling and a justification process, as well as by cross validating evidence. Therefore, a variety of interviews were conducted to narrow potential gaps. The aim of the sampling process was to gain in-depth knowledge of the phenomenon researched (Patton, 1990).

Advantages of a qualitative case study

As in the previous section, I would like to firstly elaborate on broad, general advantages of qualitative case studies and then move on to more specific advantages with regard to the current study.

There is a range of *advantages* to the approach (e.g. Patton, 1990; Yin, 2003):

- *In-depth enquiry:* Case studies represent *unique opportunities to gain in-depth understanding* and inside knowledge of the researched subject in the described context, in order to develop the advisory framework, rather than just 'scratching the surface'.
- *High value-add*: The case studies were based not merely on observations but in-depth understanding and analysis. As such, the additional value of the research is evident for practitioners and academics. The approach also offers the possibility to make cross case comparisons.
- *Triangulation in data generation possible:* Expert interviews were combined with documentation reviews and personal observations to come to the findings.

Some more specific advantages identified from the case study approach *in light of precedent IJV and IM&A transactions*:

- *Availability of the key stakeholders* to interview (as the key data generation method): This was ensured after coordination with the company ALPHA.
- The *history of the respective cases was available*, including information on success of the equity collaboration with regard to closing the respective strategic gap.
- *The research was conducted without major disruptions* at the organisations researched, which in action research, for example, would not be possible.

Overview of the research process

In order to complement the picture, the overall research process is described in the following paragraphs. This followed Boyce and Neale (2006)'s approach of "plan, develop instruments, collect data, analyse data and disseminate findings" (Boyce & Neale, 2006, p. 4). A comprehensive overview of the research process and design can be found towards the end of this paragraph in Figure 24 on page 77.

Figure 22 gives a 'customised' overview of the case study approach. It shows the various methodological steps and their respective discussion, from the planning and research design phase through to the presentation and dissemination of findings. Within each of the boxes, the respective chapters and sections of the current study are indicated to provide further guidance.

Figure 22: Case study research approach
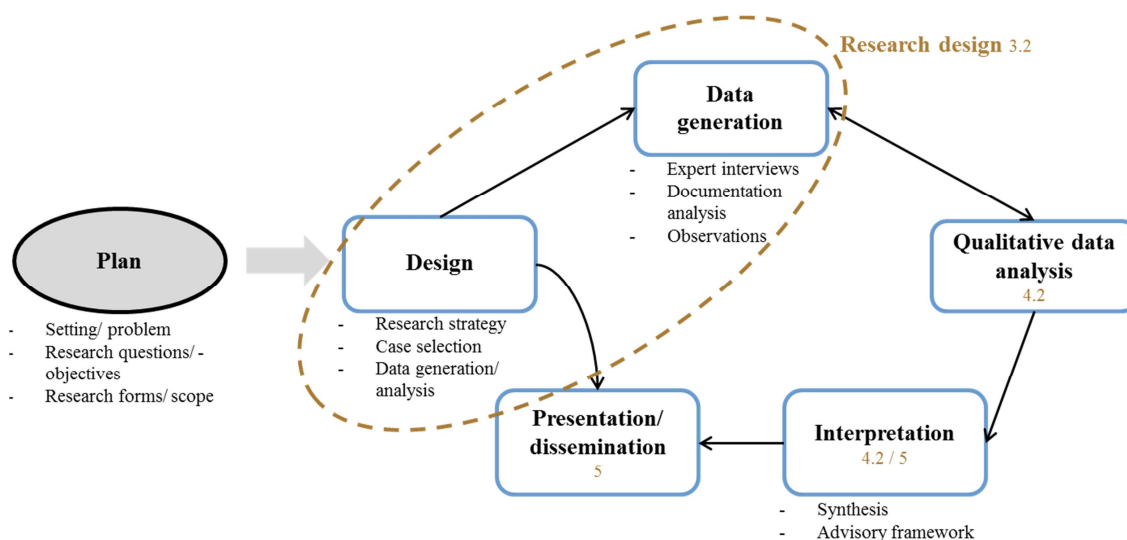
Source: adapted from Yin (2003) and Boyce and Neale (2006); n.b. the respective chapter/section reference can also be found in the boxes

Rationale for not using other research approaches and methodologies

As outlined earlier, I am a constructivist. Therefore, pure positivist research approaches and methods (for example experiment and survey) were not adequate since they are contrary to my research philosophy and paradigm.

I considered a mixed method approach for further triangulation purposes; however, as a constructivist I adhered to methodologies most appropriate to my paradigm. As Knox (2004) posits, even though a multi-method approach is in some occasions appropriate, a mono-methodology paired with multi-paradigms is not. Knox (2004) goes on stating that using mixed methods would have been possible but having multi-philosophies seems less adequate. I therefore dismissed the ideas; as the value-add to my RQs would most likely be limited and feasibility would be difficult due to the sensitive nature of the

research subject for example data collection through surveys. Hence, only a mixed approach with regard to the generation of qualitative data was contemplated.

Ultimately, it is important that the methodology suits the research questions and objectives (e.g. Holden & Lynch, 2004) as outlined above. This study is better served with a qualitative approach.

Research design

In the previous sections, the elaborations focused on the choice of a research approach and methodology. In summary, a subjective choice was made and case study research considered being the most suitable research strategy for the study. This was justified by the underlying research paradigm, the research objectives, and questions to the study and other considerations. This line of thought will be continued by going one level deeper and elaborating on the current study's research design, including the method of data generation and its analysis and the representation of the findings in an advisory framework.

The choice of research design was closely linked to the chosen methodology and subsequently the method used. Therefore, when deciding on a research design certain factors needed to be taken into account, as outlined in Figure 23 (see Borelli-Montigny, 2010). An additional parameter of the current study, to those discussed previously such as the research questions, objectives, the skill set of the researcher, and the access to the relevant data, was mainly time for conducting the research.

Figure 23: Key factors influencing research design
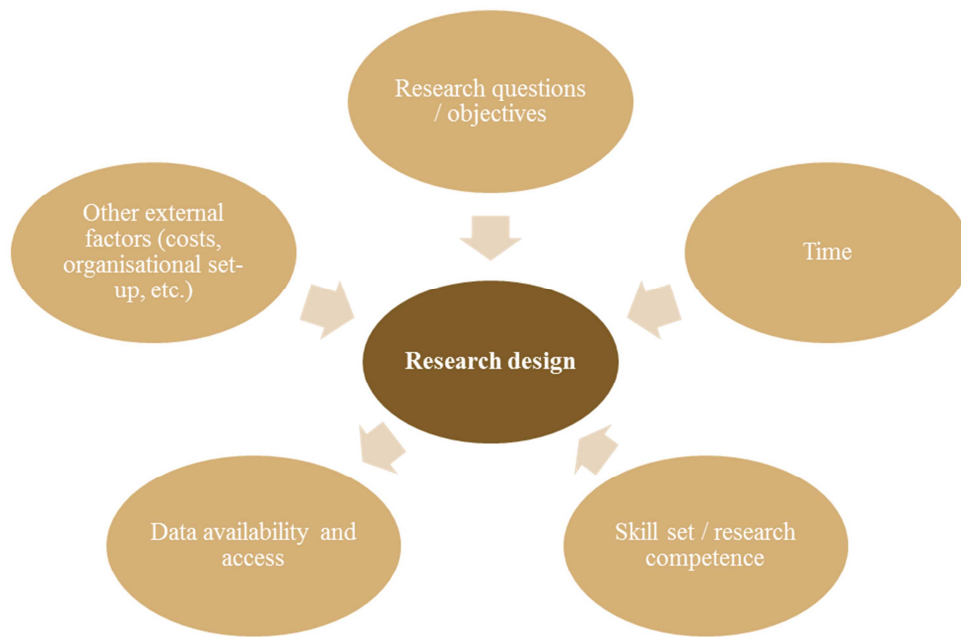
Source: adapted from Borelli-Montigny (2010)

The research design of the current study took into accounts all of these factors. It consisted of a conceptual and a technical design, as suggested by Verschuren (2003).

Figure 24 gives a comprehensive overview of the current study's research design with its different sequences and stages. The start is always the research questions and problems. In this phase, the impact factors to the study as well as the philosophical aspects of the study are considered and reviewed. In the technical design phase, initially the data generation methods are important pillars, followed by refinements to the research design, quality assessment, and finally the analysis of the data and dissemination.

Figure 24: The study's research design

Conceptual design	Technical design		
RESEARCH PROBLEM / BASIS	**MULTIPLE CASE STUDIES APPROACH**	**TRIANGULATED DATA GENERATION**	**FINDINGS / ANALYSIS**

Research questions / objectives
• Find appropriate questions → Fit the purpose

Indicative analytical framework
• Unit of analysis: inter-firm equity collaboration (IJV) and IM&A

Impact factors
• External factors (organisational set-up, costs, etc.)
• Time
• Research competence / experience

Philosophical stance
• Ontology – Subjective/relativist
• Epistemology – Constructivist
• Methods – Qualitative
• Ethics/confidentiality

Expert interviews
(selected transactions per collaboration mode)

Documentation analysis
(selected transactions per collaboration mode)

Observations
(day-to-day practice)

Academic basis / ongoing research on the topic (further understanding for example of best-practices and success factors)

Refinement and confirmation
• Adjustments during the study (for example research questions/objectives, framework, methods)

Quality assessment (continuous)
• Define parameters
• Cross-check findings with other automotive suppliers
• Due diligence

Analysis (continuous)
• Interpretation criteria
• Findings
• Establish links
• Contributions/ value added
• Synthesis / advisory framework
• Dissemination

Source: author's own (2016), inspired by Verschuren (2003)

As discussed earlier, the data was generated through a qualitative triangulated approach. The analysis of documentation of selected international equity collaboration transactions was conducted, paired with expert interviews (Dan Remenyi, Williams, Money, & Swartz, 1998; Yin, 2003). Both were complemented by my own, direct observations from my work as a practitioner in the field (for example experience of on-going and precedent transactions, conferences attended, and advisor discussions). In parallel to this data generation, on-going research on the subject was also conducted. (see Sections 3.1.2 and 3.2.3 for further details).

Additionally, the potential challenges of case study analysis as a research strategy (elaborated on in Section 3.2.1) were carefully reflected on as they guided the research design of the study in order to avoid pitfalls. The following paragraphs give an overview of the data generation, analysis, and interpretation, as well as quality assurance.

A research design was chosen that pays tribute to my philosophical stance and my position as an insider in the research subject (an emic approach was applied; see also Section 3.2.1 on p. 65ff.). Methodologically, it relied on multiple sources of qualitative evidence and hence used a triangulation approach. Keeping in mind the related

contextual parameters is crucial as the key intentions were to investigate a complex phenomenon within the real-life context of an organisation and induct from these findings to generate a concept (cf. Section 3.2.1). After all, the approach was qualitative and hence could not be rigid. It needed to be adjusted and revisited throughout the duration of the research in order to maximise its value added and originality (e.g. Steinke, 1999).

Ethical issues mostly related to the interaction with the research subject/interviewees and are consequently dealt with in the section on data generation (see Section 3.2.2.1).

Considerations on case selection and comparability

As outlined previously, a qualitative methodology was conducted with a case study research approach. The intention of the case selection was to use exploratory case study analysis with representative, heterogeneous cases in order to address the research questions and objectives and to analyse these cases in an in-depth manner (e.g. Kohn, 1997).

A rigorous *sampling process* was followed, as sampling is key to a theoretical basis with defined limitations and the possibility of exploring similar patterns. Due to limited access and a limited number of eligible transactions within ALPHA there were no restrictions applied in terms of timing, region, and transaction type. After all, the main sampling selection criteria for the *cases* were relevance to explore research objectives/questions, and access to data (e.g. Reddy, 2015; Steinke, 1999; Yin, 2003). The following lists the clearly *pre-defined selection characteristics* that the projects / case studies that were ultimately selected had in common, even though every single equity collaboration is unique:

- Transactions not too long ago but clearly in the past (at least within 3 years), so that insights and lessons learnt can be drawn retrospectively and confidentiality is less of an issue
- Strategic transaction rationales to close a strategic gap (either technology or market access) / milestone transaction for ALPHA's corporate development
- Information available

- Ownership post transaction: 100% in case of acquisitions, joint ownership in case of JVs
- German-US transactions: US American collaboration partner/target (however, even though companies may be located in the USA, they have substantial business abroad and vice versa). For the purpose of this study, focus on US American business, with substantial business in the home market
- One pure IJV, one pure IM&A and one as yet unclear (R&D collaboration, later IJV and IM&A as well as licensing discussed)
- Access to interview partners and (documentation) data

In line with the overall aim to generate a deep understanding of the subject researched, the research methodology for the case study approach was only qualitative.

In light of G. Thomas (2015, p. 76) differentiations about case selection, my cases can be considered as special/local knowledge cases. I wanted to use them to explore more of what I have experienced as a practitioner and what formed the basis for my research intention and objectives.

Since different modes of equity collaborations were analysed as strategic means, the period was cross-sectional across these types, with selected representative cases, rather than focused on one type analysed over time.

The selected cases can be characterised according to Yin (as shown in Figure 21 on page 70): they were holistic, with multiple case design (one unit of analysis which is the equity collaboration) and holistic since they examined different aspects of collaborations and contexts Yin (2003, p. 39ff.). All cases are within company ALPHA, and within ALPHA different projects were considered, with different teams involved, including project teams and senior management decision makers, different times, etc.

Introduction of ALPHA: All of the outlined trends and factors of the automotive industry (for example as outlined in Chapters 1 and 2) apply to the Germany-based tier 1 automotive systems supplier, ALPHA. ALPHA is a multi-bn EUR sales enterprise with various product divisions and activities worldwide. The company has made use of

all types of inter-company collaboration that are going to be analysed. Case studies from ALPHA were used in order to enrich this study with practical evidence; it is representing the large company segment of the tier 1 automotive supplier industry.

Table 4 is a short profile of company ALPHA, along the key parameters of description, major customers, ownership structure, strategy/vision, and particular to the current study, its exposure towards US American collaborations.

Table 4: Short profile of ALPHA

Description	Europe-based leading tier 1 automotive system supplier # of employees: > 100k globally Revenues of multi-bn EUR with sound financial profile Revenue distribution: 80% pass car; Europe ca. 50%, North America ca. 30%
Major customers	Premium and volume segment PC OEMs, CV OEMs
Ownership structure	Privately held
Strategy / vision	Market leadership in its fields of activities, based on outstanding market and customer insights. To achieve this, among other things, a *healthy regional footprint* is key (also to achieve efficient cost structures), plus *technology leadership*.
US collaboration track record	Over 10 completed and over 20 lapsed collaborations in the USA (mainly JV & M&A activities) between 1999 and 2016 (only surpassed by transaction activities in Europe and China)

Source: author's own (2017), based on ALPHA (2016)

Besides consideration of the company environment, the timing of the transactions were also considered. There were *time gap*s, but ALPHA's corporate strategy remained the same and the decision-making and organisational processes similar. Given the selection criteria outlined above and the limited number of cases overall, the time gap between transaction and analysis could not be avoided and was acceptable. Furthermore, other authors also had to cope with this circumstance. For example, Elango, Lahiri, and Kundu (2013) had a sample of transactions prior to 2008, but their analysis was done afterwards and publication was only in 2013. Similarly, Dyer et al. (2004) used a sample of transactions up until 1997 and published their report in 2004.

In order to understand the longitudinal aspects of the current study, the following overview (Figure 25) shows three very important pillars to understand the setting of the current study. The first pillar is the automotive cycle (with sales data of light vehicles over time) followed by ALPHA's corporate development (with the parameters of sales, employees, US sales exposure, R&D expenses, as well as patent applications as a proxy for innovation and technology focus). The third and last pillar of the figure is the

transactions / case studies (DELTA IJV, ZETA, and LAMBDA) and how they are embedded in the overall historical framework laid out by the first two pillars. The sampling time was from the end of 2000s until today (2015-17). Therefore, there were similar times and different stages of cycle (for example with stable vehicle sales and automotive cycle at the beginning of the 2000s but then the downturn in 2008/09 in automotive, thereafter recovery). One should also refer to the literature review findings b1 in Section 4.1.2 on page 115ff., which include specifics on the US American automotive supply markets.

Figure 25: Timeline of cases, with overlaid economic cycle
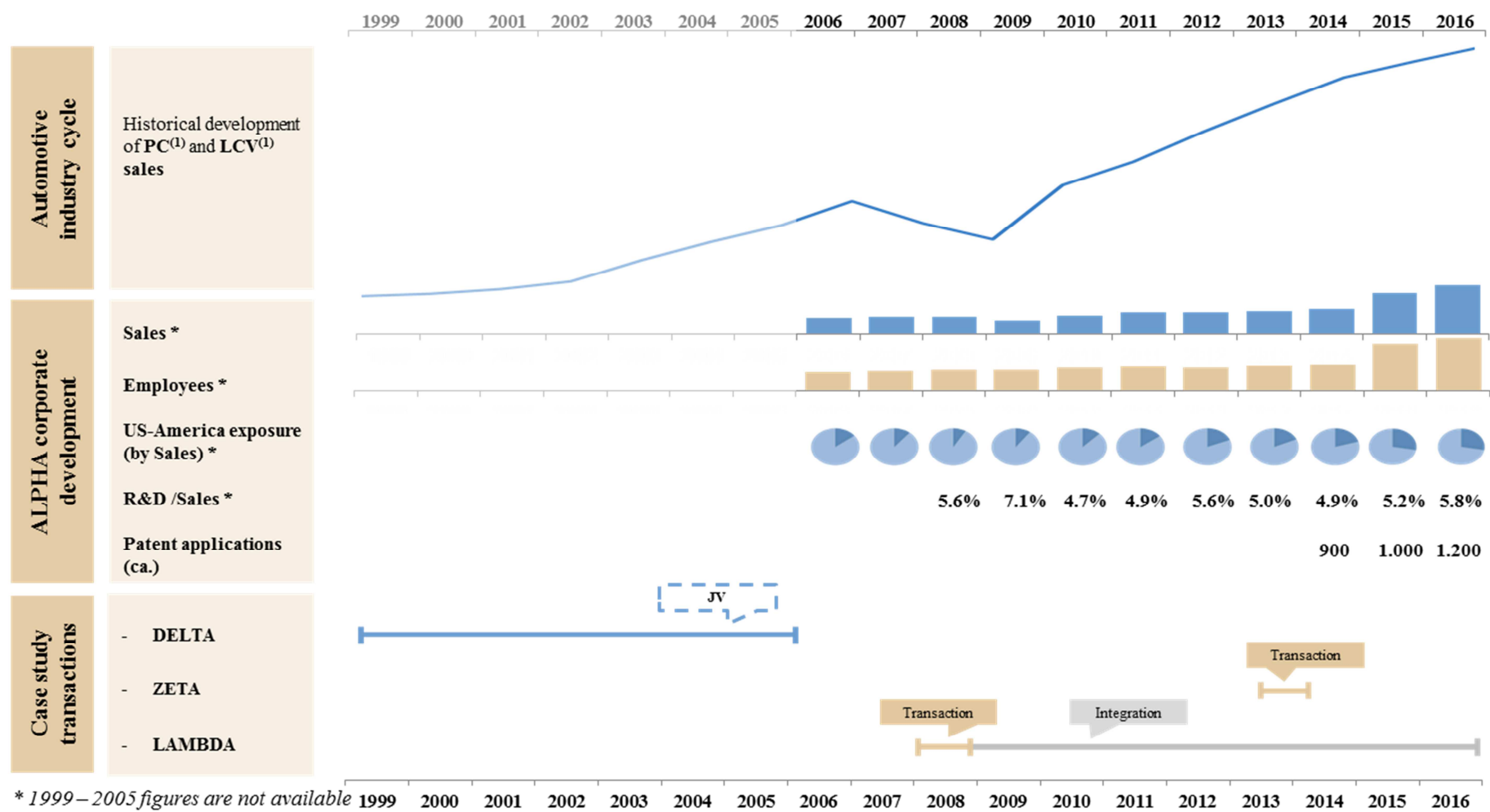
Source: ALPHA (2016), Roland Berger market data, own input; n.b. (1) PC = passenger cars, LCCV = light commercial vehicles

The cases selected were representative of international JV and international acquisition. They were identified to be used for further exploration of the phenomenon, in particular with regard to the analysis and decision-making process. The data therefore could not be categorised as pure cross-sectional or longitudinal studies. It is more about cross-case comparison in different contexts, in order to gain a deep understanding of the transaction analysis and decision-making processes and to generate rich data.

Rationale for using exactly <u>these</u> three cases

For relativist research approaches, a small sample, chosen for specific reasons and with a sound validation, was appropriate. This is an appropriate approach to crystallise the experts' knowledge.

I selected transactions per collaboration mode at ALPHA i.e. IJV and IM&A. Three case studies were analysed: one IJV, one pure IM&A and one hybrid discussion of international automotive supplier ALPHA.

This was an ideal number since different aspects are covered and generally, there is limited availability of cases. Some renowned authors support this number of cases (e.g. Eisenhardt, 1989; Yin, 2003). In some examples, they argue that only one case is enough, if enough data to analyse can be extracted. For the current study, I deemed three cases as ideal since they cover different transaction types and help contrast the collaboration modes from each other.

Using the differentiation factors of collaborations introduced in Section 2.1, the cases analysed were between suppliers and partners of different levels of the value chain (one with a start-up / tier 2, one with another tier 1 at the same level and one with an OEM). Secondly, all transactions represent entry modes into new product/technology categories and strengthening of geographic markets (as opposed to regional market entry). Finally, all of the (intended) collaborations involve equity investments.

An initial idea, besides the above, was to use interviews with expert practitioners from other selected automotive suppliers (called 'BETA' and 'GAMMA') as additional evidence for triangulation and cross validation. On reflection, I concluded that this

approach would not add much value. This is because ALPHA is one of the largest companies in the automotive supply industry and diversified in its product range. It can therefore be considered a group of separate companies/organisations in its own right for example with its own political issues between Business Units. Its corporate set-up is de-centralised and with a high degree of autonomy for its divisions and business units. Besides, in the cases analysed the majority of stakeholders were different and they were conducted at different times.

Figure 26 shows the various companies that are part of the current study and where they are located within the automotive value chain. BETA, as the company in focus for the pilot interview, is also a large tier 1 automotive product supplier, similar to ALPHA. Similarly, a product supplier of the tier 1 level is the company LAMBDA. DELTA is an OEM partner to ALPHA and ZETA a newly founded start-up company entering the automotive market. The figure is to be seen in conjunction with the next table (Table 5) which gives an overview of the nature of the cases analysed.

Figure 26: Main automotive companies in the current study
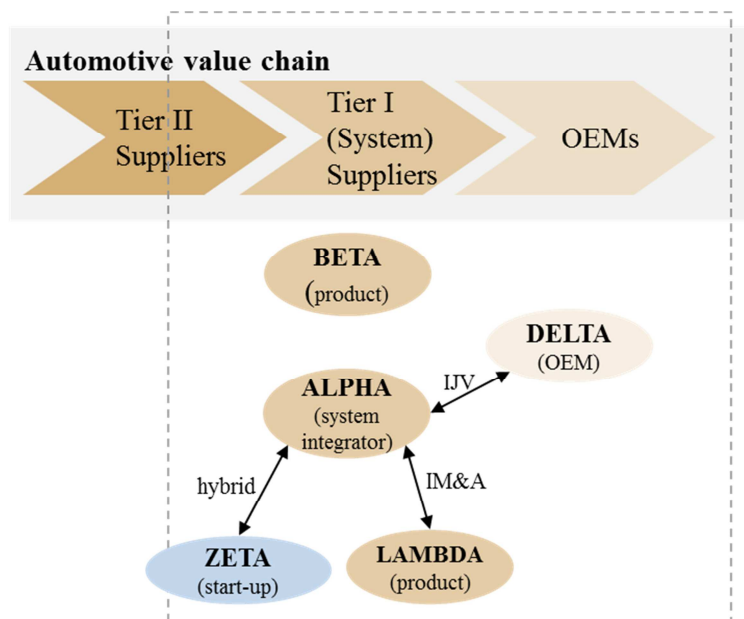
Source: author's own (2017)

Another piece of evidence that gave further confidence in the study was the fact that the items mentioned by the pilot interviewee (a senior director of another European tier 1 automotive supplier, named BETA) were later repeated in the ALPHA interviews and

were mostly in line with the literature review. I therefore considered the level of detail of the ALPHA case studies and its material as sufficient for the current study.

Overview of cases and the respective settings

Let us firstly briefly re-iterate some facts about ALPHA from Chapter 1. It is an international multi-bn US$ revenue tier 1 automotive supplier based in Europe, with collaborations worldwide (including other suppliers and OEMs). Its strategic focus is on technology/innovation and cost/efficiency leadership. Table 5 gives an overview of the three cases along the dimensions of collaboration mode, description, strategic rationale, market type, partner, situation considerations, and timing. While LAMBDA was a horizontal value step transaction, the other two are vertical, with partners of different levels of the automotive value chain (cf. Figure 10 on p. 32 and Figure 26 on p. 84).

Table 5: Overview of cases studied

	DELTA	ZETA	LAMBDA
Collaboration type	International Joint Venture (closed)	International Joint Venture / International acquisition (lapsed)	International acquisition (completed)
Description of collaboration / target	US-based transmission plant (not exclusive), ca. 1.4k employees, (ca. US$ 500m sales)	US-based start-up, ca. 40 employees, no sales so far	Worldwide operations, ca. 3k employees, ca. US$ 400m sales
Strategic rationale	Strengthening of access to US American market / regional footprint	Access to innovative active suspension system technology	Access to electronics and production technology (automotive switches, modules and controls); expansion of the range of ALPHA's applications
Market type	Passenger car	Passenger car	Passenger car
Partner and situation	US-based OEM as partner was looking for transmission knowledge, offering volumes and market access on the other hand; new technology	Start-up owners (and founders) wanted to exit their business and cash-in	Lengthy discussion with owner about sale and transaction rationale
Timing	1999 (transaction), operation until 2005	2013/14 (R&D collaboration), 2014 (IJV/IM&A discussions)	2007/08 (transaction), integration until 2010

Source: author's own (2017)

Further information on the cases can be found in Section 4.2.3 (p. 196ff.) including unique points about each case, highlights, and challenges.

3.2.2. Data generation

This section deals with the background of the data generation phase and its process. The data generation should be cogent with sound sources of evidence (e.g. Bryman & Bell, 2007; Lincoln & Guba, 1985). The following questions were key as a guideline to the data generation and analysis: What are the key concepts and impact factors to be analysed in the study? In the study case, as outlined in the research objectives and questions, these are equity collaborations (characteristics, motives/rationale, challenges, success factors etc.); What are the strategic gaps and corporate strategy? What do both the international and automotive context and the decision-making processes within the organisation look like? The ultimate goal was the generation of rich data that can be subsequently analysed and synthesised.

Methods of data gathering applied

A triangulated data generation method, with multiple sources of evidence, was used in order to enhance validity, credibility and authenticity and to limit potential biases (e.g. Gläser & Laudel, 2010; Schell, 1992). This ensures a focused subject but broad data generation. Given the parameters identified earlier, the *methods of data gathering* that were available to me were firstly, *my own observations* as a practitioner in the field for more than a decade. These observations (emic approach, day-to-day experience as a practitioner) stem from on-going knowledge generation through active transactions and projects, advisor discussions, as well as attending relevant conferences. The use of this data sources as well as my role as an emic research was further discussed and reflected on in Section 3.2.1 on p. 65ff. In order to be able to appropriately use this data, a procedure to capture and record the observations was in place for the current study (see later in this Chapter in Section 3.2.2.2 on p. 99).

Documentation review was restricted to the company ALPHA, since there was good access to data. To obtain project documentation data from other suppliers would be difficult since this is sensitive. The analysis of texts and documentation represents secondary data with the focus on how to answer the research questions with retrospective data, re-interpreted from today's perspective.

The main sources of evidence were the *expert interviews*. This was also primary data, with strong interaction between the researcher and the interviewees as the participants. All case-related interviews were conducted within ALPHA (besides a pilot interview with a BETA representative). To ensure the quality of the results (given all context limitations) the generated data was cross validated through expert interviews and discussions of the study findings with equity collaboration professionals (at the tier 1 supplier BETA for the pilot interview for example). (see Section 3.2.4 on research quality considerations for the current study, p. 107ff.). This ensured three things: (1) an ethical approach, since strictly confidential data was not exchanged and the participation is subject to the consent of the suppliers; (2) a win-win situation for the supplier professionals and myself, which was a good basis for getting access to interview data (3) there was no pure focus on one project.

Principally, the current study followed the plan according to Boyce and Neale (2006) and Yin (2003) to, 'plan, develop instruments, collect data, analyse data and disseminate findings'. The data generation was embedded.

Figure 27 on the following page gives an overview of the sequence of data generation with the expert interviews as primary source of evidence, plus documentation analysis and observations. It is to note that these observations were a continuous source of data and the interviews and documentation analysis were conducted in parallel to each other, as indicated in the figure.

Figure 27: Timetable of data generation
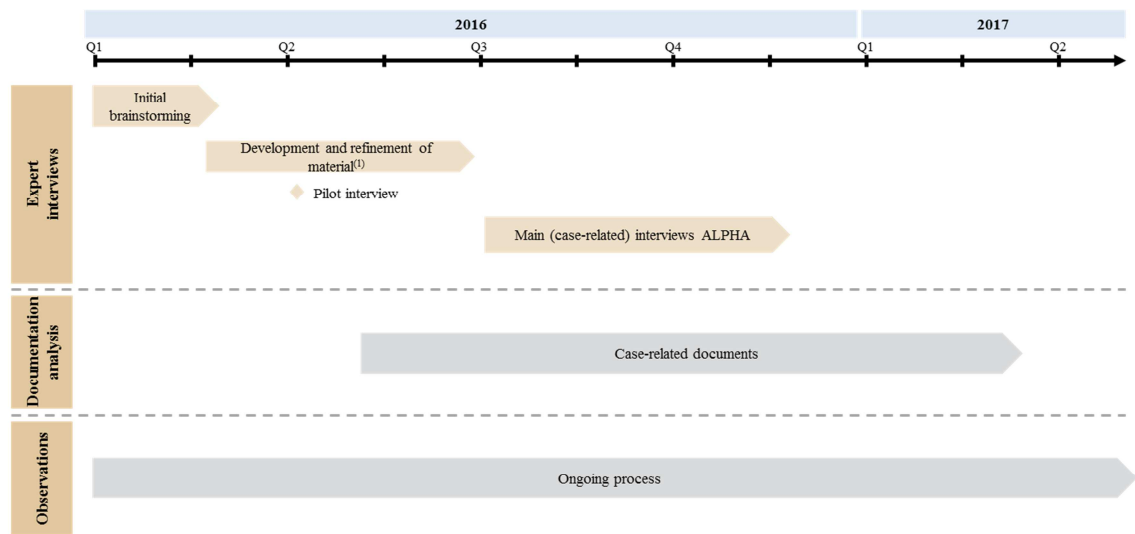
Note: (1) Interview guide; selection of cases and appropriate interviewees

Source: author's own (2017)

Rationale for not using other data generation methods

Other qualitative approaches were briefly discussed in Section 3.2.1. In line with that, other data generation methods were viewed in the light of the current study. Quantitative methods, for example quantitative survey, were not suitable in the light of the research objective to generate deep understanding and were contrary to the current study's research philosophy. Additional qualitative methods were considered, in particular *focus groups* and *action research* (for example embedded in a grounded theory approach). However, given the limiting factors, such as my skillset and, more importantly, the feasibility of the approach paired with time limitations, this method seemed less appropriate. As equity collaborations are some of the other tools at the core of corporate strategy and with long-term implications, the researcher cannot test new or changed concepts of decision-making and analysis during the research project. For example, as identified in the literature review, the key success factors of equity collaboration are the partner and its ability to perform. This is difficult to test in action research. In addition, the time aspect is important as only time can tell if a transaction was successful and satisfactory. Hence, a research approach that is suitable for the research questions and that does not require full control (over the transaction project in case of the current study), can also be used for contemporary phenomena (see Schell,

1992). Case studies of relevant precedent international equity collaborations and M&A transactions were used and analysed in the current study.

Interventionist methods were not applicable and feasible since equity collaborations are of high strategic relevance to any company, they are investment-heavy (using financial and other resources), and they are long-term projects. Therefore, changing parameters in different equity collaborations is not feasible in a corporate context.

I felt that a focus group would not provide in-depth information as I assumed that research participants would open up more freely in a one-to-one interview setting.

Type of data generated

The data that was generated was primarily case related. Hence, a certain sampling process needed to be followed. Due to the limited access and a limited number of transactions within ALPHA and the other supplier companies researched, there were no restrictions applied in terms of timing, region, or transaction type.

3.2.2.1. Expert interviews

Problem-centric and in-depth expert interviews were conducted for the current study as outlined by Boyce and Neale (2006), who described them as "intensive individual interviews with small number of respondents" (p3). It was perceived as being a better technique to get inside and gain subject specific knowledge and thoughts than focus groups, as respondents can talk more openly (Boyce & Neale, 2006; Gläser & Laudel, 2010).

The expert interviews constituted a unique opportunity to gain insights on analytics and decision-making processes within companies of the researched industry. After all, the final goals of the current studies were to check heuristics, learn about rationales, and identify best practices and lessons learnt to ultimately flow into the advisory framework.

As the interviews were case-related, they needed some structure to make sure the main aspects were captured for each case. However, some flexibility needed to be granted in order to increase the value added. This is related to cover aspects that could have been missed as they were potentially not covered in the interview structure. For the benefit of

getting different perspectives, the interviewees were selected from the two main employee groups involved in inter-firm collaboration projects (HQ and Business Unit level). Therefore, I decided to conduct the in-depth interviews in a semi-structured way that gave me guidance as an untrained interviewer and helped to control the interview process, maintaining flexibility to re-adjust questions during the interviews where necessary (e.g. Boyce & Neale, 2006; Lamnek, 1995; Mayring, 2002; Mieg & Näf, 2005). These were semi-structured and problem-focused interviews, referred to by Turner III (2010) as 'general interviews'. This approach was appropriate for its principles of problem, subject, and process orientation (Witzel, 2000). In particular, for the current study this technique was appropriate since it focused on a concrete problem which could then be divided up into sub-facets (Lamnek, 1995; Mayring, 2002).

Interview preparation

The first two work-streams were preparing an interview guide and selecting the interviewees. Thereafter, before conducting the interviews, it was important to establish a contact with a short introduction and explanation of the subject and its setting (e.g. Boyce & Neale, 2006; Gläser & Laudel, 2010; Mieg & Näf, 2005; Turner III, 2010). (See sample cover email in Appendix 7.2.3 on p. 232f.)

An Interview guide served as support for the case-related interviews, but I tried to memorise the guide (Gläser & Laudel, 2010; Mieg & Näf, 2005; Turner III, 2010). The guide was completed in various sessions. It was initially developed by me and then brainstormed and crosschecked with my fellow researchers. Thereafter, I had various discussions with my doctorate supervisors. Dr Sue Williams suggested adding questions on critical incidents in the projects, following the thoughts of the critical incidents technique ('CIT'). The intention of this method is to gain an understanding of particular incidents that made a significant contribution to or impact on the cases analysed, without following the full CIT methodology with its procedure and different steps (Flanagan, 1954).

The brainstorming phase was between January-February 2016, followed by the development phase March-April 2016 and finalisation after the pilot interview in June 2016. Discussions with a fellow researcher were conducted thereafter to cross validate

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and get an independent view. The guide included reflections from the literature review, first documentation analysis and my own experience, to ensure alignment with the rest of the current study. The interview guide was finalised in July 2016. The guide had four sections, in line with the research questions of the overall study. The maximum number of questions was 20 but probes and follow-up questions were used in addition to keep a dialogue going (e.g. Boyce & Neale, 2006). The focus was on efficient questions that followed these guiding thoughts. Ideally these should be open-ended, not leading/neutral, limited to one idea per question, clearly worded, not too long and mindful of 'why' questions (e.g. Turner III, 2010). (also refer to Appendix 7.2.1 on p. 231ff.)

In the *Interviewee selection* process clear parameters for selecting the interview partners were crucial for the overall data generation process (Creswell, 2013; Turner III, 2010). The *sampling* selection criteria for the interviewees were defined beforehand. These included professional experience in general and experience with regard to equity collaborations (on average, the experts have an average of ca. 15 years of experience in the area. The seniority level of the interviewee should have at least the level of the interviewer in order to mitigate hierarchy bias (which was the case for the current study). Furthermore, the elite bias was to be avoided, which denotes a situation when greater weight is put to the more senior experts which was not the case for the current study (Kohn, 1997). Ultimately, the role and the influence of the respective experts in the decision-making process was crucial, as elaborated on by Eisenhardt and Zbaracki (1992).

Interviewees needed to be able to make a valuable contribution and they needed to be open and willing to cooperate. Hence, interview partners needed distinct, specific and memorised knowledge of the cases and they needed to be deeply involved in the projects (Meuser & Nagel, 1991). All interviewees had elevated hierarchy level (at least senior managers) as topics of decision-making were involved. In order to ensure a high participation rate, all interviewees were contacted beforehand with a cover letter, introducing the research study and the interview itself. Out of the eight interview partners approached, all accepted.

Only a few interviewees were selected. The rationale behind this is that there were only a few key people per project that had a full, holistic overview, while at the same time knowing the necessary level of detail about the deal and its process (involved from start to end). There would therefore only be limited value-add and merit extending the group of people interviewed.

Two sets of interviewees were considered at ALPHA, reflecting ALPHA's and many larger suppliers' organisational set up of collaboration projects. These were HQ and divisional professionals, since they are typically the key internal stakeholders of such transactions. Bias and ethical considerations were also undertaken. There was no direct link nor relationship between the researcher and the interviewees (for example friends or family members). Other matters such as discrimination, age, or gender were not taken into account, since they were not explicitly relevant for the current study.

Conducting the interview

Generally, as outlined above, the expert interviews had two different sample interviewees (within ALPHA): (1) central / headquarter collaboration experts and senior management, (2) divisional business development experts. Therefore, a staggered approach with two blocks was used (one pilot interview and further case-related interviews: 2-3 per case analysed). In total seven interviews were conducted with professionals and experts of supplier ALPHA and one interview at supplier BETA:

a. **Pilot interview**: This was conducted to refine the interview guide, structure and questions as well as to check the relevance of the questions (e.g. Mayring, 2002; Turner III, 2010). It is based on my experiences, the literature review, and the technical infrastructure (with regard to my experience, please also refer to Appendix 7.3 on p. 256ff.). It was not done within ALPHA but with a professional at BETA in order not to become too focused on a single company;

b. **Main block within ALPHA**: On the 3 cases of international equity collaborations (IJV, IM&A, 'hybrid')

    i. Headquarter ('HQ'): 1-2 interview(s) per case (sampling, access, data),

    ii. Division/Business Unit ('BU'): 1 interview per case

In terms of *timing,* the expert interviews were embedded in the overall data generation process and the study itself (see Figure 27 on p. 87).

The setting of the interviews was intended to have the least impact and as much privacy and calm as possible. The interviews were therefore conducted in an atmosphere as neutral as possible, with a working technical infrastructure. Additionally, I tried to make smooth transitions, to be relaxed in the interview and not to worry about timing (e.g. McNamara, 2009; Turner III, 2010).

There were three approaches to mitigate biases and to ensure an ethical as well as a confidential approach were applied. All interviewees were informed that they could interrupt at any time, the confidentiality agreement (the University of Gloucestershire, the doctoral supervisors, and the company ALPHA) was stressed and all transcripts were given to the interviewees for approval later; see the ethics Section 3.2.2.1, page 96ff., and the interview guide in Appendix 7.2.1 on p. 231ff. for further detail.
The interviewees were made aware that the interview was recorded and would later be transcribed. In every interview, high-level notes were also taken as a second documentation technique and further backup.

Most of the interviews were conducted in English (two were conducted mainly in German), in order to facilitate the interviews and to avoid the translation process later. As English is the second key language in ALPHA (and in BETA), there were hardly any linguistic difficulties. Furthermore, there was the possibility for the interviewees in any case to answer more complex topics and terms in German. The two interviews that were entirely conducted in German were later translated and transcribed. The rationale for this in these specific cases was to ensure the richness of interviews if the interviewee felt more comfortable in his/her native language and to avoid misunderstandings. I made the necessary translations of these parts and checked for accuracy, and they were then approved by the respective interviewee him/herself. Final interview transcripts were shown to each interviewee and they were asked for their approval in order to cross validate whether the meaning of the spoken word was reflected correctly.

The interview should be an interpersonal encounter and a social occasion. I therefore intended to be authentic and not influencing. Face-to-face interviews were preferred as

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opposed to telephone or web-based interviews because, for example, in face-to-face conversations gestures can be noticed and reacted to as well as just the spoken word. Additionally, these interviews were more direct so interview partners tend to open up more easily. Only the pilot interview was conducted via Skype, for logistical reasons (at the time the interviewee was located in Shanghai, China).

I tried to make respondents think in the interviews, asking for elaborations and sometimes, where appropriate, not accepting their first answers but asking for opposing ideas, which is in line with suggestions by Kennedy (2006).

The interviews were conducted in April 2016 for the pilot interview and the main interviews between July and December 2016. The time lag between the pilot interview and the main interviews was partly deliberate, in order to be able to analyse the pilot and to let refinement ideas settle, but partly due to logistical reasons.

Interview protocols were also made use of, as suggested by authors such as Boyce and Neale (2006). These represent a documentation tool that ensured consistency and to reduce biases and influences (see Appendix 7.2.2, p. 249ff. for an excerpt of a sample protocol and transcript). The interview protocols helped to improve the validity of the collected data. In total ca. 9.5h of data material, with ca. 60-90 minutes duration per interview, was gathered with a participation rate of 100%. The material was subsequently transcribed using the parroting technique and the software-based transcription tool, 'Dragon for Mac'® (this yielded 68 pages of transcripts).

Interview reports and results

The objectives of the *pilot interview* were to verify, validate, and refine the following parameters of the interviews: interview questions, interview structure and interview tools (mainly the software-based tools for recording, transcription, and data analysis). They also aimed to cross validate whether a practitioner and fellow academic would appreciate the intended advisory framework as a contribution to knowledge.

The pilot interview was conducted with a representative of BETA. BETA is a Germany-based multi bn US$ tier 1 supplier, among the top 30 in Europe (Statista, 2016). In their

current situation, not all business units are present in the USA, but this is expected to change. Additionally, its classic business model is about to change dramatically due to industry trends like e-mobility. The innovation potential and the strategic gap analysis are interesting topics for BETA. Therefore, the interview partner saw merit in developing the advisory framework, which was one of the key goals of the current study.

Lessons learnt from the pilot interview included:

- Technical / process:
    - questions should not be distributed beforehand
    - additional critical incidents method added throughout
    - not all questions answered and some new questions added
    - avoid disruptions during the interviews by all means;
    - avoid having more than one aspect per question

- Content:
    - proper introduction to the specific and complex study subject needed if interviewees not familiar with it
    - subject confirmed to be relevant for a similar sized tier 1 global automotive supplier based in Europe
    - some answers/subjects pre-empted in first section, for example on context some process topics covered earlier; resulting jumps between sections – it felt odd at first but then I got used to it, with a certain level of flexibility in order to get most out of the interview (one of key features of semi-structured interview)

In conclusion, only a few refinements to the guide were needed after the pilot. The main changes included a swap in Chapters 3 and 4 in order to enhance the flow of the interview. Some wording changes were done to add clarity, and limit to one thought per question. Due to these limited refinements, the pilot interview was also considered appropriate for further analysis.

The findings from the interview block are discussed in Section 4.2.

Disadvantages and limitations to the interview data generation approach

Generating data through expert interviews can have certain disadvantages (e.g. Boyce & Neale, 2006). They are quite time intensive and they are potentially subject to certain biases (interviewees with their own agenda, concerned about confidentiality, etc.).

With my study design, I aimed to eliminate or at least minimise the potential flaws and biases through the following:

- Using retrospective cases, so no interviewee needed to have his/her own agenda
- Two sets of samples: (a) central / headquarter collaboration experts/senior management and (b) divisional business development experts
- One-on-one interviews in person with confidentiality ensured
- Only aggregated analysis
- Sensitive data not to be published or with code names only: the intention was to ensure as much clarity and transparency as possible, while considering confidentiality as much as necessary
- Limited size of sample interviewees, but data analysis was validated through triangulation of data generation methods

In addition, the researcher needs to have certain skills as outlined (need to be structured, knowledgeable, clear, sensitive, open, interpreting, balanced, ethical, etc.). To comply with all of this I used a documented methodology, read about interviews, and trained with fellow students of the University of Gloucestershire (in February 2016 and in June 2016).

Considerations on ethics

All research has ethical implications, particularly when they involve individuals, for example during expert interviews. It is therefore key to address ethics explicitly (Flick, 2009; GLOS, 2008; Mieg & Näf, 2005). There are four identifiable fundamentals about ethical (qualitative) research that are also in line with the ethical approach of the GLOS (2008) and the 'Ethical codex of the German Association of Sociology', as cited in Gläser and Laudel (2010): (1) the *research participants*; (2) addressing potential biases upfront; (3) *transparency, honesty and documentation*; (4) appropriate basis for

conclusions. (e.g. Bryman & Bell, 2007; Easterby-Smith et al., 2008; Gläser & Laudel, 2010; Yin, 2003)

In light of the current study, these matters were dealt with as follows:

- *Protection of participants (and the participating companies)* (Boyce & Neale, 2006)
    - *Voluntary/consensual participation* was ensured through asking participants explicitly (for example before expert interviews).
    - *Confidentiality* of the participants themselves as well as the participating companies was ensured (see interview guide). In order to comply with my ethical views on research and to conduct the current study, it was important to ensure confidentiality and pay tribute to the sensitivity of private information. For that purpose, a Confidentiality Agreement between GLOS, my doctorate supervisors, the company ALPHA and me was signed (March 2016). Furthermore, distinct research guidelines (for example on information safety), and code names were used.
- *Biases*
    - *Conflict of interest:* the research was self-funded with no conflict of interest of stakeholders that might lead to biases. On the contrary, the companies I worked with during the research expressed an interest in the subject on an open basis, since they would like to gain further insights in the process of inter-company equity collaborations themselves.
    - *Selection of interviewees / Bias and ethical considerations*: There was no direct link / relationship with interviewees (for example subordinates or family members). No other matters such as discrimination or youth needed to be taken into account since all interviewees are adults and discrimination was not an issue for this study. (see Section 3.2.2.1 on p. 91f. on interview selection for further reference)
    - *Emic research approach*: I was an emic researcher to the research field, researching my own field of work. I was aware of all the issues as outlined in Sections 2.3 and 3.2.1.
- *Transparency, honesty and documentation* (Bryman & Bell, 2007; Yin, 2003)

- o *Review and approval of transcripts* (incl. report of observations and sections of the final study): This was done by the interviewees.
- o *Potentially unethical practices:* If found during research these were to be addressed separately (n.b. none were found).
- o *Safety of information:* This was ensured by the usage of an external hard disk.
- o *GLOS (2008) ethics principles and guidelines:* These were applied to ensure an ethical research approach right from the start.
- *Conclusions:* This item is closely linked to the one of transparency, honesty, and documentation. Conclusions were only to be made on the basis of the research, not from any additional evidence.

3.2.2.2. Documentation reviews and observations

This section elaborates on how the other data was generated. The *documentation* of the projects included ALPHA papers, incl. Management Board and Supervisory presentations for decision-making and project team presentations and documentation material (including strategic analysis and other documentation prior to the transaction execution phase). The documents came from ALPHA internal sources such as project documentation and Board of Management or Supervisory Board materials. I also resorted to presentations and reports received from corporate advisors such as Investment Banks.

The *observations* in daily business were collected during everyday business life as a practitioner in the field. Therefore, I was an emic researcher to the research field, with all the issues to consider, as outlined in Sections 2.3 and 3.2.1 (Holian & Coghlan, 2013; Trowler, 2011). In particular, during precedent and current transactions (2014-17), note keeping (MS Word file and hard copy notebook) was used to keep track of observations, as already introduced on page 86 and suggested by various authors (e.g. Boud, Keogh, & Walker, 1985; Fink, 2013; J. A. Moon, 2013). These transactions were mostly M&A transaction but various ones related to the acquisitions of US-based companies (or at least cross-border) and made valid data points for the current study. Furthermore, expert discussions were attended, for example, with investment bankers and other experts and at relevant conferences, where notes were taken for future analysis (see Section 4.2 p. 169ff.).

3.2.3. Data analysis

Qualitative data analysis is a subjective task with the intention of clearly presenting assumptions and arguments, identifying outliers and presenting potentially differing propositions (Kohn, 1997; Miles & Huberman, 1994). In summary, for the analysis a coding scheme was applied in order to identify the most important aspects and variables and link them within a case. Finally, a synthesis of findings was elaborated and common themes were identified, based on the three sources of data, presented in the sections above.

Considerations on interpretative data analysis

The analysis of data can be a challenging task for the researcher, mainly due to an intense data generation process potentially resulting in an "overload of information" (Kohn, 1997, p. 5). The data analysis for this study was run concurrently to the data generation phase (and beyond), with the aim to interpret the constructions and common themes through qualitative content analysis, such as classical hermeneutical technique and text interpretation method (Guba & Lincoln, 1994; Patton, 1990). Since data analysis is closely linked to data gathering, these two elements need to be considered together. The basis for this approach is represented in the key literature. (Bryman & Bell, 2007; Corbin & Strauss, 1990; Denzin & Lincoln, 2008; Moses & Knutsen, 2007; D Remenyi, Williams, Money, & Swartz, 2003; Saunders et al., 2011; Tharenou, Donohue, & Cooper, 2007; Yin, 2003) The unit of analysis was the researched equity collaboration transactions and more specifically the decision-making process for a specific collaboration (IJV and/or IM&A).

3.2.3.1.   Interview data analysis

The semi-structured expert interviews were the main data generation tool, as outlined above. They aimed at identifying common themes and distilling them further for the advisory framework. Interpretation and finally synthesis of the various data generation models follows in Sections 4.2 and 5. The data analysis was conducted through qualitative content analysis and (text) interpretation method (e.g. Gläser & Laudel, 2010; Kohlbacher, 2006; Mayring, 2010; Patton, 1990). The basic intention was to make use of technical analysis and link it with interpretation, in order to reduce inter-subjectivity issues. Qualitative content analysis, with certain rules is between 'pure' interpretation and 'strict' quantitative analysis. It was therefore considered an appropriate tool for the current study. (Mayring, 2010)

Furthermore, the following factors as enumerated in Kohlbacher (2006) were considered as the most important points in data analysis: openness and the ability to deal with complexity, ability to integrate context, integration of different sources. Although I agree with Mayring (2010) who posits that qualitative content analysis is not the only valid methodology of qualitative analysis, for the current study it seemed to be an

appropriate one as it offers the possibility to have a sound basis for the advisory framework.

The overall process included the following sequential steps, which were complemented by quality-ensuring considerations (for example documentation and cross validation), as suggested by various authors such as Gläser and Laudel (2010); Mayring (2010); Miles and Huberman (1994).

1. Transcription
2. Coding
    a. Paraphrasing (reduce content, no fill words)
    b. Reduction (summarising per subject, take out duplications)
    c. Parent and child codes (inductively)
3. Category/concept building and interpretation

Step #1: Transcription

The transcripts of the semi-structured expert interviews formed the basis of further qualitative content analysis (Mayring, 2010). Firstly, the interviews were recorded, as mentioned above. No interview participant disagreed with the recording of their respective interview so all were available to analyse. Secondly, the interviews were transcribed using the parroting technique and the Dragon for Mac software. Recordings were listened to and then repeated in my own voice into the microphone. Dragon for Mac supported in transforming the dialogues in MS Word for later analysis, although manual corrections were needed. Recording the interview and transcribing it: I deliberately recorded and transcribed the interview myself rather than using a third party. The rationale for this approach was to help memorise the contents, as well as to enhance reliability and the transparency of the study. It was also intended to acquaint me with the texts and interview contents and this enabled me to undertake the analysis later as I was already familiar with the material. Furthermore, in corporate strategy, special terms relating to M&A / collaborations are used which would be hard for a person outside the key subjects to understand and transcribe. However, it was a time consuming and intense process. Thirdly, minor linguistic smoothing was done, according to the transcription rules of Kuckartz (2014). For example, minor grammar

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corrections were undertaken to make the transcripts more readable and understandable (since all interviewees were non-native English speakers). In the fourth and last step, interview transcripts were reviewed and corrected where necessary. Finally, all transcripts were anonymised i.e. companies and persons were given code names in order to reduce the possibility of deductions to actual settings. (Kuckartz, 2014)

During the interview phase, the interviewees were asked to read and subsequently approve the transcripts when completed. All interviewees made use of this and gave additional explanations and/or minor corrections where needed. As mentioned above, every interviewee approved her/his respective transcript.

Besides the spoken word, I originally intended to capture and look out for patterns 'between the lines' for example answers with enthusiasm or laughter. The idea was to of include non-verbal data behind the pure conversational data, in order gain further insights (Boyce & Neale, 2006; Coffey & Atkinson, 1996). In the event this was not completed or analysed in depth as, on reflection, no major observations during the interviews could be noted, besides occasional laughter, which is hard to interpret.

Step #2: Coding phase

The coding approach: Coding was an important step in the analysis phase of the empirical work. Furthermore, it can incorporate various forms of evidence such as interviews and documentation. In addition, it was perceived to be in line with my research philosophy and strategy. The coding was the link between the data generation and codes with the intention to symbolise and capture attributes of texts, other sources of evidence and the analysis/distilling of the findings (e.g. Kohlbacher, 2006; Morse & Richards, 2002; Saldaña, 2013). For me, it was a way "to organise [the] material into themes" (Penna, 2013), as codes capture meaning when they are subsequently grouped into sub-categories and finally categories.

Selected critiques of qualitative content analysis and coding: These are outlined in Saldaña (2013), Gläser and Laudel (2010) and Mayring (2010) and critical reflection in light of the current study is given below:

- '**Reductionist**' – The current study was in essence more extracting then reducing. However, coding is a distilling procedure to some extent.

- '**Not objective**' – As coding is also an act of interpretation, it is a rather subjective approach but in line with my ontology and epistemology. However, in order to 'stay on track', I crosschecked my coding with a fellow researcher and the doctorate supervisors (March 2017).

- '**Coding filters**' – These depend on the researcher's perception of her/his study data (Adler & Adler, 1987; Saldaña, 2013). In this case, this was done as neutral as possible.

- '**Distances researcher from data**' – I agree with Saldaña who says that coding "leads to total immersion in [the] data corpus" (Saldaña, 2013, p. 39). This method was chosen for this reason and I chose to transcribe all interviews myself to be close to the data.

- '**Nothing more than counting**' – This was used with descriptive methods in order to visualise which codes seemed the most important ones. However, for my study, coding is only the initial part of analysis. The current study's coding therefore followed certain coding approaches and rules and is hence not entirely free (e.g. Mayring, 2010, p. 605f.) (see Section 7.2.5 in the Appendix on p. 252ff.).

Manual versus computer-assisted coding: A mixture of both methods was used. After initial transcribing, a margin was left next to the text where the codes were added. In addition, the data analysis was supported by software solutions such as voice recognition/'text-to-speech', Dragon NaturallySpeaking and Microsoft Excel for the data analysis. This was because an in-depth analysis of a large data set is required. These solutions are meant to be a good support for organising and analysing non-numerical or unstructured data (for example data generated in interviews) with the aim of sorting and classifying information in order to then identify relationships and recurring themes. After careful consideration, the qualitative data analysis CAQDAS (Computer-assisted qualitative data analysis software) tool, NVivo was deliberately not used for efficiency reasons, since MS Excel proved to be an appropriate tool for analysis of the data collected in the current study. As a result, there was no need to 'learn' new software. From my perspective, there seem to be many advantages to using

NVivo for various source data formats, for example, audio-visual / video material. For the current study, MS Excel was used as an administration and reliability-enhancing tool, while the coding and all other steps were done manually. It was used to organise and analyse the non-numerical and unstructured data generated during the expert interviews. The aim of this was to sort and classify information in order to identify relationships and recurring themes and to cross validate the information gathered. (Richards, 1999)

In the coding process itself, four steps were followed: (1) language smoothing (for example deletion of fill words); (2) reducing of words to a capturing term/phrase; (3) summary of topics with evidence from the various expert interviews (and documents and observations) and finally (4) take out redundancies.

I combined steps (1) and (2), which I called paraphrasing, or extraction. In this way certain data was extracted from the full texts and given theoretical pre-considerations based on the research questions and objectives and the earlier literature review (Gläser & Laudel, 2010; Mayring, 2010).

The process of coding, as suggested by Saldaña (2013), *was iterative and cyclical.* I decided to follow that process and to use a two cycles approach in order to reconsider and refine the coding choices. For the selection of the coding method I looked for an aligned approach with my research questions and objectives for the direction of the study. In the current study, I wanted to discover strategic analysis and processes and therefore used an exploratory approach. The content-based approach of 'Structural Coding' seemed to be a good choice for a foundation of coding to reveal these concepts and catalogue them, applying a "conceptual phrase representing a topic of inquiry" (Saldaña, 2013, p. 84). Therefore, this coding approach was chosen for the coding cycles. In the second coding cycle, I aimed at identifying further patterns in an inductive way.

In the following paragraph, I will elaborate on the changes made from the first to the second coding. *First cycle coding* started with the data generation phase and ran concurrently to it. The initial set of codes was developed with a deductive approach before the interviews and based on the literature review and my own assumptions and

proposition of the empirical study. After this, in an explorative way, the codes were changed, some deleted (as there was no evidence in the transcripts) and new ones added. These refinements took place during the inductive interview phase. This approach was in line with suggestions by Mayring (2002, 2010), Miles and Huberman (1994) and Saldaña (2013). As such, I followed a cycle-based approach for categories and coding in order to make the work more inter-subjectively retraceable (see Appendix 7.2.3 on p. 252ff. for full coding overview).

The second cycle started with another read through of the transcripts and paraphrases. Some new angles in the interview transcripts were discovered in this cycle that seemed less important in the first cycle but enhanced the value of the analysis (for example collaboration partner locations: in the E8 interview, Japan was mentioned as a relatively closed market that was not eligible for a certain market entry strategy due to its industry structure).

Third parties (fellow researcher and doctoral supervisors) cross validated and challenged the codes and child-codes in (March 2017), as suggested by (Creswell, 2013; Saldaña, 2013; Turner III, 2010).

The complete overview of codes after the first and second coding cycle is displayed in Section 7.2.3 in the Appendix.

Step #3: Category/concept building and interpretation

The codes had a 'parent and child codes' structure. These codes were then grouped into themes and concepts. This relationship and sequence is shown in Figure 28. In this step the data was firstly extracted, then further reduced and distilled (e.g. Gläser & Laudel, 2010, p. 229ff.). The in-depth presentation of these steps, from the particular data elements to abstract themes and concepts, for the current study can be found in Chapters 4 and 5.

Figure 28: Concept-building through coding procedure

Particular   *Abstract*
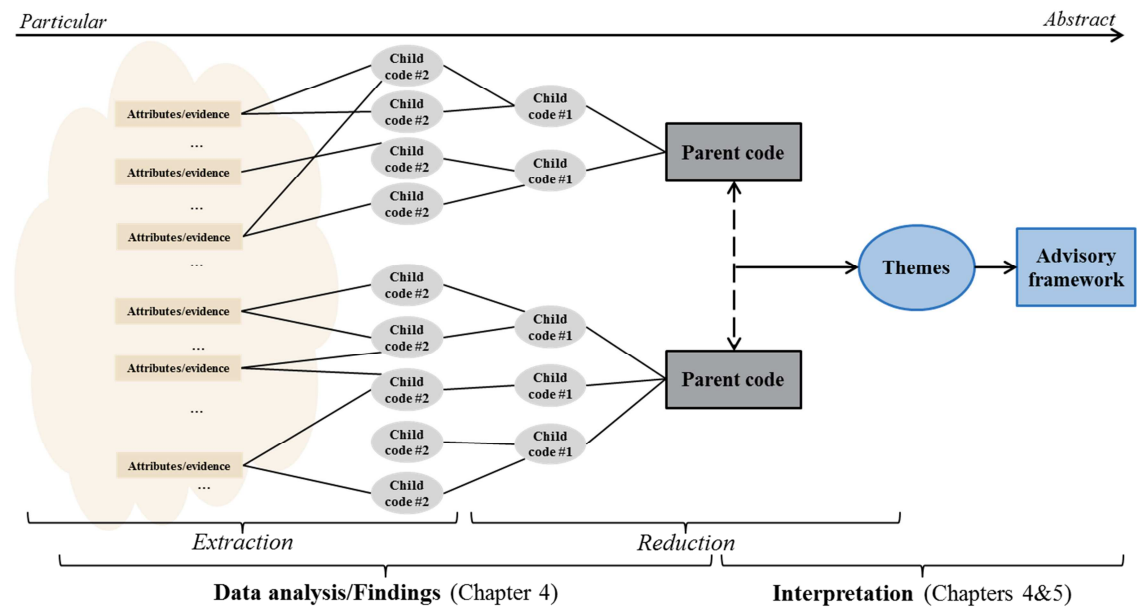
Source: adapted from Gläser and Laudel (2010); Mayring (2010); Saldaña (2013)

In summary, a two-fold approach was used with ex ante/deductive coding and sub-coding at the start of the first cycle coding. This was followed by two cycles of further inductive generation of child-codes, also in line with Mayring (2010). The initial codes were aligned with my research questions, which seemed like an appropriate approach. This was reinforced after the first interviews.

In total five main parent codes were built: (A) 'Trends and Challenges in the automotive industry'; (B) 'US America context for automotive'; (C1) 'Strategic gap analysis' / (C2) 'Organisational decision-making within the tier 1 supplier'); (D) Equity collaboration (IJV and IM&A) and link to strategy. Below these parent codes, each had child-codes three levels below, analogous to the research focus' building blocks, research questions, and interview guide.

3.2.3.2. Documentation and observation analysis

The documentation and observation analysis was conducted in parallel to the interview data analysis. Overall, these two approaches were meant to substantiate and challenge the findings from the interviews. Further information can be found in Section 4.2.2. Unfortunately, the yield of this data analysis approach was less fruitful than initially expected given the limited in-depth analysis and the rather 'practitioner-focused' approach of the presentation and documents. However, the analysis of documents and the observations according to the four building blocks of the study contributed to the overall picture, whether validating or not the findings from interviews, etc.

3.2.4. Ensuring research quality

Quality considerations and tests were constantly employed as part of the research, including preparation, data generation and analysis (Denzin & Lincoln, 2009; Verschuren, 2003) (for the research design, see Figure 24, p. 77). These considerations and tests led to subsequent adjustments during the study, which meant for example collecting additional up-to-date data. Quality aspects have been discussed where appropriate in the elaborations before. For example, in Section 3.2.4, I elaborated on case study criticism and how to address it in the current study. Quality considerations regarding the literature review were addressed in Section 3.1.2 (p. 58f.).

As envisaged before, the current study followed a qualitative approach where the regular research quality criteria such as reliability and objectivity (as outlined earlier) are less applicable as sole quality measures (Bryman & Bell, 2007; Corbin & Strauss, 1990; Denzin & Lincoln, 2009; Moses & Knutsen, 2007; Steinke, 1999, 2007). Two main arguments for this are that qualitative research cannot be easily replicated, if at all, and it is context specific and hence not generalisable. Furthermore, since the approach is by definition subjective, the quality of the research findings needs to be approached differently than with the 'traditional', realist, criteria (Hatch, 2002; Steinke, 2007). The criteria of reliability and validity stand as universal concepts however. They can be complemented by other qualitative quality criteria such as transparency, authenticity, credibility, trustworthiness (Creswell, 2013; Lincoln & Guba, 1985) and value-added, appropriate choice of methods, diligent process documentation, critical

checking/validating, and ethical process. Research findings from qualitative research should always be deeply rooted in the data (Moses & Knutsen, 2007; Steinke, 2007). (see also Section 3.2.2.1 for ethical considerations).

Therefore, one could argue for the need to apply a more general approach of auditability of research, independent from the auditor (Steinke, 1999). In order to enhance quality, a multiple method, triangulation approach within qualitative research was followed in the current study as outlined earlier. Another approach to evaluate research quality is to be strictly aligned with the research method and procedure used (Corbin & Strauss, 1990).

As a pre-work to the second coding cycle, two readings and reviews of interview transcripts were conducted to ensure that no aspects are missed. Even though these caveats exist, the concepts of *reliability* (internal: consistency of methods and results across the study; and external: extent to which the study could be repeated by another researcher and get similar findings), and *validity* (internal: refers to the interpretability of the research, it measures what it is intended to; and external: same results in different settings and generalisability) were considered to improve the study's quality. Furthermore, the aspects of *inter-subjectivity*, trustworthiness (for example credibility) and authenticity (for example fairness, ontological authenticity) are taken into account (Kohlbacher, 2006; Swanborn, 1996).

Enhancing the *reliability* of the study meant thorough preparation and data collection, for example, to ensure data consistency and appropriate methodology. In order to address internal reliable taping of evidence, transcription rules and data analysis software were applied. For external reliability, I clearly described the data generation approaches and the data analysis methods.

Validity was addressed through the use of triangulation in the data generation. For example, different methods and multiple interviewees as well as the use of multiple exploratory cases. If common themes are identified, these findings can be considered more robust (Denzin & Lincoln, 2009; Kohn, 1997; Yin, 2003).

In order to address *inter-subjectivity issues*, the research aimed to be controllable, with a sound basis (philosophical, methodology, etc.) and clear log and recording processes. Husserl (1913) coined the term of 'inter-subjectivity', which is later used as a form of

measuring the quality of qualitative research. The concept lies somewhere between pure objectivity and subjectivity as it denotes a concept of personal experience of a phenomenon that is experienced by several subjects and is thus retraceable (e.g. Husserl, 1913; Steinke, 2007). These thoughts are based on the 'sub-stream' of interpretivist philosophy, which is phenomenology. In his seminal work, Husserl (1913) posited that the real world exists but that it needs to be properly sensed in a psychological (formal) and worldly (material) way. As such, the aim of phenomenology is the descriptive analysis of the consciousness of objects.

3.2.5. Data presentation

Where appropriate, anonymised quotes were added to the respective sections of the findings, as suggested by Boyce and Neale (2006), for example. In order to add further credibility, data displays in tables, boxes, and figures were also used. A word cloud was used to get an initial overview of the key themes in the in-depth expert interviews (Figure 39 on p. 171).

To conclude, there are arguments for and against specific research approaches. The most appropriate choice for the current study, based on all relevant factors (own ontology and epistemology, experience, research subject, external factors, etc.), seemed to be an interpretivist, constructivist approach with mixed qualitative methods.

3.3. Summary and interim conclusion

Chapter 3 considered methodology and methods. It started with an overview of the method of the literature review and concluded with elaborations on the empirical part of the current study. The literature review was initially done in a systematic way and then complemented by iterative, 'snow ball' and manual searches. It therefore accompanied the whole study period on a continuous basis to get regular updates on the relevant matters. In principal, the review used a meta-synthesis approach in order to incorporate results from both quantitative and qualitative studies. It was systematic, as it followed a three-step approach. Firstly, each building block was researched separately, then pairwise combinations were looked into (IJV and IM&A as the main themes, each combined with the other building blocks) and ultimately a search of the intersection of blocks was conducted. The final search revealed a research and literature gap in that area. For the search strategy, a total of seven inclusion/exclusion criteria were applied. This was followed by a manual research funnel to determine literature that was perceived to be the most important for the current study. A triangulation approach was used for quality assessment, to cross validate themes and ideas through various sources. This was paired with a view of research quality of the published articles in journals.

A chain of reflections was initially conducted to determine the appropriate approach to the empirical part. Firstly, the paradigm of constructivism underlying the current study was introduced. Furthermore, an emic approach was conducted, with the researcher being part of the research arena. The implications of this needed to be considered in order to reduce biases and enhance validity. As the current study followed a qualitative case study approach, the idea was to generate a deeper understanding of a particular context, rather than generalisation. The advantages and disadvantages of this research strategy were then assessed and quality matters considered. Here, the two classical concepts of reliability and validity were supplemented by inter-subjectivity. To enhance the quality and robustness of the research, a thorough preparation, triangulation and cross validation and enhanced transparency were applied. The cases analysed were only introduced after careful selection. They are special knowledge and holistic cases, according to G. Thomas (2015)'s and Yin (2003)'s taxonomies. There was one case per collaboration mode and all within the tier 1 supplier and US-contexts.

The research design of the study was divided into a conceptual and a technical element, outlining the approach taken to data generation and analysis. The analysis was mainly based on semi-structured expert interviews that were transcribed and coded.

In summary, the approach used was two-fold with ex ante/deductive coding and sub-coding at the start of the first cycle coding, followed by two cycles of further inductive generation of codes, also in line with Mayring (2010). The initial ones were aligned with my research questions, which seemed like an appropriate approach that was reinforced after the first interviews.

The categories were built on this basis. They were initially deductively based on the author's own experience and the literature review, followed by inductive, iterative, and cyclical changes and additions that were deeply rooted in the data. Documentation and observation analysis were also taken into account to complete the picture.

4. Findings and analysis

The previous chapter presented the methodologies for the literature review and the empirical part of the current study. The following chapter presents the findings from the literature review (Section 4.1) and from the empirical part (Section 4.2). In order to link back to the basis of these findings, there will be cross-references in the sections where appropriate. Finally, Section 4.3 summarises the key points of the chapter.

4.1. Literature review

This section presents a two-step approach with descriptive and thematic analysis (overview of major/recurring themes in the literature). This is firstly for the '*Broad searches*' and subsequently for the '*Pairwise searches*' and finally the '*Specific searches*' (see also Section 3.1).

4.1.1. Descriptive analysis

Figure 29 gives a summary overview of the findings of the three different review levels, with illustration of what intersection of the building blocks (and correspondingly the research questions; please refer to Figure 20 on p. 62) is looked at. The columns to the right indicate the respective research coverage in the review levels as well as the rationales of the current study. The various search approaches can be considered like filters. The broad themes provided a lot to review but there was less for the pairwise combination searches and nothing for the specific intersection of the current study (i.e. the strategic analysis with regard to IJV vs. IM&A within the contexts of the automotive supplier market and for international transactions with US partners).

Figure 29: Summary of literature review findings

Review level	Level of analysis	Research coverage	Current study
Inter-section/ specific (S)		X	Main contribution; approach combining thoughts
'Pairwise combinations' (P)		✔	Setting the scene; Check what is already there
Basic literature for each building block (B)		✔✔✔	Covering the basics
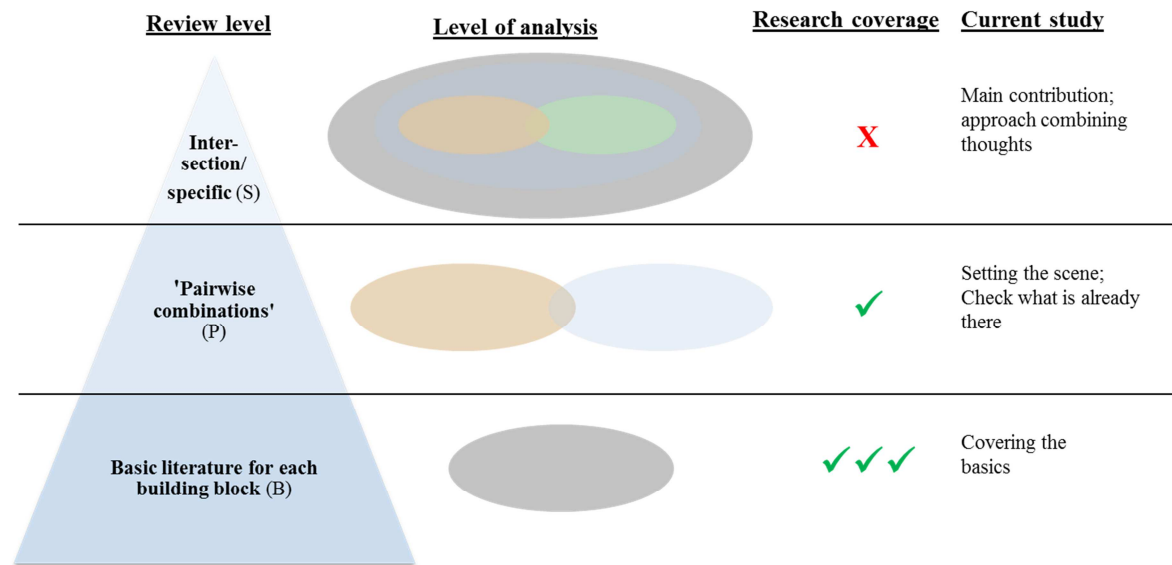
Source: author's own (2016); n.b. tick marks indicate that there is evidence, crosses mean no evidence

As outlined in Section 3.1.2 on page 48ff., (journal) articles, research reports and underlying books were included in the broad searches. The idea was to look at theories, concepts, and themes and there was a myriad of documents.

The pairwise searches are the main literature review step as they analyse studies and texts on international inter-firm collaboration, paired with the other important aspects of the study (b1 automotive supplier context; b2 US America/cross-border context; b3 aspects of strategic organisational decision-making), published between 1990 and 2016. In conclusion, the literature on this subject has evolved significantly post 1990. By then a lot of theory building had happened and studies seem to analyse specific aspects of collaborations, such as R&D or specific countries or industries. Authors stress different aspects of the key parameters of such collaborations although they identify appropriate resources and benefits allocation and the selection of the appropriate partner (and collaboration mode) as the two most important factors.

Mergers & Acquisitions ('M&A') and Joint Ventures ('JV') are the key collaboration modes (in a broader sense) explicitly analysed in the literature.

The literature on international inter-firm collaborations is also broad. Four main types of study papers can be identified. These are descriptive overviews, quantitative studies based on regression models (mostly for the measurement of success of International Joint Ventures or 'IJV'), quantitative event studies which are mainly used in the context of M&A analysis – for example Mentz and Schiereck (2008) – and qualitative studies.

As outlined earlier, a pre-screening of the collaboration modes revealed that the JV and M&A approaches are the most important while there is far less literature available on other types, such as licensing. Within the subset of the identified papers that have an explicit focus on JV and M&A, the focus is on M&A.

Within industry there are various papers on the automotive industry with regard to collaborations, but most of them are focused on special issues such as R&D capabilities in IJVs in the Chinese automotive industry (e.g. Zhao, Anand, & Mitchell, 2005). The regional focus in international collaboration studies is not the key subject of the study, but it is nevertheless interesting. There is a clear tendency towards China and other Emerging Markets these days, as opposed to established markets.

Given the sample of texts in the pairwise searches, it is difficult to draw conclusions about the literature overall. Most findings from the sample are consistent with other literature reviews in the area. For the distinction between quantitative (mostly regression-based) and qualitative studies, the tendency is toward quantitative studies, which is in line with findings by Slangen and Hennart (2007) (see Figure 30).
Furthermore, M&A analysis tends to use event studies, as M&A effects are better measurable than other types of collaborations, for example, acquired target is a separate reporting unit within the acquirer's company. This approach can be followed when targets and/or acquirers are public companies, which is often the case (in particular in the USA). However, there is also some qualitative analysis, based on case studies (e.g. Balcet & Enrietti, 2002).

Nothing of note was found in the specific searches with parameters for all building blocks as the intersection.

Figure 30: Overview 'quantitative' vs. 'qualitative' studies
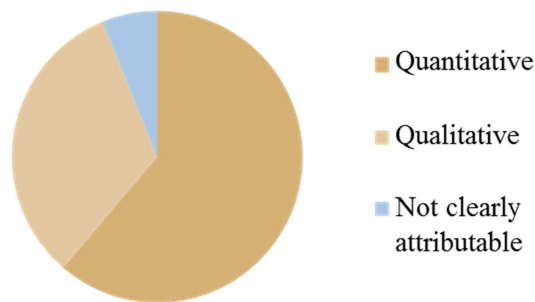
Source: author's own (2016).

4.1.2. Thematic analysis

This section focuses on the thematic analysis, which tries to systematically pinpoint and examine patterns and themes within the literature review data for the various search approaches.

Thematic analysis and synthesis of Broad searches (b1-b4)

To re-iterate from Section 2.1 (see p. 10ff.), the following four 'building blocks' are analysed in this study: (1) Trends and challenges in the automotive supply industry (with a focus on the passenger car market); (2) Cross-border focus / USA (general and automotive); (3) Strategic gap analysis and (organisational) decision-making; (4) inter-company IJV and international acquisition/IM&A as strategic tools. Each of these overlap in some respects and are considered further below.

<u>Automotive trends and challenges (b1)</u>

On the one hand, the features and trends of the automotive supplier industry are well covered in the documents and reports of industry associations, industry experts and consultants (e.g. D. Becker, 2016; Dannenberg & Kleinhans, 2004; Ostermann & Harvey, 2016; RolandBerger & Lazard, 2013; Sedgwick, 2013; VDA, 2014). Therefore, the findings and the priorities in these papers have to be reflected on critically, in order to assess whether the respective expert or advisors have their own agendas (for example they want to 'sell' certain technology / M&A trends) or if the report is client sponsored. However, most of the reports came to similar conclusions, which gives some credibility

to what the current trends, drivers and challenges (2014-17). On the other hand, there is limited coverage of the subject in academic papers. Nevertheless, the good news is that the expert papers are all relatively recent and up-to-date (mostly published between 2012 and 2017).

The authors use various different approaches. McKinsey & Company use a quantitative model and interviews, PrimeResearch uses expert panels and surveys and Roland Berger and KPMG use surveys ('Roland Berger Supplier CEO radar' and 'KPMG Global Automotive Executive Survey') (D. Becker, 2015, 2016; McKinsey&Company, 2012; PrimeResearch, 2015; RolandBerger & Lazard, 2013). Interestingly, the results only differ in nuances. The next paragraph details general findings about the characteristics of the industry such as its structure and key trends.

Industry trends and challenges

The automotive industry is a changing industry affected by various trends (see the introductory chapter of the current study). The result of this is a VUCA (volatile, uncertain, complex, and ambiguous) environment. Figure 31 summarises the main trends mentioned in the literature along the dimensions of supply base, competition, production, technology/legislation, capital markets/financing, OEM and end customer. The allocation of trends to the components of VUCA is fuzzy, even though some trends tend to affect one or the other component more. For example, factor markets such as capital/financing, raw materials or labour mainly drive volatility while technology changes primarily lead to ambiguity. In other words, no clear one-to-one allocation of trends to the VUCA elements was made. Ultimately, it is particularly difficult to decide which strategic direction to give a supplier in times of 'energy revolution' with special regional implications, for example in the USA).

Figure 31: Automotive trends resulting in VUCA environment

Supply base	Competition	Production	Technology / legislation	Capital markets / financing	OEM	End customer
▪ Volatile costs ▪ Availability of skilled workers ▪ Insolvencies in supplier base ▪ Factor costs inflation	▪ Selective consolidation ▪ Emerging markets companies ▪ New market participants ▪ New business models	▪ Productivity requirements ▪ Automation ▪ Industry 4.0	▪ Efficiency ▪ Connectivity ▪ Safety (active & passive) ▪ Others	▪ Basel III ▪ Volatility of capital markets ▪ Shareholder activism ▪ Bank & investor views on automotive	▪ Outsourcing ▪ Pre-contract pressure ▪ Volume bundling ▪ Global localisation	▪ New mobility trends ▪ Growth of emerging markets ▪ Demand volatility

Volatility   **U**ncertainty   **C**omplexity   **A**mbiguity

'VUCA'

Source: adapted from Hota and Pujari (2012); Lung (2001); McKinsey&Company (2012); RolandBerger and Lazard (2013); n.b. this overview represents a selection with no claim to be exhaustive

The uncertainty and ambiguity of technology trends in automotive have always have been a central theme in this industry. Example for this include the past innovations of automatic transmissions in the 1960s, antilock braking system ('ABS') in the 1960/70s as well as Electronic Stability Control ('ESC') in the 1990s. Most studies in recent years agree on these key trends, sometimes referred to as mega trends (D. Becker, 2015, 2016; Hirsh, Jullens, Wilk, & Singh, 2016; Kaas et al., 2016; Lache et al., 2016; Michaeli, 2016b; PrimeResearch, 2015). However, some authors put particular emphasis on aspects that others do not see as key. For example, the PrimeResearch (2015) survey came to the conclusion that design aspects are a key trend. This finding could not be materially substantiated with other sources and is only a subjective view since no one currently knows what will be important in the future, given that automotive currently in in a VUCA situation. Figure 32 gives an overview of what most studies consider the key technology trends, including efficiency, connectivity and safety with their specific sub-trends below.

Figure 32: Overview of key technological trends in automotive
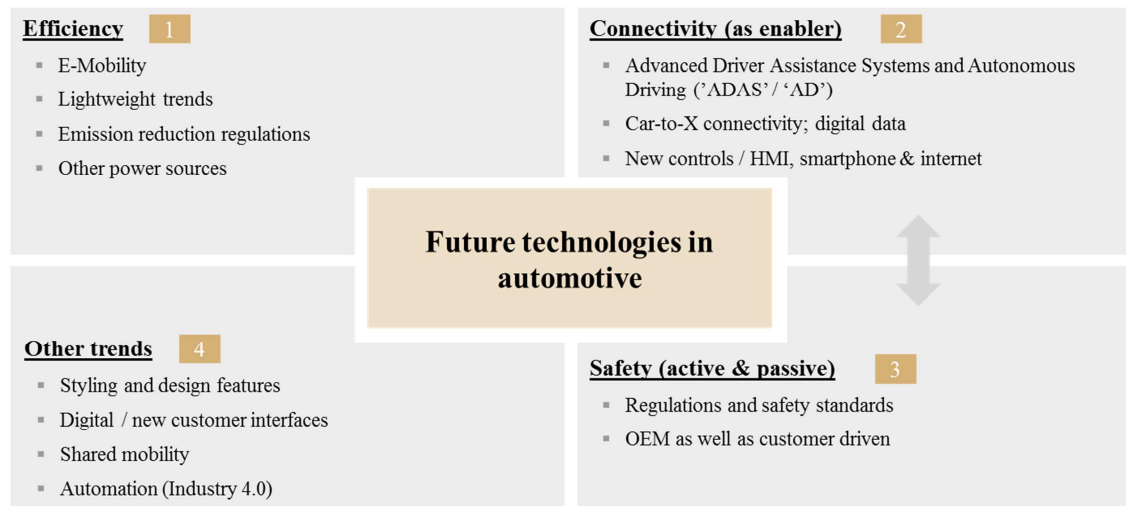
Source: author's own (2016), adapted from ALPHA (2016), PrimeResearch (2015), RolandBerger (2015) and Michaeli (2016a)

Ad (1): Efficiency (Electrification of the car etc.)

PrimeResearch (2015) differentiates efficiency into lightweight material and new energy (fuel cells, batteries) cars. This indicates the rise of alternative fuels and hybrids as sources for power. One example that emphasises the new importance from a political angle is the decision of the German parliament to introduce an incentive scheme for buyers of electric cars (GermanBundesregierung, 2016). However, the historically low crude oil prices (2015/16) have reduced the momentum of this trend, demonstrating the increased volatility in the automotive industry. Another interesting aspect is the potential infrastructure bottleneck that adds complexity, for example, batteries and re-charging facilities for electric cars. Some experts see the US automotive companies as dominating this area. (e.g. Eisert, Hohensee, Rees, & Schaal, 2016) Nevertheless, in the mid-term, the "electrification and systems integration will result in an evolution of the value chain – Some suppliers might lose their current positioning" (RolandBerger & Lazard, 2013, p. 41).

Ad (2) Connectivity including ADAS / AD

There are three key topics to consider within this trend, with *Advanced Driver Assistance Systems and Automated Driving* ('ADAS' and 'AD') playing a key role. (Gerra et al., 2016; Hirsh et al., 2016; McKinsey&Company, 2014; PrimeResearch, 2015; Ringlstetter, 2015) The ADAS era in particular is accelerating, in the sense of real

automation (e.g. Gerra et al., 2016). Furthermore, the generation of *digital data*, which can be among other things used for individualised marketing and insurance companies, seems to be a new trend. Finally, *new HMI* ('human machine interface' or 'advanced human interface solutions' / AHIS) applications and the integration of smartphones and other communication are perceived to become more important. Google and Apple dominate the market of digitalisation (>90% market share) and pushing into automotive, this will be a key trend to watch. Ultimately, this digitalisation and networking will become the basis for and enabler of a "high performance transportation system […] [to] revolutionize transportation" (VDA, 2014, p. 162). Evidence of different assessments of the future impact of trends is the statement by the Ford Chief Executive Officer Jim Hackett who does not consider the autonomously driving car to be as imminent as other industry experts (Automobilwoche, 2017).

Ad (3) Safety (active and passive)

Robust and reliable safety features (active and passive) seem to be the key to customer acceptance for ADAS / AD (e.g. Bernhart, Winterhoff, Hasenberg, & Fazel, 2016; FKA & RolandBerger, 2016; PrimeResearch, 2015). However, the number of safety critical incidents and accidents has increased significantly. The reasons for this are mainly the increased mileage of cars and the increased competitive pressure in the industry, leading to higher standardisation and global platforms. A continuous increase in vehicle safety and the monitoring and management of risks is therefore crucial for all suppliers as well as OEMs. This is also supported by political initiatives, for example, through the initiatives of the European Commission or the US government such as the Euro NCAP or the US NCAP (NCAP = 'New Car Assessment Programme') (e.g. RolandBerger & Lazard, 2013; VDA, 2016).

Excursus - the case of Takata: The company was faced with significant recall volumes and associated costs after numerous product failures and incidents. This led to mistrust of their technology and products, the share price dropped significantly and there was a chance it might go out of business. After attempts to rescue the company through collaboration and joint ownership by key market participants, the company ultimately filed for bankruptcy in 2017 and was to be taken over by KSS/Joyson of China (status as per December 2017). This shows the importance of the safety element to corporate

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strategy and business development. (advisor discussions; Berfield, Trudell, Cronin Fisk, & Plungis, 2016; Mergermarket, 2016, 2017a, 2017d; Reuters, 2017)

Ad (4) Other trends

Other trends that affect the automotive industry are automation / 'Industry 4.0' (connect industrial production with modern IT and communication systems), shared mobility digital / new customer interfaces and new design features. Some reports, for example Bernhart et al. (2016), comment on these but, judging from the number of times they are mentioned in the reports, they are not as key as the other three. For this study, these trends are not commented on in further detail since each trend in itself could be subject to a study itself. Nevertheless, these trends significantly affect the strategic thinking of automotive suppliers and hence influence the decisions on inter-firm collaborations or acquisitions. In view of this, the trends will be analysed where appropriate, particularly, when it comes to collaboration with US automotive companies.

Industry structure: changes under way

Traditionally, the automotive value chain and industry structure is characterised by a pyramidal hierarchy and the pressure flowing down this pyramid or value chain. This includes demanding and price sensitive end customers and OEMs that exercise pressure on tier 1 suppliers etc. (n.b. these are in the focus of this study). There are dominating OEMs, which need system suppliers (and other suppliers) to invest in innovation, while at the same time prices need to continuously go down. This price drop, among other things, be achieved through smart sourcing (for example via dual sourcing strategies). Some academics describe their own experiences and they seem to be partly biased by their involvement in what many suppliers feel is like a one way pressure system, since they talk about "dynamic blackmailing" or "innovation expropriation" (Bauer, 2010, pp. 132, 165). The industry structure has been like this for decades but pressure has increased, as the number of OEMs is reduced (see Figure 5 on p. 17) and volumes per OEM have therefore increased significantly. (e.g. Bauer, 2010; Dannenberg & Kleinhans, 2004; Ringlstetter, 2015)

Examples of OEM dominance include 'pre-contract pressure' (Rolandberger2013; Bauer2010): increased upfront requirements since OEMs push down their R&D ramp

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up towards suppliers. Therefore, suppliers need additional, not compensated, investment. Sometimes they need to pay upfront to get an award, which has a high impact on the suppliers; both innovators and process specialists.

At the same time, there is a mutual dependence between OEMs and their tier 1 suppliers. Some of the main reasons for this situation are the increased complexity of products, time pressure and difficult cost positions (see Figure 31 on p. 117). Therefore, many OEMs increasingly reduce their value chain and buy complete systems from their tier 1 suppliers. There is a change in perception by the OEMs of suppliers from pure contract partners to an integrated strategic system partner, which provides an opportunity for suppliers. (e.g. Lung, 2001; Ringlstetter, 2015; VDA, 2016)

Within the tier 1 suppliers, Juergens (2003), for example, distinguishes between four different segments:

(1) *Systems integrators*, for example Bosch, Continental, Denso, Johnson Controls, ZF Friedrichshafen
(2) *Product suppliers* (components that require high technology and/or expertise) for example Aptiv, Autoliv, Delphi Technologies, GKN, Harman, Mahle, Meritor, Visteon
(3) *Product developers* for example Bertrandt
(4) *Assembly specialists* for example Benteler, Magna (even though Magna also has strong components expertise for example after the acquisition of Getrag transmissions in 2015), Pininfarina

However, as mentioned earlier, the traditional industry structure is changing. The reasons for this are the *industry trends* that affect the world of automotive suppliers. They favour a deeper specialisation in the sector and a more network-oriented industry structure, as opposed to a pure hierarchical structure. This applies to the global market and particularly to the dynamic automotive markets such as the USA (e.g. RolandBerger & Lazard, 2013).

The system integrators in particular could benefit from these trends, since automotive becomes even more R&D driven, while OEMs could potentially focus more on their

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brand management (Dannenberg & Kleinhans, 2004; Juergens, 2003; Lung, 2001; Sedgwick, 2013).

The industry trends have resulted in *new market entrants,* such as Apple, Google, Nvidia, Samsung, and Uber also competing in the market place. Some of them have *entirely new business models*, such as Uber: the taxi network and technology company. These companies have interestingly almost all originated from the US. These new entrants have led to significant changes in the 'mobility industry' or the 'automotive eco system'. The key questions are, 'In light of the connected car, what will the automotive supplier group look like in the future?' and 'Who will take which part of the automotive value chain?' (Bernhart et al., 2016; Juergens, 2003; PrimeResearch, 2015).

However, the new companies face significant challenges. They do not usually have a manufacturing history nor they have their sales and marketing focus on automotive. Furthermore, the industry's limited financial appeal (so far) with continuous price reductions requested by OEMs give mostly slim margins paired with significant investment requirements (e.g. PrimeResearch, 2015). Therefore, collaborations between new companies and traditional areas become more and more appealing to the partners and important; for example, Bosch and NVidia are teaming up to develop Artificial Intelligence 'AI' for automated cars. They announced their strategic collaboration in March 2017. (Ohnsman, 2017)

Finally, another important aspect that adds complexity to the traditional value chain structure is the high growth of emerging market companies into established markets. Recent examples for this development include the acquisition of Bosch's starter and generators business by Chinese Zhengzhou Coal Mining Machinery Group (closed in 2018) and the acquisition of the Japanese supplier Takata by Key Safety Systems / 'KSS' which is part of the Chinese automotive conglomerate Ningbo Joyson (deal announced in 2017) (Mergermarket, 2017a, 2017d, 2018a). The internationalisation efforts of these emerging automotive market participants are highly ambitious but come from lower levels compared to European or US peer companies (for example low-cost country suppliers entering the US American market). (Berret, Kohlen, & Mogge, 2011; Humphrey & Memedovic, 2003; Ringlstetter, 2015; Sturgeon et al., 2009)

The current and mid-term perspective of the automotive industry structure is displayed in Figure 33 and shows how it converges with other concepts, for example car sharing. These changes can already be observed and are expected to gain further momentum as they continue (e.g. PrimeResearch, 2015).

Figure 33: The automotive industry structure
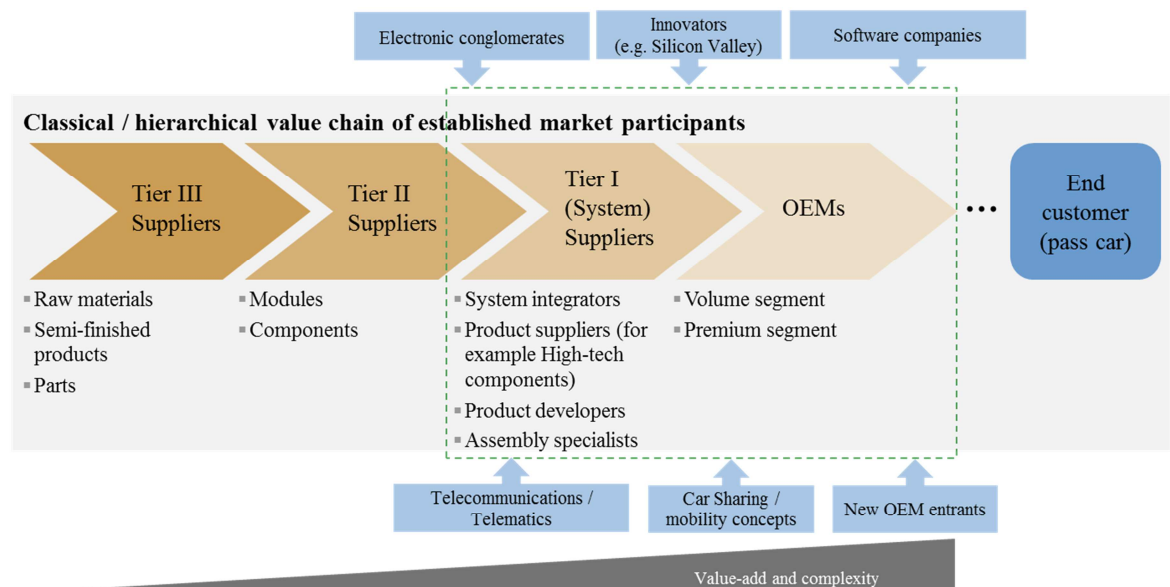
Source: author's own (2016), adapted from Juergens (2003), Mentz (2008), Sturgeon et al. (2009), VDA (2014), PrimeResearch (2015), Ringlstetter (2015) and Michaeli (2016a)

The next section considers international collaboration and M&A activity as well as the US American market specifically and it assesses what academics believe to be the consequences for international suppliers.

International / Cross-border / US aspects (b2)

The automotive industry can be considered to be truly global due to the globalisation of the product 'mobility' and the resulting world-wide reach of OEMs and suppliers (e.g. Ringlstetter, 2015). Since the cross-border aspect adds additional complexity to any strategic consideration, to collaborations in particular, it is worth looking at specifics of these international activities and the underlying rationale.

There are generally three categories within the different models and theories used to explain the *internationalisation of companies through collaboration*:

(1) *On foreign trade*: The classic theories of cost-based traditional theories by A. Smith (1776) and Ricardo (1891) explain why trading (import/export) can be favourable.
(2) *On foreign direct investments (or 'FDI')*: These focus on equity collaborations and other entry forms involving investments.
(3) *Broader theories*: These try to explain different types of inter-firm collaboration.

Trading is not the focus of the current study and so (1) is not considered further. However, the following paragraphs give an overview of selected theories in categories (2) and (3), which seem to be relevant explanations as they focus on internationalisation through collaborations and do not discuss international trade in general. The theories apply to many industries, including the automotive supplier industry.

The theories of category (2) explain FDI with capital market differences in interest rates and portfolio considerations (e.g. Rugman, 1976). Another approach is posited by Hymer (1976) who argues that control is a key motive for FDI and that companies which possess a monopolistic/competitive advantage over their competitors also strive to use this advantage abroad. Diversification is a by-product in his theory. Experience suggests that this theory can be of high relevance for the automotive supplier industry, as control over its activities is a prime strategic necessity for example to satisfy customers and to ensure global quality standards.

Within category (3), some theories explain internationalisation with behaviour patterns. For example Aharoni (1966) posits that internationalisation is the result of a collective decision-making process characterised by rational and irrational elements. Another approach is to explain the imperialistic characteristic of some international transactions, for example, China expanding abroad through acquisitions and inter-firm collaborations (Senghaas, 1972). Burgers et al. (1993) argue that collaboration is chosen when it leads to a cost-efficient way to gain further strategic capabilities. The product lifecycle theory considers the stages of corporate development of a respective company where internationalisation starts with exporting then moves over to other types of inter-company collaboration with more commitment (Vernon, 1966).

Porter (1990) posits that industry sectors, which benefit from favourable location advantages, are in a good position to internationalise. Over the past years, this theory has been tested and supported, for example, by Brakman, Garretsen, Van Marrewijk, and Van Witteloostuijn (2013) for cross-border M&A in the manufacturing industry. This theory explains why European automotive suppliers successfully internationalise as they benefit from its favourable domestic conditions including favourable demand-side factors, resource base (for example human resources, capital, knowledge, R&D facilities), and a generally supportive political environment. Another approach in literature is that three types of OLI advantages determine the entry choice decision between equity vs. non-equity types of collaboration. These are ownership (access to and control over sophisticated and differentiated products or services, multinational experience, etc.), location (market size, dynamics, chances/risks, etc.) and internalisation advantages (*save transaction costs*, reduce contractual risks, etc.) as posited by Dunning (1976). Agarwal and Ramaswami (1992) support this hypothesis using a positivist approach with a regression model gaining some ideas about connections without really going into the underlying reasons behind them in depth. Their analysis is based on primary data from the US equipment-leasing sector. One key sub-aspect of the internalisation advantages of collaborations, in particular international JVs, is mutual learning (Anderson, 1990; Nam, 2011). Another aspect in addition to these more traditional advantages is the access to organisational knowledge and geographical reach, which can be internalised through cross-border M&A transaction (Anand, 2005). Only the companies that identified all three factors (ownership, location and internalisation advantages) driving their internationalisation consider FDI, either directly or with a partner.

One theory that is based on the process rather than on a static approach is postulated by the Uppsala school (Johanson & Vahlne, 1977). Since static and dynamic factors influence the respective company, internationalisation is an incremental process. In traditional industrial organisation theory, collaboration is seen as a means to reduce competition, also in an international context (Burgers et al., 1993).
Ultimately, it is to note that in most cases there is not a single explanatory theory or motive behind the strategic rationale of a transaction. It is rather a 'mosaic' of theories, which are not clearly delimited and sometimes overlap or build on each other.

Furthermore, there tend to be a various motivating drivers for international collaboration involved. (Kutschker & Schmid, 2010, p. 364ff.)

Cross-border context specifically for the USA

One of the key automotive host markets is the USA, as outlined in Section 2.1 on page 17ff. In this paragraph, three lines of thoughts are followed: (1) general considerations on the US American market; (2) focus on the US American automotive supplier market; (3) strategic implications of the first two on the (internationalisation) strategies of automotive suppliers.

General considerations on the USA as host market

The USA is one of the largest economies worldwide and growing, but has all the complexities and socio-cultural concerns of an industrial country (for example aging population). Additionally, it is an innovative market, with minimal and innovation-friendly regulations and legislation. For example, in Silicon Valley Google cars / ADAS cars are being tested on real streets (which in 2017 is not possible in Europe). (Hennart & Reddy, 1997; HSBC & PwC, 2012)

Due to the high transparency and openness for foreign investors and no real structural or governmental problems to entering the US as the largest economy in North America, all entry / inter-company collaboration modes are open to companies (the possible implications of Trump's presidential election remain to be seen.) This openness is based on investment control by the, 'Exon-Florio Amendment' (the full name of the Amendment is 'Exon–Florio Amendment 50 U.S.C. app 2170', 1988). The ultimate aim of this Amendment was to review foreign investments into the USA, with the initial rationale being fear of foreign acquisitions by Japanese companies. Now, if a foreign investment is perceived to potentially endanger the national security of the US, it may be reviewed and ultimately blocked by the President of the US. In addition, it should be noted that transactions between their party countries (e.g. China and Germany) are reviewed, if they do have a US-angle to them, even though none of the partners are US-based companies. In practice, the oversight is delegated to the Committee on Foreign Investment in the USA ('CFIUS'). (J. K. Jackson, 2016) While the regulation was about inbound M&A transactions into the US, currently (as per end of 2017/early 2018) there

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are discussions about expanding this oversight to include also minority and IJV transactions. These considerations might include certain exemptions for allies and certain NATO partners of the USA. However, this is still under discussion and premature to draw a final picture. In any case, the regulatory approvals might take longer but it is still possible to do equity collaboration deals with US-based partners. (e.g. Fleming & Donnan, 2017; Whitehouse, 2018)

In fact, there used to be a limited number of cases reviewed. In the large and diversified manufacturing sector there was ca. 320 between 2008 and 2014, i.e. on average 40-50 per year (J. K. Jackson, 2016, p. 25ff.), which is not many in the light of overall transaction volumes. This might change however and there seem to be more cases being reviewed, given the new political environment in the US following the Donald J. Trump presidency.

US American automotive supplier market

Historically, the USA has been a key market for the automotive industry, as part of the classical 'triade' (the most advanced economic hubs including the USA, (Western) Europe and the industrialised East-Asia with Japan, Taiwan, South-Korea, Hong Kong, Singapore). The years since 2000 were particularly challenging for the US American automotive market as material and input costs rose as well as competitive pressures as a result of increased globalisation. Additionally, supplier margins have been continuously squeezed since the US American consumers seem to be more price-sensitive than customers in other markets are. Technology was another driving factor, for example, for the hybrid powertrain, which was not then the strongest competitive pillar for US American suppliers. They therefore suffered more than European suppliers did, for example. Lastly, the global recession between 2008/09 hit the local supply market severely and volumes of production dropped by ca. 40% between 2007 and 2009.

Due to these developments, the US American supplier market needed to adapt through rigorous cost cutting and re-aligning of product portfolios, and this proved to be ultimately fruitful. This recovery has continued over recent years, based on low interest rates and low gas price levels. In addition, vehicle production has risen again and suppliers report healthy profits. Furthermore, the overall US economy continues to perform strongly with employment also at high levels. (IHS, 2016; McKinsey&Company, 2012; VDA, 2016)

In terms of size, the US American market currently accounts for almost 1/2 of the total global automotive market (Mentz, 2008). Going forward, production volumes and demand indicators are expected to remain positive and this momentum is expected to continue. Additionally, the US American market boosts higher growth potential than other established markets (for example Japan and Western Europe). US American volumes could reach 18 million passenger car units over the next 2-3 years. (e.g. FKA & RolandBerger, 2016; IHS, 2016; Lache et al., 2016)

As outlined above, the current automotive (technology) trends from the block 1 or the 'b1' search on automotive markets, also affect the USA. In fact, today innovative clusters, such as Silicon Valley, grow close to the automotive hubs such as Detroit (Michaeli, 2016b). What is particularly striking is the new ways of innovation through start-ups or university collaborations and the resulting, on-going 'Hunt for talents' in Silicon Valley, with increased salaries as a way for automotive companies to secure access to innovation and engineering knowledge (e.g. Gruenweg, 2015; Lucks, 2017). The following considerations on key technology aspects (see also b1 search) are shared by most authors (see Figure 32 on p. 118).

Efficiency

McKinsey&Company (2012) conclude that new fuel-economy regulations are key market drivers in the USA. Retrospectively, this proved to be right, given the Volkswagen diesel crisis in 2015-17. Furthermore, they highlight the importance for the developed US automotive companies of focusing on high value-add components, mainly in powertrain for efficiency reasons that should be in suppliers' active portfolio management. PrimeResearch (2015) on the other hand found that US American markets are not that significant for fuel cell and e-mobility, compared to Japan and Germany, which are considered the major established markets in this field. Nevertheless, in this field most of the few 'pure play' electro mobility OEMs are headquartered in the USA and are driving this (Faraday Future, Fisker Automotive, Lucid Motors/Atieva, Proterra, Tesla, Zero Motorcycles, etc.) (e.g. Eisert et al., 2016; Gupta, 2016).

Connectivity and ADAS

Almost all major companies in the new field of connectivity and autonomous driving are US-based. For example Google and Apple, having entered the automotive industry,

play leading roles now and will do going forward. Hence in the ADAS market, the USA dominates, followed by Germany and Japan (e.g. PrimeResearch, 2015, p. 21). These results are consistent with FKA/Roland Berger 2016 findings. The USA has a strong focus on ADAS, high market potential and favourable legal frameworks (for example in comparison to Europe). Other authors are more sceptical and attest to the importance of the US American market, particularly the hub of Silicon Valley. However, they also see that traditional US and international OEMs and suppliers will reinforce their own importance in the future through investments as well as collaborations and M&A activity (McElroy, 2017).

Strategic implications for international automotive suppliers and link back to the study focus

In summary, suppliers cannot neglect the trends affecting their industry that result in a VUCA environment. As a potential consequence for suppliers, there are certain 'strategic risks' which can result out of 'strategic gaps' (Deloitte, 2015, pp. 3, 21, 27). In addition, RolandBerger and Lazard (2013) report on these risks and the necessity to monitor them. The key reaction strategies, which could be applied to counter the risks, are, among other things, outlined in McKinsey&Company (2012) (stand-alone strategies vs. using collaborations):

- **Cost improvement:** Cost structures should be actively managed.
- **Product innovation:** Automotive tier 1 suppliers should get the full benefit potentials from new products. The idea is to re-capture as much of the participation in achieved productivity gains by suppliers as requested by OEMs through higher value-add contents per vehicle. This applies to the USA but also elsewhere.
- **Active portfolio management:** Key factors to consider seem to be: "smart consolidation in selected segments with high barriers to entry" and "divestment of 'hard to create value' products" and "exploration of adjacent areas" (McKinsey&Company, 2012, p. 23)

The texts that focus on the automotive market in the USA state that the findings can potentially also be applied to other established markets; for example Western Europe and Japan (e.g. McKinsey&Company, 2012).

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Furthermore, the US American automotive market cannot be neglected by tier 1 suppliers that truly think globally. Even though emerging markets are on the rise, the following should be considered:

- Size-related, the USA is still important.
- US American suppliers are important: 9 of top 50 suppliers tier 1 by sales (2015) are from the USA, followed by Japanese and German suppliers (Statista, 2016). (refer to Figure 7 on p. 19)
- Regional diversification is important and suppliers need to be close to their OEM clients (and the Detroit 3 still shape the OEM landscape) with the right products and technologies.
- The USA determines the future of automotive.
- Attractive regulations enable tests of new technologies and products, for example autonomous driving.

Since regulators are still perceived to be slow in other markets, such as Europe with agencies such as the European transport safety council ('ETSC'), some European suppliers are complaining about the potential loss of competitive edge (e.g. Topham, 2016). Meanwhile, the US American market is perceived to be also attractive for suppliers from a regulatory point of view.

Further evidence of the importance of the USA as an automotive market for European companies is Volkswagen which is struggling in the US American market but keen to stay in it, even after the 'Dieselgate affair' (e.g. Woebcken, 2017).

Not all of the opportunities and aims discussed in b1 and b2 are achievable through organic corporate development alone, for example, disposing of non-core assets or getting access to new technologies in a timely manner. Therefore, collaborations are important as they sometimes represent the only way to reach the goals. The two core elements of the collaboration strategy that form the basis and cover important procedural aspects are strategic gap analysis and the organisational decision-making. These are considered below:

Strategic analysis and decision-making processes in organisations (b3)

Strategic decision-making is an integral part of a company's organisational processes. The contribution of this study is to make recommendations in an advisory framework on how to enhance the potential success of cross-border equity collaboration for the automotive supplier industry.

Strategic considerations including strategic gap analysis

Strategy has a fundamental impact on the long-term performance of organisations such as international companies (Ansoff, 1970; Chandler, 1990; Janczak, 2005). As Porter (1996) argues, a company has to have three pillars for successful and competitive strategic positioning. It needs to have a distinct and unique value proposition, a delimited set of activities and a close fit between the companies activities and resources (Porter, 1996). Porter (1996) uses the term 'strategic fit analysis' regarding a company's activity. If there is a misfit, the strategic gap should be addressed and embedded in a clear corporate strategy.

The concept of strategic gap analysis is covered extensively in the academic literature (e.g. Dagnino, 2003), not only for the automotive supply industry. For example, Perlitz (2004) posits a decision-tree approach to analyse strategic gaps and possible international ways to close them. He emphasises the importance of strategic decision-making to engage in internationalisation strategies. There is no strategic gap in 'active internationalisation' but management follows a pro-active internationalisation. There is already a strategic gap in 'passive internationalisation' and internationalisation is a way to address this gap (Perlitz, 2004, p. 156f.). This passive approach is the focus for the current study.

Ansoff (1970)'s model analysis of the potentials of a company to ensure future company growth. If this is not the case, he suggests four different strategies: market penetration, market expansion, product differentiation, or diversification. These strategies can be applied in a domestic or international context.

Another strategy consideration is Aharoni (1966) 'behaviouristic theory', with the collective decision-making process characterised by rational and irrational elements (cf. considerations on 'b4' on p. 135ff.). Dealing with a strategic gap in an international context is also a theme in the model that emphasises decision-making by senior

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management, who are affected by attitudes, experiences, habits, and prejudices. As such, decisions with regard to international activities are either focused on the home country (ethnocentric), host country (polycentric), region-oriented (regio-centric), or world-oriented (geo-centric) (Perlmutter & Heenan, 1979). Host country orientation is the main one for the current study. The importance of this model is that it makes management aware of these orientations. However, its categorisations are archetypal and will not be found to be that selective in companies or even in the different functions within one company. The world-oriented view is also promoted by Ohmae (1989), who posits that a truly global company should think globally and have an equal distance to all countries in its activities, hence not biased to the home or other special countries.

Within strategy, there are two processes to consider: strategic decision-making (the choice) and strategic change (the implementation process) (Drucker, 1954; Pettigrew, 1992). The current study focuses on the first process.

Decision-making and process considerations

Decision-making is a key function of strategic management, as outlined above. Decision-making tends to be characterised by bounded rationality where the information individuals have, limited time available for a decision and cognitive limitations of their minds influence and limit their rationality (e.g. Cyert & March, 1963; Eisenhardt & Zbaracki, 1992; Williams, 2010). Furthermore, as outlined above, today's decisions (for example in the automotive industry) often have to be taken in VUCA environments, particularly if they are strategic, i.e. usually long-term oriented that adds additional pressure. Policy makers therefore tend to use certain heuristics, which aim at reducing complexity. However, this exposes the policy makers to cognitive biases, such as anchoring where decision-makers base their judgement on an initial piece of information they received at the initiation of the decision-making process. The intention is to be aware of these biases and try to avoid them through rigorous processes challenging decisions for the biases. Policy makers need critical reflection and the ability to improvise (Williams, 2010). It is also important that the managers and decision-makers benefit from organisational learning (see Bingham & Eisenhardt, 2011).

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Further individual, inter-personal, and political topics are not in the focus of the current study and therefore will not be further analysed. The focus is on processes and factors that should determine IJV and IM&A decisions at a company level and support the analytical process, reducing biases. Strategic decision-making is not every day decisions and so they can influence the long-term success and future of a company (Ackoff, 1970; Bower, 1970). As a result, it is difficult to make strategic decisions since it is difficult to determine retrospectively whether a good result was due to skill, a good decision made, context factors or simply chance (Janczak, 2005).

Processes considerations

Strategic decision-making is embedded in a company's setting and it cannot be ignored (Janczak, 2005; Lunenburg, 2010). Defined processes may help to tackle complex strategic decisions. These processes are multidimensional and themselves complex, as pointed out by Drucker (1954). Process starts with a stimulus, for example the identification of a strategic gap, and ends with a commitment to action, for example establishing an IJV or executing an IM&A transaction (Drucker, 1954; Eisenhardt & Zbaracki, 1992). The question is how effectively this can be done and how closely the decisions are interlinked with the company (Mintzberg, Raisinghani, & Theoret, 1976). Janczak (2005) gave the following recommendations for strategic decision-making processes: the identification of level of analysis (for example within an industry or company), the continuous temporal analysis of events, the evaluation of these events given their 'natural complexity' and the development of theories and concepts that emulate the phenomena (Janczak, 2005, p. 69f.).

Organisational considerations

Organisations are political systems in which people get together to pursue specific objectives. One objective that almost all organisations have in common is to cope with technological and environmental uncertainties (Janczak, 2005; Mintzberg & Waters, 1982; Thompson, 1967). The military is among the oldest organisations and has generated a lot of decision making literature for example the VUCA concept (Janczak, 2005; Williams, 2010). Within these organisations, participants sometimes have

conflicting interests and limited cognitive capabilities, making strategic processes complex (Eisenhardt & Zbaracki, 1992; Pettigrew, 1973; Thompson, 1967).

Further influences on decision-making are chance, power, and hierarchy. Other factors to consider regarding decision-making in organisational contexts include the degree of uncertainty, environment, or organisational size. These are the summary findings from various studies in the field, mostly qualitative, with the majority focusing on companies (Eisenhardt & Zbaracki, 1992). In order to keep this study focused on the advisory framework they will be touched on where necessary, but not in their entirety.

The corporate set up, for example organisation, structure and cultural matters, is important since many of decisions are made within an organisation (see Tallman & Shenkar, 1994). Furthermore, some authors (e.g. Dyer et al., 2004) see problems when alliances, strictly speaking collaborations, and pure M&A are handled by different departments within one firm.

These conceptual thoughts on the organisations were useful for the development of the interview guide for the empirical part of this study and ultimately the advisory framework.

IJV and IM&A as inter-firm equity collaborations (b4)

Inter-firm collaboration, as presented in this paragraph, can be a means to counter and alleviate some of the impact of automotive technology trends and changes in the industry structure, as it can bring further competitiveness and other strategic benefits (e.g. diversification). These are elementary tools in the strategy employment of any international automotive supplier company. This section will firstly give a general background on JV and M&A models and theories, which mostly apply to domestic and international transactions and are valid regardless of industry, followed by some concrete considerations of the key motives and rationale of these transactions and finally success factors for the transactions, as seen by academics.

M&A / JV – a theoretical perspective on different explanation models

There is a myriad of theories and models that describe the motives for equity collaborations, based on economic, organisational, sociological and psychological theories (e.g. Tallman & Shenkar, 1994). It is a broad discipline according to Kogut (1988). These explanatory theories apply to both JV and M&A, unless stated otherwise; some are dedicated to M&A.

For the current study, the focus is on economic and organisational models, even though sociological and psychological aspects certainly play a role. This was reflected in the considerations on decision-making (see also the empirical data analysis in Section 4.2). The key models that are presented can be characterised by both value-oriented, and not value-oriented, capital market-driven and strategic approaches (e.g. Hagel, 2006; Mentz, 2008). Many of these perspectives complement each other and therefore have to be considered jointly (e.g. Slangen & Hennart, 2007). As stated, the theories are developed for all equity collaborations (JV and M&A) but usually also apply to an international/cross-border context, even though these transactions are usually more complex, as outlined above.

In almost every transaction, more than one theory or motive may be valid explanations for the specific transaction rationale. In addition, differentiation is often not clear-cut. One example is diversification theory and other theories out of the group of economic theories that all also have a strategic angle. Therefore, a clear differentiation is difficult

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and not constructive. However, Figure 34 uses the primary motive or objective of collaboration as the characteristic to differentiate and systematise the various underlying theories and motives. Generally, two broad groups of theories can be distinguished: the economic group and the strategic group. These are further subdivided into four, non-exhaustive categories, with (a) through to (c) as part of the economic group and (d) as part of the strategic group:

> **a.)** **Value-oriented theories and motives**
>
> **b.)** **Not value-oriented theories and motives**
>
> **c.)** **Capital markets theories and motives (mainly for M&A)**
>
> **d.)** **Strategic theories and motives**

Figure 34: Selected theories and motives for equity collaboration modes
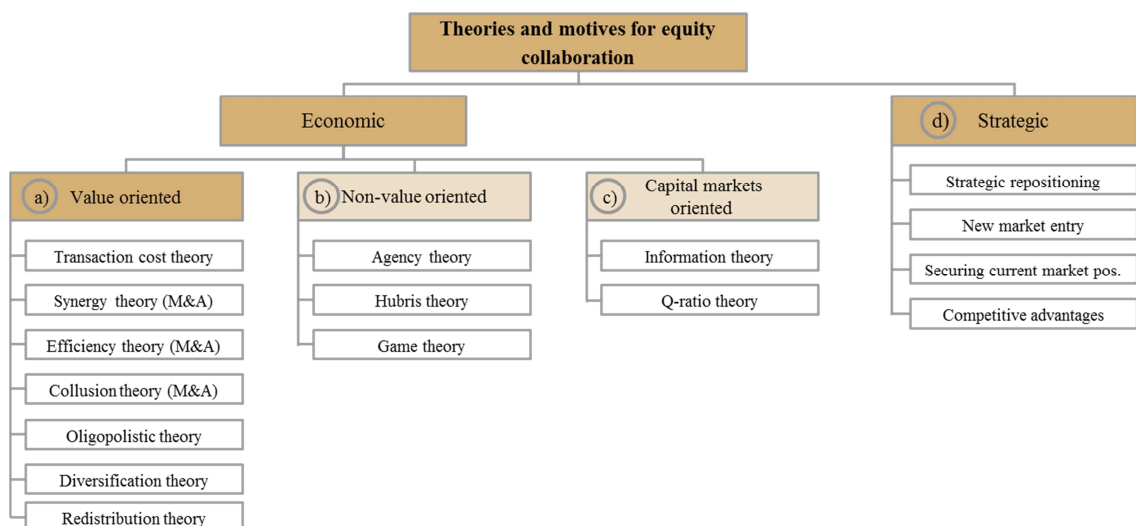
Source: adapted from Hawawini and Swary (1990), Beitel (2002), Wirtz (2014); n.b. the key ones are shaded in brown, value in this context relates to shareholder or enterprise value

Ad a) Value-oriented motives and theories

The key goal of transactions that can be mainly explained by these types of theories is the generation of shareholder and/or enterprise value. Principally, this can be achieved if the combined cash flow of the partner companies is greater after the equity collaboration than the sum of the individual cash flow of both partners. On reflection after the empirical part of the current study, these ones seem among the most relevant explanatory theories and motives.

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The *transaction cost* theory is by far the most cited explanation for collaborations (both JV and M&A) in the literature analysed. This theory that is, among other things, based on the transaction cost theory and that is the OLI paradigm by Dunning is discussed above (see 'b2' of the literature search, see p. 123f). The transaction cost theory posits that companies cooperate when there is a net benefit of the collaboration and the costs of transaction and production are minimised with the marginal benefit being >0. Both partners expect benefits from the endeavour, which is only achievable "as the fruits of joint action, through mutual interdependence" (Parkhe, 1993, p. 798). The main aim in this is therefore the reduction of transaction costs through collaboration, for example, in relation to customer on-boarding, negotiation, control, monitoring, and adjustment of economic relationships). The more specific and complex the product, the higher the gains of reducing transaction costs and internalising, for example, in a technology collaboration or acquisition. This model is sometimes also referred to as the internalisation model (e.g. Tallman & Shenkar, 1994). Specialised texts, that elaborate on transaction cost theory particularly as the explanation of JVs are Balakrishnan and Koza (1989, 1993) or Kogut (1988). In these studies, the authors posit that JVs are likely when firms are from different industry sectors.

Synergies theory is a theory in the M&A and JV sphere since synergies typically require control of the business. The main aim is to have partners which are better off combined or in a collaboration than alone, through the generation of revenue and/or cost synergies because of a transaction. (e.g. Dyer et al., 2004; Wirtz, 2014)

Efficiency theory is also mainly relevant for M&A transactions and based on the assumption that the target company is usually less efficient than the company acquiring it. Therefore, there is value uplift through transfer of knowledge to the target company and efficiency gains can be crystallised.

Collusion theory again is rather an M&A focused one, but it can also apply to JVs. Companies join forces, to gain market power and reduce competition in order to subsequently reduce their output. As a result, prices rise but the average profits of the combined company increase. In extreme cases, this can result in a monopoly. The theory is related to the landmark work of Michael Porter who had great influence on

competition theory. In this context, inter-firm collaboration can be explained by the need for companies to ease their competitive pressures (Kogut, 1988; Porter, 1996).

Tallman and Shenkar (1994) add the *oligopolistic theory* here. They basically see collaboration as a means that is "motivated by strategic attempts to deter competitive market entry and improve oligopoly profit potential" (Tallman & Shenkar, 1994, p. 93). This theory is one explanation for M&A and JV.

In *diversification theory* companies can increase their value by expanding into new products or (geographic) markets.

Re-distribution theory explains motives behind a collaboration that has a positive effect for the owners and shareholder but not directly through increased shareholder value of the company. The re-distribution happens between stakeholders and shareholders. This can be the case when, for example, there is a transfer between the employees, debt-holders or clients to the shareholders.

Ad b) Not value-oriented theories

The main theories in this block are sociological and psychological, such as the Agency and Hubris theories. They are based on personal motives, which may play a role in collaboration activities. Another line of thought centres on the instability of collaborations. Some authors consider *game theory* as a framework to explain the inherent instability of inter-firm alliances. The partners find themselves in a continuous trade-off between cooperating and cheating on each other (Kogut, 1989; Parkhe, 1993). As indicated earlier in this section, sociological and psychological theories were not reviewed.

These theories are usually mentioned in the M&A context but could likewise explain JV collaboration, since they are similar in various aspects such as equity capital commitment, long-term perspective, corporate governance and integration considerations. Furthermore, their explanatory power for equity collaborations should not be underestimated and companies should consider how collaboration transactions, with potential negative impact for the company and its stakeholders should be avoided

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for these reasons (for example convert agents/managers to principals/shareholders by giving them equity-related incentives).

In his work on global JVs, Killing posits that an increase in corporate government complexity, with "double parenting" in global JVs must be an important aspect to consider as "the slowness and confusion of the decision-making process […] can place a joint venture at a distinct competitive disadvantage" (Killing, 1982, p. 121). In an acquisition, on the other hand, even though the control is with the acquiring firm, governance issues and integration issues also need to be looked into, as some of the most important success factors of such a transaction (e.g. Müller-Stewens, 2001) (refer to Table 6 on p. 144).

After the empirical analysis of the interviews, these theories and explanations seemed to be less relevant. Nevertheless, these areas are certainly something that could be considered as a focal point in different research studies with an automotive supplier background.

Ad c) Capital markets motives and theories

Capital market-driven theories relate to capital market inefficiencies and are part of the M&A theories. Two prominent examples of this category are information theory and q-Ratio theory. For the same rationale as for the (b) theories, they are not considered further for this study.

Ad d) Strategic motives and theories

Strategic theory is derived from *industrial organisation* theory. It posits that collaborations are not always directly explicable by transaction costs, synergies or other theories. In this explanation, the collaborations are tools for the overall company strategy to gain competitive advantages. The intention is that companies collaborate mainly to get access to required resources that they could not generate themselves, also called 'Resource-based view', and to reduce a company's uncertainty (Kogut, 1988; Vaidya, 2011). In this sense, the resources are not imitable, cannot be substituted but can generate high value-add and are highly specific. (Wirtz, 2014)

This explanatory approach for JV and M&A collaborations in particular is the resource-based view from Penrose (1995). Specific resources and competences are key to a company's success (Penrose, 1995). Competitive advantage is created when management successfully puts these to work (e.g. Barney, 1991). Sub-streams of this explanatory approach are the (1) competence-based view (e.g. Hamel, 1991) where core competences are the key company goal and (2) knowledge-based view, where knowledge is the key focus (e.g. Grant, 1996; K. E. Meyer, Wright, & Pruthi, 2009; Reinhardt & North, 2003).

In a wider sense, there are three motives for value-maximising theories, since one of the goals of the strategy is usually to increase the value of the company. Differentiation is not clear cut, as stated above. However, strategic motives are shown separately, since the approach to how collaborations are viewed is different to the narrower value-oriented methods. Almost all the motives for founding JVs relate to resources (financial, technical/R&D, market access, economies of scale), as stated by Killing (1982). The empirical part of the current study revealed that these strategic motives seem to be among the most relevant explanatory theories and motives.

Conclusion

The value-oriented and strategic group of theories seem to be the most complementary and to have the greatest relevance to this study in light of the features and trends of the automotive supplier industry outlined above. This view was confirmed in the empirical part by the answers about the various case studies given in the expert interviews.

Rationale for international inter-firm collaboration (and choice of entry mode)

The following four types of study texts can be identified: descriptive, quantitative (based on regression models mostly for the measurement of the success of IJV), quantitative event studies, mostly used in the context of M&A analysis (e.g. Mentz & Schiereck, 2008), and finally qualitative studies. Within these studies, the focus areas are motivation and rationale, success and the special characteristics of such collaborations.

Among the reasons mentioned the most in the literature for why collaborations fail are having the wrong motives and/or making the wrong choice of collaboration mode (Dyer et al., 2004; Lei & Slocum, 1992). These two decisions are closely inter-linked. Therefore, it is important to systematically approach the collaboration decision (Kutschker & Schmid, 2010).

The objectives of a specific inter-firm collaboration become clear after evaluating the status quo, such as availability of personal resources (financial, HR, etc.) and corporate strategy. Since the collaboration mode needs to fit the identified objectives, the different characteristics of the inter-firm collaboration modes are analysed in a next step. Generally, the commitment and involvement of the various partners increases from outright customer/supplier relationships and outright M&A transactions, as they are located on a continuum (Cools & Roos, 2005; Dyer et al., 2004; C. W. Hill et al., 1990; Vaidya, 2011). Figure 35 shows these key characteristics (which are reflected in Figures 10 and 11 on pages 32 and 33 respectively).

Figure 35: Systematisation of collaboration modes by strategic considerations

	Transaction	Interfirm collaboration/Strategic alliances		M&A		
	Contract/Export	Specific alliance	Licensing	Joint Venture	Majority stake	Takeover
Resources/market	+	++	++	+++	++	++
Cost/economics	-	-	+	++	++	+++
Control/organisational	-	+	+	++	+	+++
Risk/commitment	-	+	++	++	++	+++

-	= None, low	++	= Medium-high
+	= Low-medium	+++	= High

Source: adapted from Cools and Roos (2005), Perlitz (2004), Dyer et al. (2004), Nooteboom (1999); n.b. the green shade denotes the study's perimeter

Resources/market: Market penetration/access, access to technologies and knowledge/learning curve, overcoming of trade barriers, reduction of competition, speed to the market, diversification

Cost/economic: Investment, economies of scale, economies of scope, synergies

Control/organisational: Integration, dependence on a partner, decision-making process, duration, entity formation

Risk/commitment: Transaction risk, exposure to politics/government, management/resource commitment

Academics focus on different characteristics of collaboration modes in their various texts and studies (Bugnar et al., 2009; Hagedoorn & Schakenraad, 1990; Kaufmann & Jentzsch, 2006). For example, Hamel (1991) and Mowery, Oxley, and Silverman (1996) focus their papers on strategic alliances on one key aspect: the internalisation of knowledge of partner firms. In his seminal paper, Hamel (1991) argues that this is a key aspect of international alliances.

With the different characteristics of collaborations in mind, one has to evaluate which type fits the motives. According to Luthans and Doh (2009), these would mainly be improvement of efficiency, access to knowledge, mitigating political factors, overcoming collusion or restriction in competition. Another way to differentiate the aims is to reduce "demand uncertainties" (changes in customer behaviour) and "competitive uncertainties" (interdependency between firms) (Burgers et al., 1993, p. 420). In their quantitative study, Burgers et al. (1993) conclude that collaborations between firms can reduce both types of uncertainties but come at the cost of strategic flexibility. They also argue that collaborations between small and large firms tend to stick within a cluster (or sub-network), whereas firms of intermediate size tend to be more open for alliance across sub-networks.

After deciding to enter into an inter-firm collaboration, the key choice centres on Equity modes (JV/M&A) vs. Non-Equity collaboration. Some authors recommend senior management make choices between M&A or non-equity collaboration and alliance more deliberately. An appropriate organisational set-up in a company can certainly enhance this, for example, with one collaborations / corporate development team taking care of both. (Cools & Roos, 2005; Dyer et al., 2004; Kaufmann & Jentzsch, 2006)
Dyer et al. (2004) for example conclude that three factors seem to determine the choice: the resources/synergies desired, the marketplace where the companies compete (hence the level of market uncertainty and the level of competition) and the collaboration competencies (expertise that the respective companies have already gained in previous transactions). Another key aspect is the embedding of collaborations into the overall strategy of the firm, taking into consideration the social and political contexts. Furthermore, the internationalisation mode needs to be appropriate for the company's stage in the lifecycle (Melin, 1992).

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Samli et al. (1996, p. 25) distinguish between 'convenient' and 'strategic' collaborations. They argue for the need for strategic ones that give the collaborations partner(s) a competitive advantage and enable the partners to learn and grow. On the other hand, convenient collaborations are the ones that merely overcome a company's shortcomings, such as defending, restructuring, catching up and retaining, as posited by Lorange, Roos, and Brønn (1992) or uniquely aim at internationalisation and/or cost cutting as stated by Samli, Still, and Hill (1993). This view is in line with Cools and Roos (2005) who argue, that a M&A approach can be better suited to attain a strategic collaboration.

As for M&A, efficiency and strategic motives and the use of the comparative advantages of the acquirer in particular are key (Brakman et al., 2013). Many authors see similarities with JV transactions, for example Luthans and Doh (2009). Furthermore, JVs are often a transitional step between a less committed collaboration and full ownership (Bleeke & Ernst, 1990; Hamel, 1991). This phenomenon can be substantiated by evidence from the automotive industry. For example, Bosch buying ZF Friedrichshafen's stake in their Joint Venture 'ZF Lenksysteme' in 2015 or Freudenberg buying out Trelleborg in their Joint Venture 'Vibracoustic' in 2016 (BoschGroup, 2015; FreudenbergGroup, 2016).

Table 6 shows the key characteristics of both collaboration modes, and thus contrasting the IJV and IM&A approaches. The characteristics categories are: assets and efficiency-driven considerations, competences that can be gained, positional advantages/politics to be considered, strategic behaviour that tends to favour the one or the other approach, and ultimately an indication for choice. The considerations are general remarks and tendencies, not necessarily applicable to every transaction since transactions are all very unique (with regard to the partners involved, the market, timing, etc.).

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Table 6: Comparison of IJV and international acquisition

	International Joint Venture	International acquisition
Assets / efficiency	• Candidate for M&A not available, too big, inseparable • Share or prevent risks (financially, cultural integration, etc.) • M&A candidate to difficult to evaluate • Maintaining existing brand name, access to resources • Maintain autonomy for motivation • Sequential and interdependent synergies (i.e. only crystallised in equity collaboration with more commitment than non-equity)	• High economies of scale possible • Potentially, higher redundancies • Full access to and control over resources (e.g. knowledge and IP) • Integrate conflicting procedures • Sequential and interdependent synergies to be captured • Save set-up costs for JV • Mostly 'hard' elements and hence easier to calculate economics
Competences / resources	• Maintain focus on core competencies • More diversity of sources for learning • Outside partner's core competencies	• Protect against negative 'spillover' / internalisation as advantage • Minimum knowledge in product area to be acquired needed • More flexibility in other contacts
Market	• Uncertainty tends to be higher • Market growth tends to be higher	• Comparatively lower levels of uncertainty • Limited market growth
Positional advantages / politics	• Maintain local identity, legitimation • In some jurisdictions, no acquisition / M&A approach possible	• Location factors (host market) • Eligible, if no/limited regulations regarding M&A in place
Strategic behaviour	• Maintain flexibility of combinations • Set-up and partner selection essential • Potentially unclear governance and lack of commitment, i.e. difficult to manage • Medium to long term, as opposed to permanent acquisition	• Limit transaction costs in specific investments by increased control (ownership) • Prevent conflicting interest among direct competitors or the emergence of a new competitor • Prevent takeover of partner by a competitor, or of a competitor by a partner • Prevent free riding • Protect brand name, reputation
Indication for choice	• If competence of partner is complementary or there is geographical separation of markets	• If competence of partner is part of own core competence and there is geographical overlap of markets

Source: adapted from Killing (1983), Kogut (1989), Bleeke and Ernst (1990), Hennart and Reddy (1997), Nooteboom (1999), Hughes (2000), Dyer et al. (2004) and Cools and Roos (2005)

Key parameters and potential challenges in collaborations

The primary focus of this study is on the analysis and subsequent decision-making/choice of inter-firm equity collaboration, as outlined above. Ultimately, the purpose is to try to enhance the success rate of such collaborations. Therefore, a brief analysis of the key parameters that influence the success was conducted. All of the identified parameters should be taken into account when thinking about inter-firm collaborations in both the initial phases and the execution (cf. Figure 8 on p. 23).

Success is a broad term, depending on the perspective regarding a certain subject. For the purpose of the current study, success was defined as achieving the objectives of the collaboration for the partners involved and their respective stakeholders (for example employees, management, and shareholders). Nevertheless, measuring the success and performance of a multi-dimensional collaboration is a complex task (Blanchot & Mayrhofer, 1998; Dussauge & Garrette, 1995). Sharing the aim for the creation of a 'win-win situation' rather than a 'zero sum game' is the key to success of any collaboration (Melin, 1992). The question is how to achieve this. Some authors argue about success factors and other aspects in general. Others focus on a particular industry

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or geography and the question in these cases is if and how these findings can be transferred.

Table 7 shows the basic categories that can be success factors, in a few selected papers and studies on inter-firm collaboration. These categories may be named differently, for example, the choice of partner vs. compatibility and the problem factors may or may not be managed appropriately. With the increased commitment of the partnership, these factors gain more importance. Only the key parameters in each paper are highlighted in this table. As with the main objectives of collaboration, authors focus on different areas with regard to success and critical factors. These areas are grouped into strategy and transaction specific related blocks. On the one hand, in the strategic group, one main category seems to be the competitive situation and structure within a given industry. On the other hand, in the transaction-related group considerations on complementary resources and benefits, the partners' ability to perform, the choice of partner as well as the relationship between partners seem to be important.

Table 7: Key aspects of collaboration transactions

	Category	Anand (2005)	Blanchot (1997)	Bugnar et al. (2009)	Cools & Roos (2005)	Dussauge&Garrette (1995)	Hu & Chen (1996)	Kaufmann (2006)	Luthans (2009)	Melin (1992)	Merchant (2005)	Mulotte (2013)	Nielsen (2007)	Rakita (2014)	Samli (1996)	Tao (2004)	Tehrani (2003)	Whipple (2000)	Xiaosong (2011)	Zeng (2013)	SUBTOTAL
Strategic	Competition/industry structure				x	x	x			x	x						x				6
Strategic	Clear objectives/aligned with corporate strategy			x		x								x				x			4
Strategic	Political context									x	x									x	3
Strategic	Senior management attention/importance			x											x			x			3
Strategic	Geographic reach	x									x										2
Transaction	Complementary resources/benefits	x		x	x			x	x		x			x	x	x		x		x	11
Transaction	Partner's ability to perform		x	x	x		x				x	x	x	x			x	x	x		11
Transaction	Partner choice/compatibility (e.g. culture)		x	x	x	x		x	x		x							x	x		9
Transaction	Relationship of trust/communication		x						x				x		x				x	x	6
Transaction	Distribution of ownership & control	x		x	x	x															4
Transaction	Longevity/stability		x																x	x	3
Transaction	Contractual agreement		x																		1
	Subtotal	3	5	6	5	4	2	2	3	2	6	1	2	3	3	1	2	5	4	4	
	Average																				5

Source: author's own (2016); n.b. the key categories are highlighted in green

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Competitive dynamics/industry structure: Porter (1990) and Merchant (2005) consider the strategy implications of competition levels as firm-level determinants. Rakita and Markovic (2014) argue that there is a tendency for firms from developed markets acquiring companies to benefit from competition advantages such as cost reduction, financial synergy, economies of scale and scope. In his often-cited paper, Harrigan (1988) emphasises the importance of the competitive environment. Tehrani (2003) found support for the notion that strategic alliance can enhance the performance of companies, relative to companies that do not engage in collaboration.

Clear objectives: Collaborations are strategic tools so they need to be in line with the overall corporate strategy and follow a strict process (e.g. Cools & Roos, 2005).

Political context: The political context is crucial particularly with regard to collaboration as a way to internationalisation (e.g. Melin, 1992).

Senior management attention: As collaborations have a strategic impact, they need the management's support. This link has been confirmed by the survey conducted by Whipple and Frankel (2000).

Geographic reach: Collaborations can enhance geographic diversification, in particular in M&A transactions (Anand, 2005).*Geographic reach*: collaborations can enhance the geographic diversification, in particular in M&A transactions (Anand, 2005).

Complementary resources/benefits: The "relative even exchange […] of resources and benefits" of the collaboration partners is important (Whipple & Frankel, 2000, p. 1). Another aspect is the complementary nature of resources and technology (Luthans & Doh, 2009; Rakita & Markovic, 2014).

Partners ability to perform: Partners need to be strong in order to be successful in a collaboration (Bugnar et al., 2009; Killing, 1983). This was confirmed, for example, by the studies of foreign JVs in China by Hu and Chen (1996). Nielsen adds that also reputation of the partner seems to have an impact of the alliance performance (Nielsen, 2007).

Choice of partner/compatibility: There should be diligence, in particular with regard to financials, operations, culture, and strategy of the partner. Companies need to be aware of their differences and to proactively manage them, for example with regard to the other partner's needs (Bugnar et al., 2009; Luthans & Doh, 2009).

Relationship of trust: This is a key feature, if the partnership is meant to last (Luthans & Doh, 2009; Zeng, Shi, Li, Lo, & Zhu, 2013). Collaboration agreements should aim to share knowledge and to benefit from a good relationship quality as this contributes to a

higher degree of tacit and explicit knowledge in inter-firm technology transfer. Furthermore, good relationship quality creates potential for individual exchanges between the collaboration partners (Abdul Wahab, 2011)

Distribution of ownership and control: The set-up of the collaboration, for example the organisational structure determines, which level of performance an inter-firm collaboration can achieve (Cools & Roos, 2005; Dussauge & Garrette, 1995; Killing, 1983).

Longevity / stability: It is crucial that collaborations are stable in corporate strategy. Longevity can be an indicator of collaboration success, therefore this criteria is key in the meta-study on JV success by Blanchot and Mayrhofer (1998).

Contractual agreement: Besides its establishment and management, dissolving or exiting a collaboration is also difficult and a distinct process and contract are necessary to alleviate this (Cools & Roos, 2005).

All of these factors apply to inter-firm collaborations in general, but gain even more importance when it comes to complex international transaction. The research approaches and methodology in success and performance analysis differ significantly. Within the meta-study on JV success, by Blanchot and Mayrhofer (1998) identify a variety of approaches including quantitative and qualitative, in 51 empirical investigations. They found that most studies only focus on the performance of the JV and postulate that the performance of the partners post transaction (for example stock market reaction) should also be considered. This is in line with Merchant (2005).

Following this line of thought, a central element for cross-border collaboration is culture, national as well as corporate culture (even though cultural aspects of collaborations are not the focus of this study, it is nevertheless important to touch these factors briefly).

Cultural considerations emanate into various other aspects covered above, such as the partner selection. There are cultural differences between the USA and Germany and there are cultural differences within Europe. These differences affect corporate culture, the behaviour of individuals and corporate processes such as strategic analysis and decision-making. The USA and Germany are not that different considering Hofstede's cultural dimensions (e.g. scoring low in the areas of 'power distance' and high on 'individualism'), compared to the markets in Asian countries such as China, that play an

increasingly important role in the automotive industry. (Hofstede, 1980, 2001) This was reinforced by Erin Meyer's more recent work. In her 'Culture Map' she states that even though today English is the universal language for business across the globe, there still remain differences in terms of how people in different countries and cultures look at aspects such as communication, decision-making or trust for example. In her studies she also interestingly looks at changes of these cultural aspects over time. (E. Meyer, 2014)

Recently, there has been a surge in publications on how cultural matters should be reflected in the execution phase of collaborations (for example in the due diligence phase, where partners collect and analyse information about one another). This is in particular important when it comes to future integration into the new company or government issues in collaboration. The central element in that context are the human resources as a factor in success of a collaboration or acquisition (i.e. with joint teams and coherent identification / communication strategies, etc.) as stated for example by Horwitz et al. (2002) or Berner (2008). These thoughts are shared by expert advisers in the field (see selected comments on a meeting with a specific adviser in Section 4.2 on p. 193f.).

In that context, corporate cultures are analysed and tried to be understood. Some authors, such as Bischoff (2007) or Groysberg, Lee, Price, and Cheng (2018), present practical analysis tools, such as 'cultural audits' or 'cultural profiles' to help companies to overcome or at least ease these cultural risks.

However, the extent to which cultural due diligence is performed and implemented into acquisitive companies' actual protocols and processes is questionable however. In some cases, neglecting the cultural aspects of a collaboration or M&A activity led to their failure, in particular when a 'culture clash' is experienced. (e.g. Berner, 2008; Carleton, 1997)

Other authors explicitly elaborate on the positive effects these cultural differences can have, such as mutual learning and problem-solving skills (e.g. Dikova & Sahib, 2013; G. K. Stahl & Voigt, 2008).

Further studying the impact of cultural factors specifically on automotive supplier collaboration could be another field for future study, since a company's culture also depends on its industry and "as someone ones said, culture eats strategy for breakfast" (Groysberg et al., 2018, p. 46).

PAIRWISE COMBINATIONS (p1-p3)

This step of the literature review analyses the literature and studies on international inter-firm collaboration, paired with the other building blocks of the current study including automotive supplier context, US/cross-border context, and aspects of strategic organisational decision-making and process. The next paragraphs give a thematic analysis and subsequent synthesis of the findings in the 'Pairwise searches'. As stated above, the literature on collaborations is broad. The following section analyses the key literature and combines it in the form of synthesis. This can be considered a translation of concepts (J. Thomas & Harden, 2008). One can also identify some key recurring aspects such as definitions of collaborations (see Section 2.1, p. 24ff.), the rationale for collaborations (or entry modes), theoretical background, critical success factors / sources of potential challenges and geography (the USA) and industry-specific (automotive suppliers) aspects.

Strategic automotive industry challenges paired with JV and M&A (p1)

This analysis is an overview of JV and M&A literature, which includes an industry segment. This section is not merely focused on the automotive industry but rather spans a broader definition of similar manufacturing industries, for example due to globalisation and the need for international footprints (see search strategy section on p. 48ff.). No papers seemed to be focused on both collaboration options (JV and M&A) analysed for the automotive supplier industry. They were either M&A or JV driven, but mostly focused on different aspects, regardless of methodology (quantitative, qualitative, or mixed methods).

M&A in automotive

A recent study by Hirsh et al. (2016) focuses on M&A activities of automotive suppliers. The study is based on industry data (operational, financial, and strategic) and hence takes a mostly quantitative approach. Their key conclusions include that financially and operationally strong automotive suppliers, particularly US American, will play a key role in future consolidation, while Europe remains economically weak and slow growing. The most active and dynamic sub-industries with regard to M&A are

expected to be the ones with high fragmentation and high value-add products, for example engine, powertrain and chassis components/systems)

A broad and quantitative study of M&A in the automotive supplier industry was undertaken by Mentz (2008). He argues that M&A is the key instrument in the current consolidation and reduction of the number of suppliers. He indicates three automotive supplier industry-specific explanatory models. Firstly, he posits that *the development of new models* can be a reason, since besides additional knowledge, a combined company has of pushing "simultaneous engineering" (Mentz, 2008, p. 39) in which different engineering steps can be conducted in parallel and hence save development time. Cassiman and Veugelers (2002), who researched the Belgian manufacturing sector, support this argument with econometric evidence.

Desyllas and Hughes (2008) draw on make-or-buy models as well as organisational learning theories. In line with Mentz and based on a large sample analysis of (high) technology acquisitions, they concluded that acquiring small, innovative firms or parts of larger companies is a good opportunity for larger firms to boost their innovation capabilities. However, they also found evidence that companies that acquire have reduced commitment to their own internal R&D and that limited R&D productivity increases the chances for a company to go for an acquisition. Finally, they posit that if a company already has a significant knowledge base they can more easily integrate and leverage additional knowledge from the acquired company.

Secondly, *automotive M&A can reduce the manufacturing depth of OEMs.* System integrators (cf. Figure 4 on p. 15) become an increasingly important part of the automotive value chain. They can therefore add knowledge and become a key partner to the OEMs as they focus more on their core business. These thoughts are in line with Dannenberg and Kleinhans (2004).

Thirdly, *OEMs try to reduce their purchasing complexity* and as a result, they follow a narrow sourcing strategy, which gives a push to consolidation in the supplier area. Internationalisation is also a key motive: to serve OEMs locally is mentioned as a key driver for cross-border and, most importantly, trans-continental M&A activity. These findings are, for example, supported by the VDA (2016), Juergens (2003), Sedgwick (2013), Kaas et al. (2016) and Bauer (2010). Another important factor for automotive

supplier consolidation, which is expected to continue, is sheer market and volume growth (e.g. Dannenberg & Kleinhans, 2004; Kaas et al., 2016; Sedgwick, 2013).

A side effect, but nevertheless still essential, is illustrated by Mentz and Schiereck (2008) who focus on implications from cross-border automotive M&A in the industry. They posit that M&A can indeed be a good way to address industry challenges but *PMI efforts and costs* should not be neglected, in particular since higher attention is necessary in the more complex cross-border M&A than in the domestic ones.

JV in automotive

Hughes (2000) conducted a survey-based study on inter-company collaboration within the US American supplier sector, including JVs but not M&A. He argues that the high usage of collaborations supports the idea that this strategic tool is essential for the supplier industry in the USA. His findings also revealed that *new competitive advantages seem to be an elementary rationale for inter-company collaborations* that he defines as co-development/production, licensing, and equity collaborations. The majority of survey participants named *low cost production, access to customers and strategic focus* as a source of competitive advantage. One of the most favourable forms of collaboration is perceived to be equity joint venture, which is consistent with findings from other studies, (e.g. Burgers et al., 1993). Furthermore, Hughes (2000) posited that he found statistical evidence with regard to the relationship between the collaboration form and corporate strategy. Interestingly, access to knowledge and technology, which is the focus of many other studies, was not covered in his work.

Hagedoorn and Schakenraad (1990) considered inter-company collaboration in core technologies, such as new materials, biotechnology, and information technology/IT. Hence, this sample is not directly comparable to automotive supply even though there is an increasing overlap between industries, for example with new materials, lightweight trend, IT, and, connectivity of the car (see b1 on p. 115ff.). Geographically they analysed the triade countries since most companies collaborate within this block. In 1990, the Asian part of the triade only included Japan. If this is expanded to include other East Asian countries such as China, this would most likely still be a valid observation. They identified similar motives across the analysed sectors: most

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importantly technology compatibility, reduction of innovation time-span and new markets.

In a study on international JVs within the aerospace/defence sector, Dussauge and Garrette (1995) came to a similar conclusion with regard to compatibility. They considered strategic features and organisational processes and argued that, in general, the closer the two co-operating companies are the better. Hence, complementary, business or 'link' JVs seem more successful, as opposed to mere volume driven JVs. This could be seen as support for the synergies and strategic theories of collaborations. With regard to process, they do not generalise whether a structured approach always makes sense or adds the most value.

Tao (2004) and Rasiah (2011) focused on the emerging markets of China and India. Tao (2004) examined JVs in the Chinese automotive industry. He takes a resource-based and concludes that *the first mover advantage* is key in rapidly growing economies such as China. Besides timing and initial resource commitment, he posits that there needs to be continuous commitment and resources dedicated to the development of the JV over its whole lifetime. A time lag with regard to profitability levels is perceived to be likely in China.

In his study focused on automotive collaborations in India, Rasiah (2011) compared the performance of IJV and domestic automotive suppliers. He finds that IJV generally have higher technology expertise and expenditure and are more proficient, for example, in HR processes. However, domestic companies are perceived to also benefit from positive ancillary or 'spill-over' effects from these IJVs. Unfortunately, he does not comment on the benefits for the foreign parent.

Combining views

Doorley (1997) indicates a critical note to inter-company collaborations. In a sample of large US manufacturing companies, he found that *growing a company by any means* is not helpful nor is a collaboration project if it is not done for clear reasons. He even calls the hype around collaborations a "fad of the 1990s" (Doorley, 1997, p. 9). This study thus supports the notion from the earlier sections, such as 4.1.2 on page 135ff., that distinct motives and rationale for collaboration in the industry are essential.

A more regional study focusing on the Mexican automotive market by Cedillo-Campos, Sánchez-Garza, and Ramirez (2006) concludes that *logistics can be a key driver for automotive companies* to re-configure their inter-company relationships and collaborations. They do not focus their elaborations on M&A or JV.

A paper that analysed global strategic alliances in automotive was written by Burgers et al. (1993). With quantitative analysis and testing of various hypotheses on alliances, they posit *demand and competitive uncertainties* as the drivers for alliances. As a result, their findings support their hypothesis, particularly in many automotive networks such as cross shareholdings and JVs.

Dannenberg and Kleinhans (2004) ran a study together with the Fraunhofer Institute in Germany based on a combined approach and the mixed methods of expert interviews and industry data analysis. Their focus was on the collaboration between OEMs and suppliers. The key findings were that in current times of industry change, the *OEMs tend to focus on brand management* while *suppliers (tier 1 and others) increase R&D spending*, thus capturing more value-add of vehicles. As a result, new types of collaboration between these companies are established and gain importance, such as OEMs outsourcing non-core capabilities to external suppliers. An example of an international JV mentioned was between the suppliers Dana and Getrag, into which the Swedish OEM Volvo put its four-wheel-drive activities in 2004 (Achorn, 2004).

International / USA specifics for IM&A and IJV (p2)

This section analyses JV and M&A paired with considerations of the international and US American context. As with the previous section, it first considers IM&A and follows this with discussion of IJV.

International M&A

Ostermann and Harvey (2016) concluded that US American suppliers are open to M&A and are, or most likely will be, among the main consolidators. The striking figure of almost half of the group of expected automotive consolidators comes from the USA. (Ostermann & Harvey, 2016) With regard to motives in international M&A, Brakman et al. (2013) posited that the *competitive advantage theory* of M&A in particular and also

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internationalisation, are of high explanatory value. As with Porter (1990), they found that higher success rates can be attributed to companies from industries with a strong domestic market position. They also see strategic as well as efficiency motives as key drivers for M&A in the industrial sector. They tested their findings with quantitative methods, such as the 'Balassa Index'. (Brakman et al., 2013)

International JV

Within a broader look at management challenges due to economic cycles and technological change, Starr (1991) offers solutions with regard to alliances. He distinguishes between strategic alliances and tactical (without equity involvement). The intention is to promote alliances, or collaborations, to push corporate re-organisation and obtain synergies. As with many authors in the 1990s, he focused on Japanese companies entering the US American market.

In their seminal study on market entry of multinational companies in the US, Kogut and Singh (1988) highlight the *limited regulations and restrictions* on foreign ownership. They posit that the IJV is favoured when cultural distance between the entering company and the US partner is low. Nevertheless, this effect can be offset by increasing experience with internationalisation, for example, by Asian companies. The main subject of Baird, Lyles, Ji, and Wharton (1990) study focused on Chinese and US inter-firm collaboration, was also that cultural difference that plays a key role. Their quantitative questionnaire measuring via a 'Likert scale' and based on a relatively small sample, showed the different perceptions of JV success by Chinese and American respondents.

Another interesting factor when comparing cultures was found by Urban and Vendemini (1992). They posited that differences in the perception of competition exist. This competition is considered as a positive concept in the USA but seen more critically in Europe.

For Hennart and Reddy (1997), the main influencing determinants for IJV are *the cost of disentanglement, digestibility and divisibility.* They found evidence for the proposition that IJVs are more likely when these factors are problematic. The study data is from Japanese firms entering the US market (e.g. Starr, 1991). As Japanese

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companies at that time had limited experience of internationalisation, limited experience was identified as a component that made international JV more likely than other types of collaboration. The study could not find prove of the transaction cost theory. However, this might be different today, as many companies have been internationalised over the past two decades. Unfortunately, the study's sample did not include automotive companies.

In his quantitative survey concentrating on collaboration for innovation based on "contractual agreements" (not M&A nor JV) in the chemical, electronic and instruments industry, Angel (2002, p. 335) discusses and analyses company size and location. He found that context is an important element of the complex phenomenon of collaborations and that *large companies and companies located in urban areas* are more likely to enter collaborations. Furthermore, he posits that collaborations are mainly with non-local firms and that regional industrial agglomerations are not a driver of collaboration. Firm culture and regional culture also seem to play a key role according to the study. Another finding of the study is the positive relation between R&D collaborations and performance in the sample.

An additional factor considered in the literature is JV stability. Blodgett (1992), for example, focused on joint ventures with a US and a foreign partner and used contract re-negotiation, which is also likely to trigger re-structuring of the JV, as a proxy for JV stability. With the caveat of limited empirical evidence, the author found that there is a limited relationship between instability and JV performance and that an even share of partners help stabilise JVs. Comparing different regions, the conclusion is that in open economies, such as the USA, contract re-negotiations and instability are more likely than in more regulated ones such as China.

Inter-linked with stability of JVs is the question of how they end. Reuer (2002) examined the situation where US multinational-owned *JVs are bought out by the parent*. This is a common phenomenon (also in the automotive supplier industry as stated earlier) and closely linked with the corporate strategy of the parent. In this study, evidence is provided that this buy-out scenario becomes more likely if the JV is in a country culturally close to the US, the JV's business model is close to the parent's core business or the parent has financial strength and has already exercised control over the

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JV during the lifetime. Likewise, if the opposite is true, parents are more likely to sell their stake rather than buying out the other party. The sample comprised deals in the US with over 80% in the manufacturing sector. Out of all JVs analysed approximately 50% were bought out.

Decision-making / choice of IJV vs. IM&A (p3)

While the paragraph on b3 (on p. 131ff.) encompassed thoughts on corporate and organisational decision-making in general, the focus here is on decision-making with regard to collaboration in the form of international Joint Ventures or acquisitions. As outlined earlier, there are two perspectives to be differentiated in the literature: the entry mode and the more general collaboration mode. Again, both are considered and analysed for the purpose of this literature review. One interesting finding is that the majority of texts deals with entry modes, not 'mere' international collaboration. In fact, many authors differentiate between fully owned rather than inter-firm modes. These activities can also be born and achieved through an acquisition and therefore the concepts can be linked together.

In the following paragraphs, I will firstly discuss the matter of choice between own and partnership-based international activities and then focus on the choice of inter-company collaboration mode.

Own vs. with partner / general entry mode discussions

Sousa (2014) discusses and extends the classical concept of 'make or buy' decisions. In this context, 'make or buy' is not necessarily linked to M&A but refers to buying or making in general (e.g. in factor markets). He posits that this notion should be extended by a *'collaborate' dimension,* as a firm is "not defined by its boundaries but rather by resources, capabilities and activities" (Sousa, 2014, p. 18). Furthermore, he argues that this *extended boundary decision* should always be considered in the context of a specific firm. When collaboration *benefits/cost relationships are favourable and uncertainty is moderate,* this third option will be more beneficial compared to strive the internal ('make) or market solutions ('buy'). In a similar direction Capron and Mitchell (2012) posit that executives should consider also the "Borrow" concept besides make and buy and they provide a heuristic for when to use this mode, which is in essence a hybrid between "Build" and "Buy" (Capron & Mitchell, 2012, pp. 2, 128).

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Tallman and Shenkar (1994) focus on the decision-making process of collaboration. They consider this a complex process from both an organisational and a managerial point of view. A lot of the decision-making is within an organisation rather than external parties (this thought was reinforced by the empirical part of the current study). Decisions are always based on incomplete views of economic and non-economic relationships. Furthermore, environmental factors also play a key role. The authors argue that the main driver of collaboration is performance expectations. They develop a decision tree model with various propositions based on their literature review. Some organisational issues include "managerial discretion, limits of environmental determinism (dependence on other parties for resources), internal bargaining games, collaboration decision as reflection of corporate culture and structure (centralised vs. de-centralised network), collaboration decisions as institutionalised responses (standard procedures) in an environment of uncertainty and pressure, solution to partial interdependence in an external bargaining relationship, national cultural differences, result of bargaining among key stakeholders". (Tallman and Shenkar (1994, p. 95ff.)

Another aspect of the market entry and alliance formation decision is put forward by Tse et al. (1997). A company could also collaborate with a company from the home market to enter a host market. However, this is not subject to this study as the focus here is on in-depth collaborations with local companies. Factors considered include the host/home country, industry related factors and operations-related factors.

Datta et al. (2002) conducted a literature review of market entry choices. They concluded that *some findings of previous works were inconsistent*, which is potentially due to the study designs and samples. I find this convincing since I also found some differences in views, for example, to the question: What is more stabilising, joint ownership in JV vs. one dominant partner? However, they conclude that the following four key characteristics are important in the decision for an entry mode: "industry/country specifics of the host country, firm characteristics, venture characteristics and country differences" (Datta et al., 2002, p. 145).

Another paper that had a similar view was conducted by Kouznetsov (2008) and studied the entry mode choice of multinationals into Russian externals. Their methodology is somewhat 'slim', for example, there are few descriptive statistics, it is only based on telephone calls, and they focus only on Russia. However, they found that the main determinants of choice are: *external/country factors* (legal conditions, factor/material

markets, foreign exchange considerations, access to information) and *internal factors* (technology, ownership advantages, firm size). Therefore, although they focused on emerging markets, their findings could be transferable to established markets.

Supporters of factors with a more internal focus are H.-C. Moon and Kwon (2010), who focus their study on market entry modes of Japanese and Korean automotive OEMs into India. They conclude that the appropriate choice should be made with a *holistic approach*, considering engineering as well as other aspects such as management resources and capabilities. As such, the appropriate choice is perceived to be dependent on the situation and all modes can lead to success.

Another study conducted by Barkema and Vermeulen (1998) considered two company focused/internal diversity parameters that they believe should play a key role in a company's decision of whether to go alone or with a partner (acquisition in their case). These parameters are *multinational and product diversity*. With their quantitative study, they found evidence that companies with both higher multi-nationality and product diversity tend to push own start-ups as opposed to acquisitions.

C. W. Hill et al. (1990) linked the entry decisions closely to corporate strategy. They posit that it should be clearly aligned and not regarded in isolation but in relation to the *configuration of a company's international set-up*. The three underlying concepts that should determine the choice of entry mode are control, resource commitments, and dissemination risk.

In addition, Rajan and Pangarkar (2000) conclude that *strategic motives paired with synergy potentials* are the key determinants of entry mode choice. They focused their study on the manufacturing sector (Singapore-based multinational companies) and used a limited sample size. Their broad categories for choice of entry were control, costs, and competence.

Experience as an influencing factor of collaboration decisions is one of the conclusions reached by Montoro-Sánchez, Ortiz-de-Urbina-Criado, and Romero-Martínez (2009), who base their conclusion on collaborations in Europe. Their findings include the fact that companies with higher experience in entrepreneurial activities and possession of physical resources tend to go alone, while companies with experience in collaborations and possession of more technical resources tend to opt for collaborations.

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A whole category of entry mode texts deals with M&A vs. organic/Greenfield market entry. A lot of papers have been published in this area including Elango and Sambharya (2004) who found evidence that firms which are capital investment-heavy, have a tendency to decide in favour of Greenfield investments, whereas human resource focused firms tend to use acquisitions in order to transfer knowledge. These findings are based on a study with a large sample of market entries of manufacturing firms into the US.

This is not the focus of this study but I only wanted to point out some findings that might be relevant to the decision of which collaboration mode to use, given that the conclusion was to go for an inter-firm collaboration.

Choice of inter-company collaboration

In his work on inter-firm collaborations, Nooteboom (1999) discusses the choice of an appropriate partnership. He distinguishes two levels of analysis: firstly "the choice of form and basic structure" and secondly, "the process-oriented analysis of governing the alliance" (Nooteboom, 1999, p. 69). In his framework for choice, he draws on industrial organisation theory. He combines thoughts about a company's strategy and its conditions, how it influences the structure of a relationship and its ultimate performance. He sees a mutual influence between strategy and conditions and mentions the example of innovation strategy and uncertainty.

The first step in Nooteboom's terminology was analysed by Dyer et al. (2004). This was one of the few papers contrasting JV and M&A transactions, focusing on US companies with a survey sample of JV collaborations and M&A transactions. They found that companies' senior management generally see M&A and collaborations including JV as opposite models. In the management decisions, the other respective option was hence often not even considered. It is therefore not surprising that usually no guideline for analysing collaboration modes exists. They three factors to take into account in the mode decision regarding choice of activity: "(1) resources and synergies desired; (2) marketplace they compete in; (3) competencies at collaborating" (Dyer et al., 2004, p. 110). Key factors to consider include which types of resources the companies have, whether there are any redundant resources and what synergies are intended to be generated. Another aspect linking to the second finding is the degree of uncertainty and

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competition. A structural decision-making recommendation from the study is that companies should leave the decision of whether to acquire or collaborate in the hands of one department (organisational decision/recommendation making), as, having the 'full view', they can make the best choice possible.

Hennart and Reddy (1997)'s paper, mentioned above already in the current study (on page 28) in the presentation of the study scope, discusses choice of entry through the analysis of Japanese investors in the US. They also consider choice aspects and distinguish between M&A and Greenfield equity JV. Greenfield was only neglected as it symbolises that there has not been a JV in place before and so is a new entity. Hennart and Reddy (1997) identify four motives listed below that favour JV over an outright acquisition, based on empirical evidence. Unfortunately, this study did not include transactions from the automotive industry.

- **Indivisibility**: It is difficult to separate the desired partner/target from a larger construct, for example large corporation. (also Hennart, 1988)
- **Costs of management and integration**: Integration of employees is difficult, in particular if there is a huge cultural distance. It is potentially less so between Europe and the USA (Hofstede, 1980, 2001). Additional factors to consider in that context are the sizes of both collaboration partners and the resulting "digestibility" of the specific transaction (Hennart & Reddy, 1997, p. 1f.)
- **Governmental and institutional barriers:** Some countries impose barriers on certain industries. So far, this has not been the case for the US-American automotive market; therefore, both modes are possible.
- **Assessment of target company <u>value</u>**: Difficulty in the assessment of the value of the partner might be due to limited experience in the market. The authors are in line with (Balakrishnan & Koza, 1989, 1993). In the sense of Dyer et al. (2004), companies can however gain competences through collaboration.

There is limited empirical evidence of the influence of governmental and institutional barriers on choice. (see (Kogut & Singh, 1988; Singh & Kogut, 1989). However, Balakrishnan and Koza state that JVs are only a mechanism for the reduction of transaction costs. Furthermore, they see JVs as the favourable option over acquisition

when the parties belong to different industries (Balakrishnan & Koza, 1989, 1993), which is in line with the views of Killing (1983), Nooteboom (1999) and Cools and Roos (2005).

Analysing the parameters for *international collaborations*, Agarwal and Ramaswami (1992) support the Dunning OLI paradigm (see b2), which is based on transaction costs considerations. In their study, they posit that *the ownership and, the location advantages as well as positive effects from internalising activities* seem to play a key role in the decision of which form to use. Hence, firms with low ownership advantage tend to use collaborations with less commitment (i.e. no IJV or IM&A). Furthermore, companies that enter from countries with high market potential tend to use higher commitment collaborations, such as JV. The authors re-iterate that this model is complemented by the 'perceptions of managers', such as previous experience, knowledge about a country, which influence the decision.

A stream of texts on specific aspects of M&A decision-making are represented by Pablo, Sitkin, and Jemison (1996), for example. This is not a key paper for this study, but as they discuss *the role of risk attitude of decision-makers,* this could be important to consider. Another study in this category was conducted by Tekin-Koru (2009), with the main finding that M&A becomes more likely if assets are similar. This is not ground breaking and had been discussed by other authors before. Elango et al. (2013) focus on high-tech acquisitions. They use a quantitative research design and provide support for the notion that M&A likelihood increases if a company *has experience in M&A or if higher institutional distance exists.*

The key point emerging from the literature review is that a broad literature is available on inter-firm collaborations and strategic alliances in general. However, only a few papers analyse and consider both collaboration options (JV and M&A). One of the few examples is Dyer et al. (2004). This is quite interesting since in regions such as the USA, both options are available to companies and they share a similar underlying rationale. In the continuum of collaborations determined by the main parameters of strategy, control, risk, and commitment (see b4), the JV and M&A are close together and often the JV is a pre-step to full acquisition (e.g. Reuer, 2002).

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Specific/intersection (S)

There are limited papers, which specifically treat collaboration modes for the automotive supplier industry. Therefore, one can summarise that success analysis has been conducted for various industries with a focus on JV and M&A transactions but not with a focus on the decision-making process explicitly (examples include Blanchot & Mayrhofer, 1998; Burgers et al., 1993; Kaufmann & Jentzsch, 2006; Mentz & Schiereck, 2008).

As outlined above, there were no findings in the available literature that capture all aspects of this study, i.e. the intersection of the building blocks. In summary, there seems to be a literature gap at the intersection of the building blocks noted above.

However, inter-firm collaborations have become an integral part of corporate strategy and continue to gain importance. Therefore, further analysis and development of an integrated advisory framework for the types of inter-firm JV and M&A in the automotive supply space is relevant for the academic and the practitioner community. Furthermore, an in-depth analysis of the context needs contemplating, focusing on the USA as one of key markets, and automotive supplier industry specifics.

Therefore, this study aims to help to gain further insights into this important field of corporate strategy.

Literature review-based conceptual framework and summary

The concept presented below in Figure 36 plots the conceptual space of the study subject building on the Venn diagram of the research focus, introduced in Section 2.1 (Figure 3 on p. 11). It lays out the most important themes in the literature related to the area. Moreover, this literature-based conceptual framework supports the research questions and objectives of the current study (refer to Table 8 on page 168 that further establishes and strengthens the link between the research questions / objectives and the conceptual framework). In that regard, the two context related building blocks were denoted (A) and (B), that is the 'Industrial / environmental context of the automotive supply industry, with focus on passcar' and the 'Cross-border focus / USA' respectively. The analysis steps were denoted (1) and (2), that is 1a for the strategic gap analysis, 1b for (Organisational) decision-making aspects and Inter-firm IJV and IM&A as strategic tools respectively.

This conceptual framework can hence be considered the result of the engagement with and analysis of the literature. As such, it represents the point of departure for the empirical analysis, which is covered in the next Section 4.2, as well as ultimately in the advisory framework, presented in Section 5.2 (p. 217).

Figure 36: The conceptual framework as developed from the literature

1a

Strategic gap analysis

- Porter, Ansoff, Perlitz **strategy tools** → determine strat. positioning

Strategy:
-Vision
-Strategic goals
-Strategic planning

Conditions:
-Markets (product, region, etc.)
-(Technology) trends
-Company status quo (knowledge, resources, etc.)

A

Industrial / environmental (automotive supply)

- Market and **industry structure and segmentation** (e.g. importance of OEMs)
- Various **industry trends** affecting all business parameters → **VUCA environment**
- **Key technology trends** specifically (efficiency, connectivity, safety, others)
- **Convergence of industries** (e.g. auto, consumer electronics, IT) and **new entrants**

1b

(Organisational) decision-making / process

- **Heuristics to reduce complexity; awareness of biases;** importance of **bounded rationality, power and choice**
- Link decision-making clearly with **strategic considerations**
- Defined **processes to support complex decision**-making (e.g. one M&A/collaboration team)

B

Cross-border focus / USA

- **Motivations for internationalisations**; e.g. OLI framework
- **US market as host market** (with US partner locations) with its **openness generally but current uncertainty**
- **US automotive suppliers specifically** (market size and dynamics; cultural matters), including how to address current industry trends

2

Inter-firm IJV **and** IM&A **as strategic tools**

- **Transaction and strategic considerations**, and **characteristics** of equity collaboration modes; key **parameters & challenges** of collaborations (transaction costs, strategic behaviour, learning & access to resources, synergies); **value-oriented and strategic motives** in focus
- **Rationale for M&A and JV** in automotive (disentanglement, availability, size, governance, costs/valuations); **comparison IJV vs. IM&A** table of issues
- **Timing aspect**: JVs later bought out in many occasions
- **Implementation / execution and monitoring**

Source: author's own (2018), i.a. based on Cools and Roos (2005); Dyer et al. (2004); Eisenhardt (1999); Eisenhardt and Zbaracki (1992); C. W. Hill et al. (1990); Wirtz (2014)

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Based on the conceptual framework of the literature review presented above, the main themes and ideas from the literature can be considered as a process, since in most transactions, this is how the analysis steps are conducted, even though there are no clear boundaries between the archetype steps and some context considerations influence all steps.

Figure 37 below hence plots the analytical space of the research subject being studied using a flow diagram. This lays out the most important themes related to the area and indicates inter-connections as well as relationships. This overview represents the analysis and decision steps in a chronological way. At the bottom of the steps, a non-exhaustive list indicates various context factors of strategic gap and collaboration decision-making. These context factors affect all of the steps above.

While the overview follows the various steps in the process of collaboration, although execution and monitoring of performance is only partly covered in the current study as this is not its focus. However, in order to completely cover the closing of strategic gaps through collaborations or M&A, I included the later steps in the process, i.e. the deal execution and success monitoring (ALPHA-M&A-Team, 2005; Eulerich, 2009; Müller-Stewens, 2010). I am as a practitioner mainly involved in equity collaboration projects in the implementation and monitoring phase, with this background I ascertained an 'analysis gap' for the previous steps as I am considered an insider researcher (see Section 3.2.1 on p. 61f.)

In order to establish the link between the theory and practice, it is related to the process of establishing an inter-firm collaboration in an international context.

This includes the different sequential steps in this strategic decision-making process and key factors, as a starting point for further analysis. It relates to the process of establishing an equity collaboration in an international context in order to establish the link between the theory and practice. Steps (1) and (2), in line with the conceptual framework (Figure 36) are key for further analysis, paired with the organisational setup of decision-making. Within the system, the main context factors are denoted (A) and (B) again; with 1b being a hybrid as it is relevant for the analysis process and a context factor at the same time (cf. Figure 1 on page 8).

Figure 37: The conceptual framework as a flow diagram
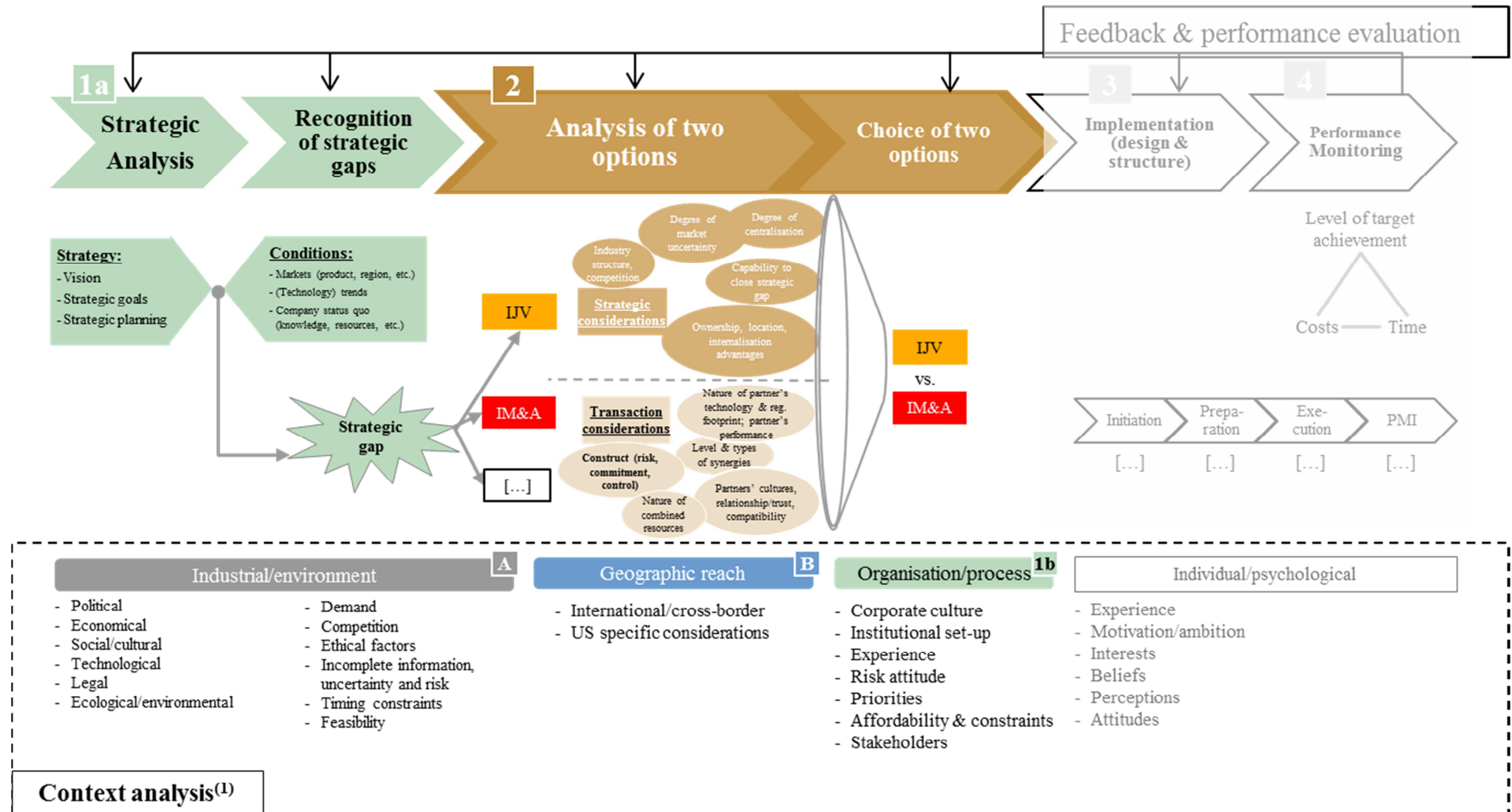
Source: author's own (2017), adapted from ALPHA-M&A-Team (2005); Eulerich (2009); C. W. Hill et al. (1990); Lunenburg (2010); Müller-Stewens (2010); Nooteboom (1999); Perlitz (2004); Tallman and Shenkar (1994); Vaidya (2011)

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The following overview, Table 8, shows the links of the various elements of this conceptual framework and where the ideas are further elaborated in the prior literature review, mainly in its thematic analysis part (Section 4.1.2).

It gives an overview of the respective step or analysis level of the conceptual framework, including a description as well as an indication to which analysis level it refers to (within the Broad and Pairwise searches) and finally a reference to the paragraphs and pages of the literature review. Please note that the steps of implementation, as well as performance monitoring, were not in the focus of the current study and hence not elaborated nor analysed further in the literature review. However, for completeness of the framework these elements were also represented in the conceptual framework.

Table 8: Links between the conceptual framework and the literature review

Level	Name	Description	RQ / RO reference	Lit. review	Page reference
Industrial / environmental (A)	Industry trends and challenges	VUCA environment / trends Industry structure	RQ / RO #2 RQ / RO #2	b1 b1	116ff. 120ff.
Geographic reach (B)	International / Cross-border / US aspects	Models & theories General considerations on the USA as host market US American automotive supplier market	RQ / RO #2 RQ / RO #2 RQ / RO #2	b2 b2 b2	123ff. 126f. 127ff.
Strategic analysis (1a)	Strategic analysis	Strategic considerations including strategic gap analysis	RQ / RO #1	b3	131f.
Organisation / process (1b)	Decision-making processes in organisations	Decision-making and process considerations	RQ / RO #3	b3	132ff.
Analysis and choice (2)	IJV and IM&A as inter-firm equity collaborations	M&A / JV – a theoretical perspective on different explanation models	RQ / RO #1	b4	135ff.
		Rationale for international inter-firm collaboration (and choice of entry mode) / Strategic and transaction considerations	RQ / RO #1	b4	140ff.
		Pairwise analysis: JV/M&A in automotive	RQ / RO #1 & 3	p1	149ff.
		Pairwise analysis: IJV/IM&A cross-border/US	RQ / RO #1 & 3	p2	153ff.
		Pairwise analysis: JV/M&A decision-making/choice	RQ / RO #1 & 3	p3	156ff.

Source: author's own (2018)

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4.2. Empirical part

The data analysis of the findings follows an analogous approach, as for the literature review. This means that the findings are represented per topic and building block. The analysis starts with the findings from the expert interviews, followed by the two other data generation methods (documentation and observations). Anonymous quotes were added where possible and appropriate in order to underpin the findings with evidence (the first information in brackets denotes the interview partner and the second the text reference within the respective interview transcript). There is also an overview of the different findings with examples from the specific cases, as concrete evidence.

4.2.1. Expert interview findings

The expert interviews were the main source of empirical evidence of the current study.

Description of general findings

The analysis approach was initially deductive, based on literature review and overall research objectives, and subsequently inductive from the interview outcomes and iterative (with two coding cycles), as stated above. Quantitative (frequency analysis and comparisons to average number of evidence points) and qualitative / interpretative analysis wa*s* conducted and is presented below. Even though the outcomes might be influenced by the study design, such as the set-up of interview questions, the interviews were only semi-structured so the interviewees were allowed to elaborate largely on what they had in mind. Before that, they were given a general statement and topic (for example ALPHA's US strategy approach), so there was merit in the evidence of what they talked about the most.

The four building blocks, firstly identified on p. 11, also served as main categories for the start of the empirical analysis. These were followed by the first level of 'child-codes' deductively from a total of three, based on personal experience and the literature review. Limited changes were made to the deductive first draft for the child-code levels #1 and #2. The 'lowest' child-code level was mostly influenced by the data inductively from the evidence and attributes given in the interviews. Figure 38 gives an overview of the whole coding structure of the current study, indicating quantities of the various

evidence points (i.e. the times interviewees referred to a certain topic), followed by child codes #1 and #2, then the parent codes and ultimately culminating into the four categories again. As one can see, numbers reduce the further the abstraction level goes. Table 15 on page 252 in Appendix 7.2.3 shows the number of changes and newly created child-codes in the respective cycles.

Figure 38: Overall numbers of categories, codes, and evidence points

Level	Numbers
Categories / building blocks	4
Parent codes	15
Child codes #1	45
Child codes #2	142
Evidence points / attributes	668
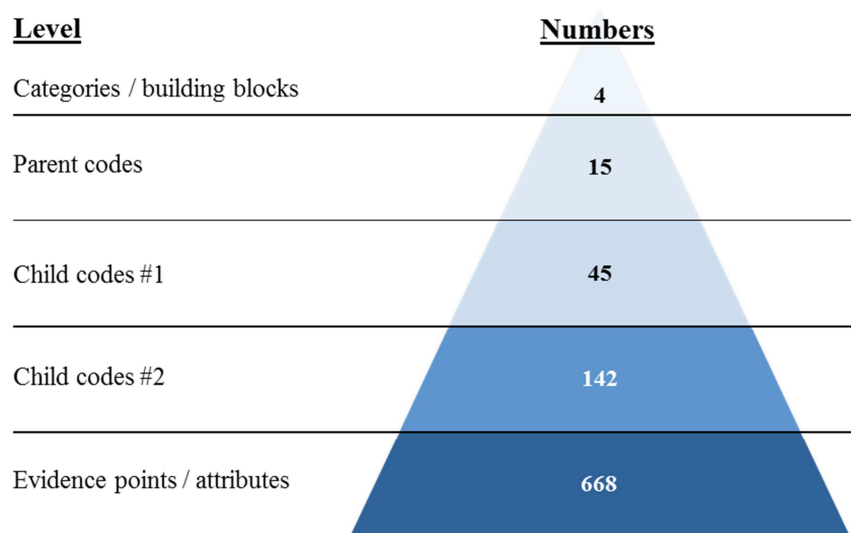
Source: author's own (2017)

On the one hand, the US American setting seemed less important for the transactions, since only 46 attributes or points of evidence were found. On the other hand, strategic gap and analysis and the automotive context seemed more relevant with 80 and 64 points of evidence respectively. By far the greatest focus of the discussions was on IJV and IM&A as tools, with 350 evidence points, followed by process and decision-making aspects with 128.

Many interviewees gave explicit comments on lessons learnt and best practices from their point of view and so these were captured in a separate block and woven into the overall analysis.

The analysis of the building blocks includes both comments made on codes with evidence points above average and those that were hardly mentioned at all. There were several evidences for one child-code per interview were possible to avoid bias from that point. On average five evidence points were noted for the child codes.

Figure 39 gives an overview of the frequency of words used, giving an introduction and first indication of the importance of the various terms and concepts. The bigger the words, the more often it was used during the interviews. It can be identified that supplier, OEM, market, product and the various collaboration modes were most often used.

Figure 39: Word cloud expert interviews

Source: author's own (2017); n.b. 'cooperation' and 'collaboration' was used interchangeably, in particular as the German word for collaboration is closer to the English 'cooperation'

Analysis per building block: Automotive context (with focus on the passenger car market)

The focus was on OEMs in terms of industry structure, with 18 evidence points. Technology seemed to also be important for automotive (16), as a driver of the industry and source of challenges. Additionally, the product lifecycles in automotive and their impact on collaborations was pointed out several times. Surprisingly, the tier 2 suppliers seemed to be less important than the competition looked at within the tier 1s for the transactions. Politics and regulation also seemed to be less significant.

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Indeed, interviewees mentioned the importance of serving OEMs and their importance in the industry. They are seen as drivers and pace makers for the industry and of setting technology trends. However, as collaboration partners they certainly do have their own agendas (for example "purely focused on optimising its own profitability" E2, 40). For international JV collaborations and acquisitions, they are also key drivers, as they want competition between suppliers kept high. From the supplier perspective, it is crucial to consider the OEMs and their SOPs of their car models and platforms for the timing of product launches, new technologies, and ultimately collaboration. For example, "clear indicators from the market that this technology was desired" (E3, 50). In terms of competitors, a tendency towards similar automotive cultures and a focus of European suppliers on technology and engineering was mentioned. The main drivers of industry change are perceived to be the Asian companies, the traditional OEMs as well as new 'tech OEMs' (such as Tesla).

Interestingly, regulations and laws were seldom mentioned as drivers of the industry or challenge. However, product lifecycle management was often quoted as being important for product and collaboration decisions (for example, "you cannot exchange a supplier of such an important component every day, there are certain time windows where you can step in as a new supplier" E6, 48).

Figure 40 shows a simplified 'chain of thought' of selected interdependencies within the automotive context along the parameters of the automotive industry structure, its trends, drivers, and challenges. This is not meant to be exhaustive but to show key impacts as result of the interviews. It is remarkable how many interconnections there seem to be with the various market participants, trends, and challenges with M&A and collaboration as one of the main strategic tools right at the centre of this changing and dynamic industry.

Figure 40: The automotive industry context

Automotive industry structure

Existing Tier 1 suppliers
- Culture similarities within European Tier 1 suppliers

OEMs
- Additional competition welcomed by OEMs

New entrants/start-ups
- Arrival of Chinese and tech OEMs likely to play a key role
- Start ups application often focus only on specific needs

Collaboration and interdependencies

Collaboration and interdependencies

'The industry is locally structured'

Pressure on contracts and prices

Influence (for example 'follow your customers')

Increase competition for collaboration partners

Increase competition for collaboration partners

Implies increasing variety of potential partners

Trends & drivers in Automotive

Industry very cost sensitive

Price and costs

Adverse impact on sales volume

Timing

Geography

Requires close location

M&A and collaboration
- Key drivers for M&A and collaboration have not really changed overtime
- Impact of industry structure and trends: additional momentum
- Collaboration difficult in the automotive industry; acquisition activity therefore seems to be preferred by the industry
- Further consolidation among OEMs likely to be pursued

IP as key barrier to entry

Technology
- Key competitive advantage to be focused on for European suppliers
- Driven by megatrends, such as ADAS
- Increasing importance of electronics and software
- OEMs are also competing to acquire those new technologies

Impacts choice of collaboration

Can change the logic of cost and price

Switching of suppliers only during certain product windows

Implies that products over time need to be cheaper

Give feedback, seen as pacemakers

Politics/regulations

Challenges in Automotive

Timing crucial (require timing in line with SOP)

Cyclicality/Crisis
- Significant impact on the industry
- Unforeseeable

Product lifecycles
- Analysis of lifecycle is required to have efficient launching date of products

Implies that new technologies are implemented at the cost of old technologies

Source: author's own (2017); n.b. the inter-relations and connections that seemed most essential are demonstrated, but not all in order not to jeopardise clarity

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Analysis per building block: Cross-border/US America context

Two aspects were looked at in this building block: the US American domestic automotive market itself and the reasons to be active there and the USA as a location for collaborations. The focus for the automotive market was on the mind-set of companies and size as well as volume aspects with eight and five evidence points respectively. The particular drivers and challenges for the US market were not in the focus.

The USA is one of the largest passenger car markets with large volumes. This is important in automotive to as to be able to manage changes in products and technology (for example "This should be the market one should focus on, especially for German companies" E8, 8). Furthermore, there are differences in terms of the mind-set of industry companies, such as the perceived tendency for US automotive companies to be more focused on costs compared to European companies. In addition, the US American end customers seem to be more in focus since they tend to pay less attention to technology than price. Interestingly, when discussion centred around the automotive industry in general, end customers were not mentioned. This might be due to OEMs generally encompassing the position of end customers (i.e. their customers). Furthermore, some industry specifics for the USA were mentioned, for example, it tends to be a market for in-house produced transmissions, which needs to be taken into account for collaboration decisions in that area.

This leads to more aspects on the USA as a collaboration location. The non-corporate interest group of unions in particular was often mentioned as a source of challenges. Most people, including the interviewees, perceive this market as liberal, with plenty of collaboration modes available to foreign suppliers. Furthermore, with the trends in the industry, especially the convergence of IT and traditional automotive (supply) companies, certain regional hubs in the US, such as Silicon Valley, have become increasingly attractive for supplier collaborations. However, when considering collaborations with a traditional company, certain legacy items need to be considered (for example "We had difficulties as newcomers in the US American market to cope with that union" E2, 30).

Generally, the cross-border aspect of collaboration seemed to be less important (for example when it comes to technology collaborations, the US location was more a

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coincidence since the end markets for these automotive markets were primarily the European automotive industry with European OEM lead clients. The specific US location was also of more relevance in the integration phase of the collaboration phase of the project (for example "There was more an issue in the post-merger integration when we told the US Americans that we would move the headquarters of the unit to [...] Europe" E6, 136).

Figure 41 summarises the key findings of the US American context along the parameters of market participants' considerations, the market's key characteristics and the drivers and challenges for collaborations in the US American market. The latter is presented in the bottom part of the map, with concrete examples of the market characteristics.

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Figure 41: The US American context

Considerations on key market participants

US American end-market
- Price-driven, perceived in principal not ready to pay more for additional technology
- Rather standardised
- Largest open market for passenger cars

US American OEMs
- Cost and profitability oriented
- Need to catch-up with technology gap?
- Mostly standardised volume production
- Process oriented (entrepreneurship culture)

European automotive suppliers
- More technology oriented (European)
- Need to be present on the US American market
- Less cost-driven than US tier 1 suppliers

Tech companies
- Innovation, e.g. due to brain pools such as Silicon Valley (entrepreneurship culture)
- Different to 'traditional US tier 1' suppliers

Considers price as first criteria

Key drivers

Proximity to local OEMs

Impact on partners and collaboration projects

Give strategic advantage to European automotive companies especially

Create an innovative environment

Key characteristics

Price and costs
- Focus in US American End market

Geography
- Crucial: where is decision-making located and where the wanted resources?

Regulation/Laws
- Different from European regulations in other jurisdictions (for example Europe)

Legacy/Labour Unions
- Importance of Unions and legacy

Technology
- Not first requirement for US American end-market

Key drivers and challenges for the market and for inter-firm collaboration

- High cost pressure coming from end-market impacting OEMs and suppliers
- Difficulty to manage limitation of cost and technological improvement of cars
- Attractive for suppliers / OEMs

- Cross-border collaboration needs extensive awareness of cross-border aspects in later integration, including preparation of logistical and managerial topics

- Preparation regarding legal topics required to avoid issues arising from discrepancies between US American and other regulations
- Many opportunities for collaboration due to the liberal market

- Often issues with US legacy: inflexibilities, labour costs, etc.
- Adverse effect on competitiveness and efficiency
- Possible prohibition of swift efficiency gains

- Technological gap between America and Europe perceived to reduce, that can be used by European suppliers and OEMs as a strategic advantage
- Many innovative companies to collaborate with
- For technology collaboration/acquisition: location less important

Source: author's own (2017); n.b. the inter-relations and connections that seemed most essential are demonstrated, but not all in order not to jeopardise clarity

Analysis per building block: Strategic gap analysis and organisational decision-making

For this building block, I separated the categories of strategy analysis on the one and process as well as decision making on the other hand. The findings in this area are mainly based on ALPHA as a specific tier 1 supplier in Europe, but most of them relate to size and company structure so the findings are perceived to be transferable to other supplier companies. This is also mentioned by some research participants.

The focus was again on technology, for *the strategy and vision*, as well as for the core competencies, with six and eleven evidence points respectively. The split between the USA as a key market for the company and collaboration seemed less relevant with five and six evidence points. Generally, a balanced footprint was identified as a central element for strategy in three attributes. Overall, the majority of interviewees saw value-driven strategies as being the most relevant, compared to non-value driven strategies, which were mentioned ten times.

Respondents stressed that strategy should always have a value impact in commercial vision, a (for example "our suppliers received huge amounts of value-add for these electronic components of our gearboxes and we were not willing to give these huge amounts of value-add further on, but we wanted to take this in-house" E6, 40). There were some contradictions such as signalling effects, which are hard to measure were mentioned, even though the interviewees agreed that all strategies should be value-driven. Another common strategic pillar in the sample was technology and innovation strength as strategic ambition. In this regard, the core competences of suppliers were an important element, (for example "this means we also contributed with some inventions and some IP based on our core experience, which we have" E3, 18). Regarding regional aspects, interviewees repeatedly identified the vision as having a balanced footprint globally.

The strategic analysis process seemed to be a systematic process in most cases (for example "the process before which then led to the electronics acquisition was quiet comprehensive. We had a kind of system to challenge different business ideas or product types" E6, 30). Within this process, a distinct view on technology and trends seemed to be the most crucial for long-term success.

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Figure 42 summarises the key findings of the strategic gap analysis, organised in a matrix overview. Along the dimensions of the technology perspective, the commercial perspective, and finally the regional perspective the reader can identify implications from the status quo, the company's vision and, if there is a mismatch, the company's strategic gaps and deficiencies.

Figure 42: Strategic gap analysis (empirical part)

	Vision and strategy	Status quo and Competences	Strategic Gap Analysis
Technology perspective	▪ Be an innovation and technology leader ▪ Develop an in-house technology, with high added-value (for example in electronics and in software)	▪ Use engineering, technology and IP based on experience and existing products as key strategic advantage ▪ Can leverage technology in the US American market ▪ Experience in industrialisation and OEM access that could be leveraged as partner of start-up (core competencies)	▪ Accept if no alternative technology actionable to fulfill market demand ▪ Save R&D costs ▪ Consider electronics as a key competence to develop yesterday, same for software today
Commercial perspective	▪ Develop a strategy based on product and market needs, driven by customers ▪ Reduce dependency from suppliers and OEMs as much as possible ▪ Sales and profit-driven strategy	▪ Leverage ability to access market as partner of new entrants	▪ Do not reduce the perceived value of the product for end-customers but diffuse some ambiguous information (for example JV labelled after Tier I supplier and not after the OEM partner) ▪ Analyse the 'full picture': besides collaboration, what else is needed, for example additional investments?
Regional perspective	▪ Strive for a global footprint ▪ Access the US American market to benefit from its large volume and growth potential	▪ Ability to transfer knowledge from one place to another	▪ Perceive US America as a key market due to its projects with usually large volume ▪ Achieve a regional diversification ▪ Be aware that a global footprint can be less relevant for technology partners since knowledge and technology can be leveraged worldwide: no need to target US-driven companies explicitly

Source: author's own (2017)

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Interestingly, on the *process side of analysis and decision-making* in general, the relationship between different business units of ALPHA seemed less relevant. This corresponded with points made on competition for resources. However, the Supervisory Board was hardly mentioned as an institution within the process. This was also the case for the experience an organisation had of the analysis and decision-making process. The relationship between the headquarters and the business unit was much more important for the process (16 evidence points) and this related to the role of central functions (8 evidence points) and the internal communications mentioned (10 evidence points). Process-wise the inter-relation of bottom up and top-down analysis and decision-making was also perceived as an important element, with seven evidence points. The senior management was identified as the key stakeholders in the process, with nine evidence points for individual aspects and seven each for their role of drivers and decision-makers in the process.

The corporate set up was felt to either be a good process with HQ and business units together developing strategy, top down or bottom up. However, a clear lead by the business units is favoured in the overall project set up (for example "we had a strong leader of the project from the business unit that organised it quite well" E3, 84). In terms of internal communication, some interviewees felt that a dual reporting line (within BU and within the M&A/collaboration project) was additional effort but was useful. For the method, there is more or less an even split between the flexible and highly systematic approach.

In terms of stakeholders in the process, a joint project team approach was used in all case study projects. The role of senior management as driver and decision maker was mentioned as particularly important. Individual aspects of senior management seem to have been less important, or respondents simply had no specific views on this. Having said that, one interviewee said that there was a hierarchy within the BoM, so it might be sufficient to only convince a few members of the senior management team. Two respondents noted that the overall strategy process has changed from being driven by gut-feeling towards a more professional, less people-focused, and more systematic approach over the years of significant growth of the company. On the other hand, the supervisory board was less often mentioned, which might be due to the fact that they are seen more as a monitoring than an active body. Furthermore, most interviewees

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considered the supervisory board as a bit 'further away' and there was little or no interaction (since it is mostly the BoM who interact with them).
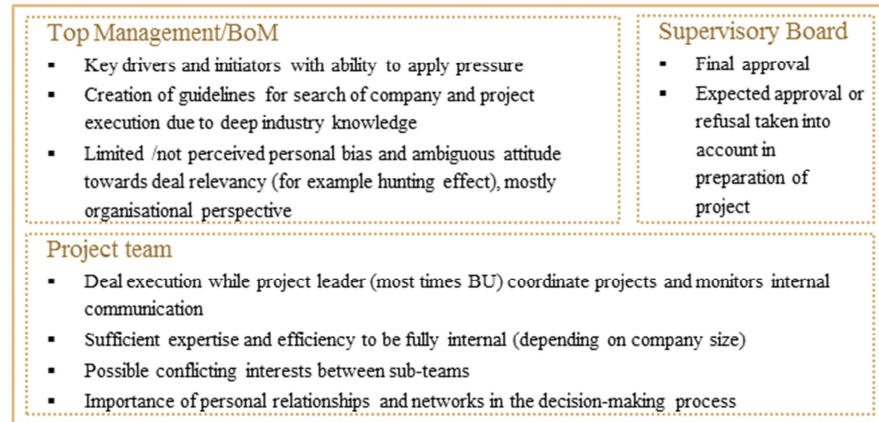
The OEMs were often mentioned as another influencing factor in the process while other pressure groups, such as unions, seemed less important for the decision-making. In addition, tier 2 suppliers were seen as a source of information, for example, about potential collaboration partners or acquisition targets, rather than influence factors on strategy.

This is in line with the strategic and value-enhancing motives and theories (see Section 4.1.2 on p. 135ff.).
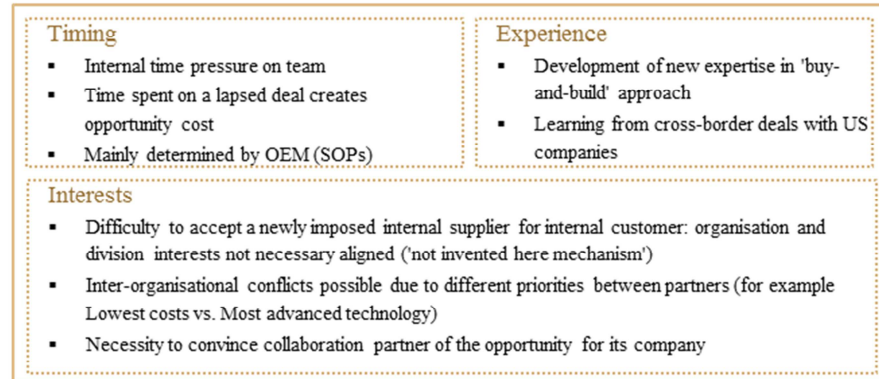
Figure 43 summarises the key findings along the dimensions of the stakeholders, the organisation, and its environment. All of these factors should be reflected in an automotive supplier's process considerations, hence the block arrows indicating these relationships.

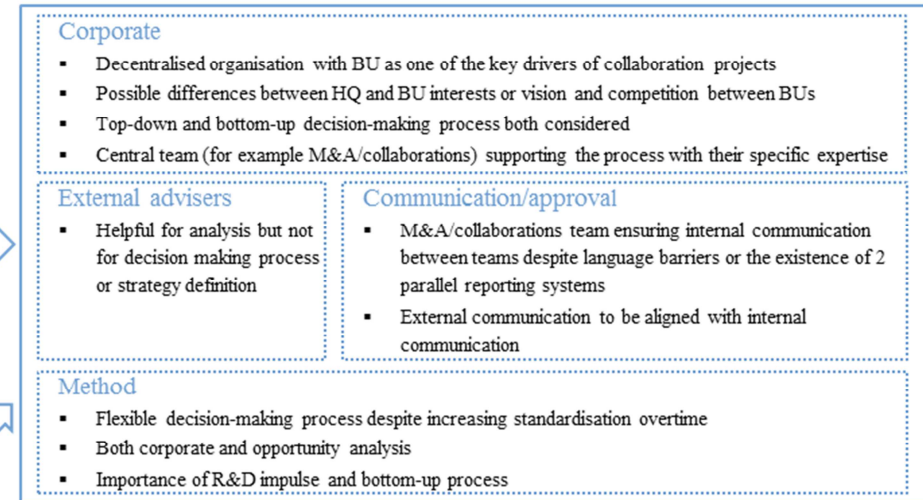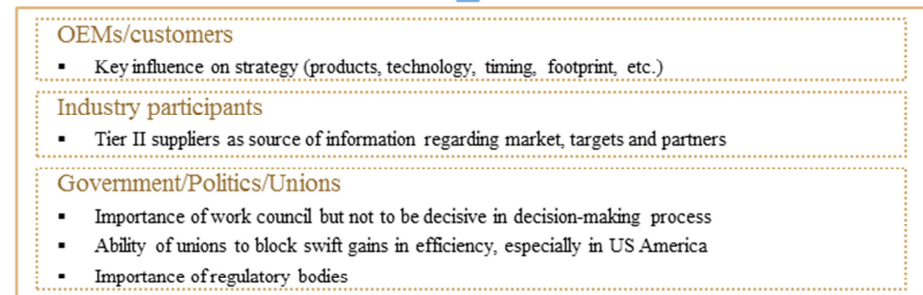**Figure 43: Strategic decision-making process considerations**

Stakeholders

Top Management/BoM
- Key drivers and initiators with ability to apply pressure
- Creation of guidelines for search of company and project execution due to deep industry knowledge
- Limited /not perceived personal bias and ambiguous attitude towards deal relevancy (for example hunting effect), mostly organisational perspective

Supervisory Board
- Final approval
- Expected approval or refusal taken into account in preparation of project

Project team
- Deal execution while project leader (most times BU) coordinate projects and monitors internal communication
- Sufficient expertise and efficiency to be fully internal (depending on company size)
- Possible conflicting interests between sub-teams
- Importance of personal relationships and networks in the decision-making process

Organisation

Timing
- Internal time pressure on team
- Time spent on a lapsed deal creates opportunity cost
- Mainly determined by OEM (SOPs)

Experience
- Development of new expertise in 'buy-and-build' approach
- Learning from cross-border deals with US companies

Interests
- Difficulty to accept a newly imposed internal supplier for internal customer: organisation and division interests not necessary aligned ('not invented here mechanism')
- Inter-organisational conflicts possible due to different priorities between partners (for example Lowest costs vs. Most advanced technology)
- Necessity to convince collaboration partner of the opportunity for its company

Process considerations

Corporate
- Decentralised organisation with BU as one of the key drivers of collaboration projects
- Possible differences between HQ and BU interests or vision and competition between BUs
- Top-down and bottom-up decision-making process both considered
- Central team (for example M&A/collaborations) supporting the process with their specific expertise

External advisers
- Helpful for analysis but not for decision making process or strategy definition

Communication/approval
- M&A/collaborations team ensuring internal communication between teams despite language barriers or the existence of 2 parallel reporting systems
- External communication to be aligned with internal communication

Method
- Flexible decision-making process despite increasing standardisation overtime
- Both corporate and opportunity analysis
- Importance of R&D impulse and bottom-up process

Environment

OEMs/customers
- Key influence on strategy (products, technology, timing, footprint, etc.)

Industry participants
- Tier II suppliers as source of information regarding market, targets and partners

Government/Politics/Unions
- Importance of work council but not to be decisive in decision-making process
- Ability of unions to block swift gains in efficiency, especially in US America
- Importance of regulatory bodies

Source: author's own (2017); n.b. the inter-relations and connections that seemed most essential are demonstrated, but not all in order not to jeopardise clarity

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Analysis per building block: IJV and IM&A as means to address strategic gaps

Since IJV and IM&A as the means to close strategic gaps are the focus of the current study, they also accounted for the most evidence points (in total 350) and are the subject of the following paragraphs. Within the code of strategic considerations with regard to collaborations, the most often referred to concept was that of 'clean ups', i.e. divestments of certain areas after an acquisition of five evidence points. Other codes such as implications from the VUCA environment and certain risk attitudes of companies and signalling effects seemed to be less relevant.

There were many more evidence points recorded in the area of transaction-related considerations. Here, the classical characteristics and differentiating factors of collaborations, such as control, commitment, and risk scored high. In addition, all partner-related topics in general and considerations on specific company types were important. For example new entrants/start-up as partners scored 21 evidence points. In line with this, considerations on the partner's goals and win-win situations scored likewise 21 evidence points.

Furthermore, considerations of integration and legacy of companies in collaborations, seemed to play an important role for the interviewees with 29 and 7 evidence points. Within the section on collaboration analysis and process, interview partners often mentioned aspects of systematic process and specifics of certain collaborations. Opportunity-driven collaborations were also discussed but scored less evidence points. There were also considerations on spill-over effects from international collaborations and acquisitions, which was only added to the coding scheme after inductive coding cycles with 26 evidence points.

Sequentially, I firstly looked at strategic considerations of IJV and IM&A then more specific, transaction-related subjects. Within the strategic considerations, the impact of VUCA seemed to be less crucial, potentially due to ALPHA's fast follower strategy, i.e. for the technologies there was either a market already or relatively clear OEM demand and hence less VUCA impact. The access to resources and the company's own capability to close a strategic gap was also important, with the help of the collaboration project. Several approaches of collaboration strategy were discussed while the need for a clear strategic view and potential clean-up of collaboration assets were mentioned

several times (for example "knowing that there were some products we did not need. But consequently, we sold these products lines" E8, 12).

Risk and commitment aspects were elaborated on for the classic transaction type analysis as well as access to resources/market and costs-control. Interestingly, some participants considered JVs riskier than M&A, which was partly explained as they have less control over the operations. In terms of timing, many interviewees stressed the importance of good transaction preparation and the time window right after a Closing which should be used for change management (n.b. the Closing refers to the point in time when the company purchase and sale or a JV foundation is completed and signed off, i.e. that happens after Signing of the transaction, when all Closing conditions such as anti-trust approvals are fulfilled). With regard to partner type specifics, answers often centred on OEMs and start-ups / new entrants as partners, since they have their own agenda and specific needs. Smaller and midsized family owned companies tend to have a larger emotional attachment to the business. Ultimately, the crucial elements to success seemed to be a cultural and personal fit, good knowledge about the partner's resources and identification of his ability to close the strategic gap and a win-win situation overall.

Another subject was synergy and organisational integration. It seems crucial here to have a long-term view on where to integrate collaboration and who is responsible in the end. The 'not invented here' issue and that might lead to reluctance to integrate by the integrating business should be avoided.

Two emerging concepts that came to my attention only during the current study were the relation between collaboration and auto product launch timing and spill-over effects. Neither of these can be forced but they need to be taken into account. Spill-over effects of collaboration into other business areas or geographies can be important success factors of a transaction and should be considered if possible. Likewise, if a collaboration cannot completely close a strategic gap, further investments should be considered. For example, in the context of a 'buy-and-build' strategy or organic growth spending.

In line with strategic motives and value-enhancing motives see Section 4.1.2 on page 135ff.

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Figure 44 summarises the key findings for the IJV and IM&A as means to close strategic gaps along the dimensions of strategic considerations, collaboration analysis and transaction considerations. It is to be noted that all of these dimensions are interdependent on each other, that is the more general collaboration analysis strongly emanates in the analysis of strategic and transaction related matters.

Figure 44: IJV and IM&A as means to close strategic gaps

Strategic considerations

- Rare technology/knowledge or way to increase volume?
- "Buy & Build" or "Buy and leave it as it is"?
- Core business or diversification ?

- What message will be send to competitors?
- IJV collaboration or IM&A?

Collaboration analysis

Approaches
- Commercial and technical analysis
- Market and competitor analysis
- Use of shortlist and scorecard
- Systematic analysis
- Financial analysis even if sometimes difficult
- Due diligence of companies
- Implementation of collaboration boundaries

Analysis of collaboration modes
- Consideration of every development strategy
- Balance market access opportunity and risk of becoming junior partner for a Joint Venture

Opportunities analysis
- Availability/ opportunity considered as second main driver
- Need to move quickly when opportunity arises
- Problem of scarcity of target creating high competition for opportunities
- Good relationship with a supplier as an opportunity for a collaboration

Learning effect
- Difference between US collaboration and other cross-border collaboration
- Learning effect regarding cost management and process standardisation for collaboration
- Technological spillover effects

Commercial effects
- Additional customers gained
- Strengthening of the commercial relationship with partners, including in segment not directly concerned by the JV

Transactions considerations

Risk Management
- How to ensure the appropriate level of control?
- Will the JV partner be committed enough?
- What is the size of the target? Is its product portfolio mature and fitting the needs?

Choice of partner/target
- Creation of personal relationship between managements?
- Cultural fit?
- Geographical proximity?
- Difference of organisation?
- Unique technology?
- Creation of a win-win situation (money-mostly for start-ups, secured employment, technological gap...)
- Is it both actionable and a strategic fit?
- Have all alternatives been investigated?

Choice of partner/target type
- OEMs? ➔ Secure volumes, risk of non aligned interest
- Start-ups? ➔ difference of working culture to be maintained, risk resulting from high turnover
- Competitors? ➔ no collaboration to have differentiating products and USPs
- Medium-size/family/privately owned business? ➔ difference of organisation, involvement of owners increased efficiency

Timing
- Integration to be done as swiftly as possible
- Clean-ups must be done as soon as possible
- Buying is faster than building
- Preparation required

Synergies/integration/ organisation/dissolution
- Change in management staff, move to newly internal supplier, restructuring?
- Synergies required for efficient JV
- Risk regarding legacy in the US must be considered

Source: author's own (2017); n.b. the inter-relations and connections that seemed most essential are demonstrated, but not all in order not to jeopardise clarity

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4.2.2. Documentation, experience/ observations and case analysis

This section gives an overview of the findings from documentation analysis as well as from my personal experience and observations, as the author of the current study.

Strategic analysis at ALPHA

ALPHA has reacted to the rapid changes in the automotive supplier industry and set up a strategic vision for the future (ALPHA internal documents) based on the following five key pillars:

- Increase market share (mainly in Asia-Pacific and the Americas)
- Technology and cost leadership (these tend to be conflicting strategic goals, but necessary in the automotive industry in the long-term since innovation and costs must be considered in order to be a successful system supplier)
- Integration of new technologies and competences, for example electronics and software
- Financial independence
- Skilled and motivated employees (branding as global company)

The strategy development process follows both a top-down and bottom-up approach to ensure strategic alignment between the top management and all Business Units throughout the company.

The basis for the market trend analysis is the top-down pieces. The next step is to evaluate the consequences for the competitive environment in each product area, based on SWOT ('Strengths, Weaknesses, Opportunities, and Threats'-analysis) and portfolio analysis tools. Based on these steps, chances and risk are evaluated and ultimate strategic goals are set. The process is shown in Figure 45, starting with the strategic vision with a very long-term orientation, mainly by the guidance of senior management. This step is followed by a phase of strategic development, which is mid-to medium term oriented and follows both bottom-up and top-down processes. In this phase a collaboration strategy also needs to be developed, which is where the advisory framework can be useful (refer to Figure 50 on p. 217). The next step is the operational planning, which is rather short term in nature. Overall, this strategy formulation process

is in line with the 'text book' planning process (cf. Figure 8 on p. 23) and the conceptual framework of the literature review Figure 36 on page 164.

Figure 45: Strategy analysis process at ALPHA
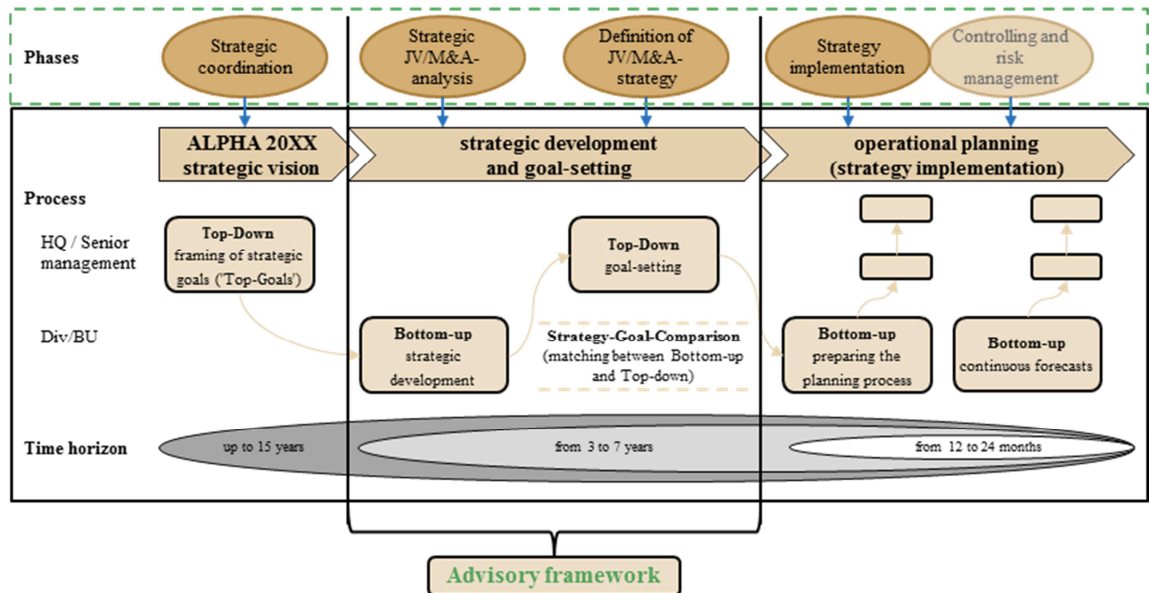
Source: based on ALPHA (2016); top part was added (denoted by dotted green line)

In the next step, the findings are cross validated in a bottom up strategic development from the divisions and BUs. They provide additional information and insights since they are close to their specific sub-markets. In this way, a strategic dialogue is initiated. The strategy is discussed in a three-year cycle (whereas business planning is an operative tool conducted every single year). The objectives are set together through this strategic dialogue and the definition of strategic gaps and action options is developed together.

The specific actions are then executed in the strategy implementation step. For example, to address a strategic gap organically or through a collaboration (such as a JV) or outright M&A activity. A key aspect in these considerations is always the protection of knowledge. At ALPHA, there is already a M&A/collaboration toolkit. However, this is more focused on the execution side of things.

Case documentation analysis at ALPHA

This paragraph gives an overview of the documents analysed and the findings. Some additional remarks on document analysis are 'woven' into the later paragraph on the case-by-case analysis within this section.

The following types of documentation analysis of the cases were analysed:

- Project documents and presentations
- Introduction of and updates on collaboration/M&A cases to the 'M&A Committee' of ALPHA (regular monthly jour fixe between some members of the BoM and the M&A department)
- BoM / Supervisory Board materials
- Retrospective M&A performance analysis (LAMBDA only, since performance review was newly introduced)

As a general remark, there was quite a difference in terms of what was documented and presented even within the same purpose of presentations (for example to the BoM). This is partly due to the different times of the cases; ALPHA has undergone organic development in terms of processes, analysis, and decision-making, as outlined in some of the expert interviews. Furthermore, the processes are highly dependent on people that have changed over time and with them the requirements. In all the deals, documentation was prepared as a team effort between central M&A/collaboration specialists and Business Unit representatives.

All the documents had a clear focus on the respective deal's *strategic rationale and technical elements* that was always present and visible.

Slides are presented by the respective deal team in the M&A Committee (introduced above), dedicated on M&A/collaboration projects, and monitor their progress). The focus of these slides, which also included ZETA, for example, was on the progress monitoring of the project execution (for example a one-page document highlighting the key aspects of the deal, such as the use of a share deal vs. asset deal structure). In light of this documentation, the M&A / collaboration committee mainly looks at the different phases of steps #3 and #4 of the literature review conceptual process framework (p.

166); the implementation or 'Execution phase' (see Figure 8, p. 23 as part of the literature review framework).

In terms of *systematic analysis*, the documentation gave evidence of the way collaborations and M&A were looked at in specific cases. For example, in the LAMBDA documentation one can clearly follow the systematic screening approach for the target/partner, which was also described by the interview partners. In the other two cases, there is not much detail given. This is because either the partner was already known early on the opportunity only arose at this time.

The *financial data* analysed and presented depends quite a lot on the maturity of the business and the time of transaction. For example, little financial information was documented on ZETA since it was a start-up and the technology was the focus. All business plan and valuation material was there but given that ZETA was a start-up, this part of the analysis was less essential. During the DELTA IJV, the organisation and professional execution of collaboration projects at ALPHA did not seem very advanced or sophisticated so here the analysis was quite high level. In fact, the improvement of the financial analysis of projects as a learning process from the OEM partner was a side effect to the overall project DELTA IJV. After the LAMBDA project execution, a new review process of M&A/JV collaboration projects was introduced at ALPHA. Strategic and financial aspects were reviewed and critically reflected on to see whether the strategic gap was successfully closed or the transaction was successful overall.

Finally, little or nothing was documented about the decision of which collaboration mode to go for. This is in itself a finding of the analysis and confirms what expert interview participants have outlined.

Observation and experience based data analysis

Experience in previous M&A/collaboration projects with regard to decision-making is that they seem to be mostly driven by gut feeling and opportunity, potential need and merit to systematically address the strategic implications. It seems that this observation seems to hold true for many European tier 1 automotive suppliers. When knowledge

and/or technology are sold: Is it appropriate to have a buy rather than a make strategy in that particular product/technology field?

Larger more 'game changing' transactions tend to be triggered by the senior management, sometimes at the initiative of advisors such as investment banks. One such large transaction conducted in my own company was the takeover of another tier 1 supplier in the USA. A JV was not in discussion for this, as we needed the technology capabilities to complement our own product and expertise portfolio. Besides the size and 'game changing' nature of the transaction, another major highlight was the post-Closing phase, which included several sizeable clean-ups. In one of the previous deals, this had happened two years after Closing, but on this occasion, the divestments were triggered in a timely manner. This proved to be efficient since integration was not that advanced and the funds were used to decrease the debt burden of the company and made new acquisitions and partnerships possible.

Besides this transaction, I also participated in various other US-focused buy-side transactions. One was the acquisition of a production-technology and materials knowledge focused acquisition usable across product segments. This was similar to the LAMBDA case study presented earlier, but not as successful due to different price expectations of the seller and buyer. More precisely, we were contender in an auction process.

From my experience as a practitioner, I can confirm the views of the research participants during the expert interviews; opportunities also play a key role at my company and this is true in many other tier1 suppliers I talked to. I feel that the US companies in automotive tend to be more financially driven and are perceived to be managed more by directions and operational leadership. However, they seem to have cultures that are not so different to their European counterparts. In terms of technology clusters, it also seems that all major European tier 1 suppliers are already present in Silicon Valley or intend to be so. Besides that, I definitely see merit in thinking more profoundly and deliberately about IM&A transaction regarding other potential partnership forms, such as the international JV. As stated earlier, this was part of the motivation for the current study.

Advisor discussions (selection):

These discussions do not usually focus on transaction mode decisions and the key themes tend to be on strategic considerations, industry structure, new technologies, partnerships and M&A activities. Hence, in these discussions, process and decision-making are not in the focus. The selected discussions and exemplary quotes presented in this paragraph refer to advisor discussions that took place between 2014 and 2018.

In summary, the discussions reinforce the considerations on industry trends and challenges found in the literature review and that were occasionally mentioned in the expert interviews, which were more transaction-focused. International equity collaboration activities and within this group mainly M&A are expected to continue to be the main tool to address strategic deficiencies in the automotive industry.

Advisor #1. "Some European OEMs see Google as market entrant [and in so far new competitor] less critical since they, so far, only managed to make money in their core business, i.e. the Internet search engine." The overriding theme is that hunt for (engineering) talent and senior automotive managers in Silicon Valley is to hire talent. M&A targets have limited availabilities and JV will continue to play a role in automotive and hence should be considered. New ADAS-friendly regulation is on its way, for example in London; staggered entry of autonomous taxis, for example starting in the west coast of the US making its way eastwards. Corporate Venture Capital ('VC') funds, for example Valeo or Bosch continue to play a role in safeguarding innovation through (minority) investments in tech companies.

Advisor # 2. The discussion with this adviser supported the view that new entrants and established players are shaping the future of the automotive eco system likewise. The advisers shared their views on the key strengths and challenges for all participants in the automotive market (established OEMs, established suppliers, new/Silicon Valley type entrants, car sharing companies, electronic conglomerates and telecommunications companies). In particular for the OEMs they see their production and system expertise paired with their existing service network as key strengths, while the might face challenges in the areas of technology knowledge and R&D investments. This is mirrored in the existing suppliers profile who lack the access to t eh retail customers and face challenges in the purchasing area since OEM's decide for them what to buy and from who ('directed buy'). On the other side, they do have system and technology

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competence. Interestingly, for the new market participants, they noted that the new entrants tend to have software and Internet knowledge but lack the automotive expertise and infrastructure. According to the advisers, it remains to be seen if these new entrants are willing to accept the lower profit margin levels that are common in the automotive industry in the long run. This confirmed what can be read in the literature and what I, as a practitioner, also observe in the market.

The strategic focus of the various tier 1 suppliers was seen differently for the respective group of suppliers. The advisers showed the various size brackets of suppliers and what is perceived to be their respective strategic focus. While mega suppliers (beyond 30bn USD in sales) seem to focus on system and ADAS/software competence with selected add-on partnerships, the large suppliers (USD 8-30bn in sales) are more likely to pursue add-on acquisitions and partnerships, and potentially some transformational moves too. The mid-sized players (up to USD 8bn in sales), which are typically component suppliers and active in niche markets might face more consolidation tendencies (for comparison, see Figure 4 on p. 15 that differentiates by value chain positioning and product offering).

Advisor #3. Some exemplary quotes from the meeting: "No one really knows where technology is heading", "M&A, yes in order to secure technology, but not at all prices/valuation levels", "Outright M&A might not necessarily be the best way forward now but rather operating collaborations might also be a way to come to know a partner better, which might lead to an equity investment later"; What drives decisions currently: caution, M&A only if clear view and proper strategic rationale.

Advisor #4. Market update: OEMs request from suppliers international footprint with regional presence, but they do not seem to be supporting the suppliers any more (for example financially or operationally with locations next to OEM plant). At the same time, not all suppliers want to become system integrators but stay focused in niches, which will gain further importance with ADAS, for example camera, interior design, or noise-vibration-harshness ('NVH').

Advisor #5. Meeting topic was integration of new companies and start-ups. The advisers re-iterated that mature companies and start-ups are different in three dimensions: (1) organisation; (2) corporate culture; (3) employees. In that regard,

mature companies need to consider that after an acquisition of a start-up, the envisaged 'exit' for the founders and key employees, such as an Initial Public Offering ('IPO') on the stock exchange, will not be possible any more. Furthermore, the subjects of integration levels and compensation/benefits will need a lot more flexibility (and 'freedom' for the start-up) than in the acquisition of a rather mature company. The key recommendation is to prepare early on and involve the company's HR department (and HR advisers if needed) as early as possible to prepare a successful integration.

Conferences / congresses participation

In this paragraph, a selection of conferences and congresses is presented. These conferences tend to have a specific focus each. In essence, these conferences underpin the consolidation tendencies in the automotive supplier industry and the importance of the US American market.

Bundesverband M&A 'Corporate M&A Kongress' (2014/2015 in Munich, Germany): the focus was on technical M&A aspects (for example contract drafting, Due Diligence), but also with regional foci, mainly China (with an increasing number of Chinese participants to these kind of events) and USA (with specific workshops on German-US M&A activities).

VDA / IKB panel discussion (2015 in Frankfurt, Germany as part of the International Autoshow / IAA). Title: 'Automobilzulieferer unter verstärktem Konsolidierungsdruck?' (English: 'Automotive suppliers under increased pressure to consolidate?') Industry participants, for example president of VDA (German Automotive Industry Association), president of IKB a mid-market German bank, Mr Rosenfeld (CEO of Schaeffler Group), Mr Scheider (board member of MAHLE GmbH), Mr Draeger (BMW purchasing manager), Mr Kostal (Kostal Gruppe).
Increased globalisation and technological developments force automotive suppliers into more investments and innovations. Also increased presence in international markets to be close to OEMs. Questions discussed: Can suppliers stem these challenges alone?; further consolidation; Will system suppliers grow even bigger?; Which options have smaller and medium suppliers?, Can they cope with competition from local suppliers? (VDA & IKB, 2015)

University students' workshop (2016) on M&A targets and strategies for tier 1 automotive suppliers. An interesting outcome was that most technology targets brought to the attention by students, who were given the task of identifying attractive targets, were based outside of Europe, mainly in the US.

Latham & Watkins / Citi conference (2018 in Frankfurt am Main, Germany). Title: "The US M&A Market, In light of Changing Political, Economic and Monetary Policies". The various discussion and speeches centred on North American and cross-border M&A trends as well as the potential implications from the new US president and policy changes. In essence, speakers agreed that in general the M&A environment remains intact globally, with a potential slight shift of focus to Europe away from North America. With regard to regulatory approval processes for M&A into the US (and potentially in the future JV collaboration) it was stated that these approvals might take much longer (up to 3 months, instead of 1-2 months in prior years), since more cases are being reviewed and US institutions having difficulties with being under-staffed. Furthermore, there are intended changes in legal frameworks such as the Foreign Investment Risk Review Modernization Act ('FIRRMA') which should strengthen the institutions overseeing the inbound equity investments into US companies such as CFIUS (see also Whitehouse, 2018). Compared to anti-trust approvals, the foreign direct investment approval is far more in transparent and a "black box" since no clear thresholds exist and feedback is very scarce given the involvement of various investigative and secret agencies in the US (such as the Federal Bureau of Investigation or 'FBI' and the Central Intelligence Agency or 'CIA'). These increased burdens do not apply to business partners from all countries equally, since companies from NATO allies seem to have a better access. Furthermore, there are positive effects in the current US politics that benefit companies, such as the tax reform that passed the US Senate and signed by Donald Trump in December 2017. (Latham&Watkins, 2018)

In summary, all speakers agree that the US remain a highly attractive market with its attractive and competitive companies as collaboration or M&A partners. Nevertheless, non-US companies engaging in the US have to live with and prepare for the uncertainty in the current political environment (e.g. lengthy approval processes for foreign direct investments).

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4.2.3. Case analysis

This section looks at the various findings for each building blocks and then gives a summary overview of the highlights and evidence from the selected case study transactions, regarding the building blocks.

Figure 46 gives an overview of the ranking of the cases along the dimensions of strategic impact, transaction success, focus on the US, opportunistic (as opposed to systematic analysis approach), impact of organisational context, and impact of environmental context. These various dimensions were developed after the engagement with the case documentation and the realisation of the expert interviews. They are meant to also reflect on the Research questions and objectives, for example the strategic gap analysis in light of the collaborations (RQ #1), as well as the importance of having a US partner, organisational and environmental contexts (RQ #2) While the outer lines indicate a higher ranking, the inner lines indicate a lower ranking.

Figure 46: Assessment of selected cases
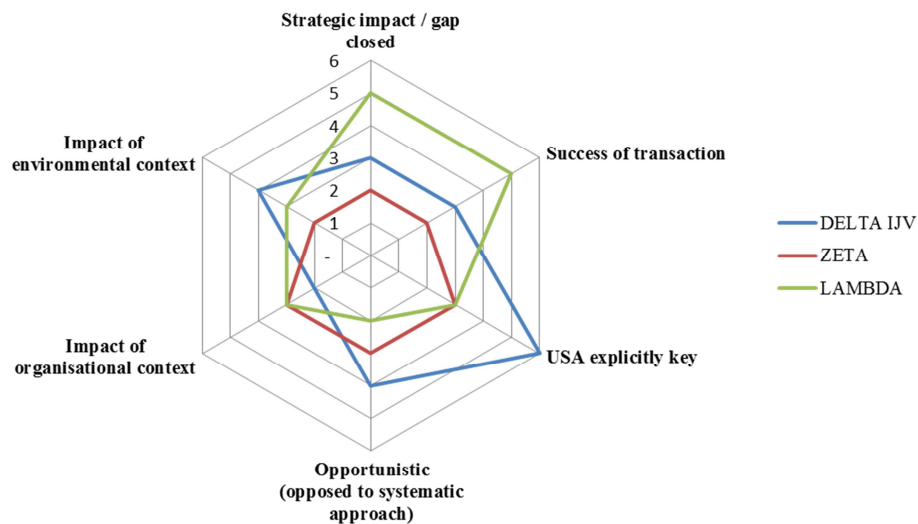
Source: authors own (2017); n.b. scale: 0 = not at all the case, 6 = strongly the case

IJV transaction with 'DELTA'

This IJV, DELTA IJV, was set up in 1998 and dissolved in 2004. Its regional focus was the USA but with a worldwide reach. The technological deal rationale was to address the comfort oriented automotive market in the US with a special type of transmission. It was also specific to this deal that the JV partner was a US-based OEM. ALPHA had a technology already developed and wanted to leverage it in a new market of the USA, for the respective Business Unit. Hence, the strategic rationale can be described as a 'technology-for-market-access' approach. Addressing and entering the USA, as a 'blank spot' on the map was the strategic gap to close from the suppliers' view. Figure 47 maps these considerations in a 'relative strengths' analysis of the collaboration partners. It is easily identifiable that both partners had a good fit in terms of their respective strengths and little overlap (main data points in the upper left and lower right corner, in which only one of the partners was strong).

A key lesson learnt was to not underestimate the interest difference of the OEM regarding the supplier and the IJV, as this was a collaboration of various value step partners (cf. Figure 10 on p. 32). In addition, there was room for improvement with some specifics about the US American legacy, for example, the unionised plant that was used. In the end, the JV was dissolved. Usually the lifetime of a JV is 20-30 years but in this case, it was 6 years only. However, this was due to a strategic entrepreneurial misjudgement (retrospectively) rather than the collaboration mode in itself.

The implications of this transaction for the advisory framework centre on insights from the supplier-OEM JV, in particular in alignment of interests and the legacy of US American companies. In terms of decision-making and process, the deal revealed the importance of the inter-personal relationships of decision-makers on both sides.

Figure 47: Relative strengths analysis DELTA IJV
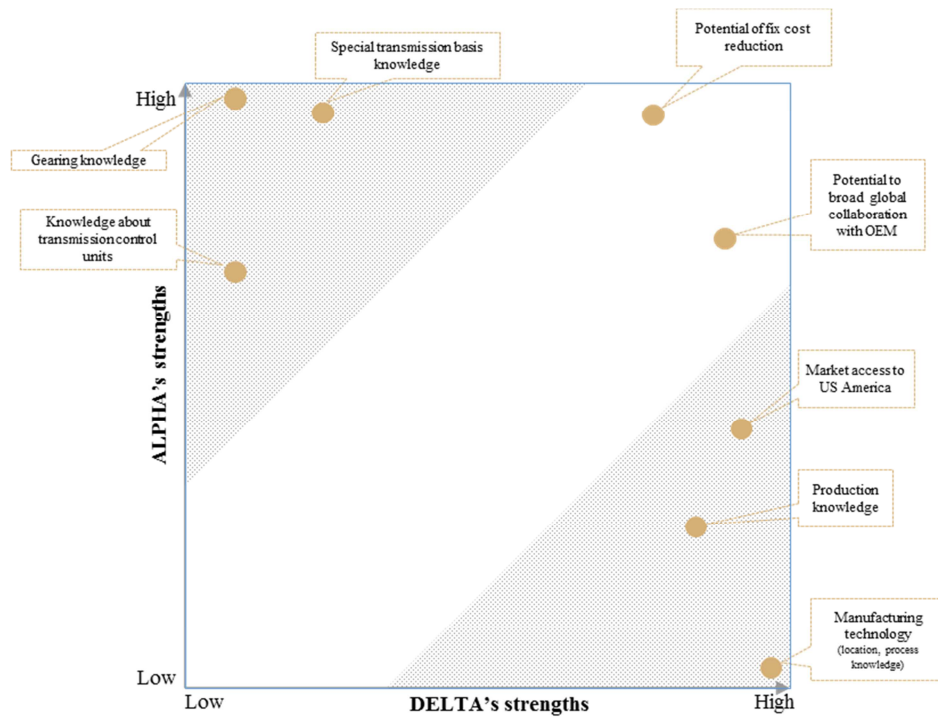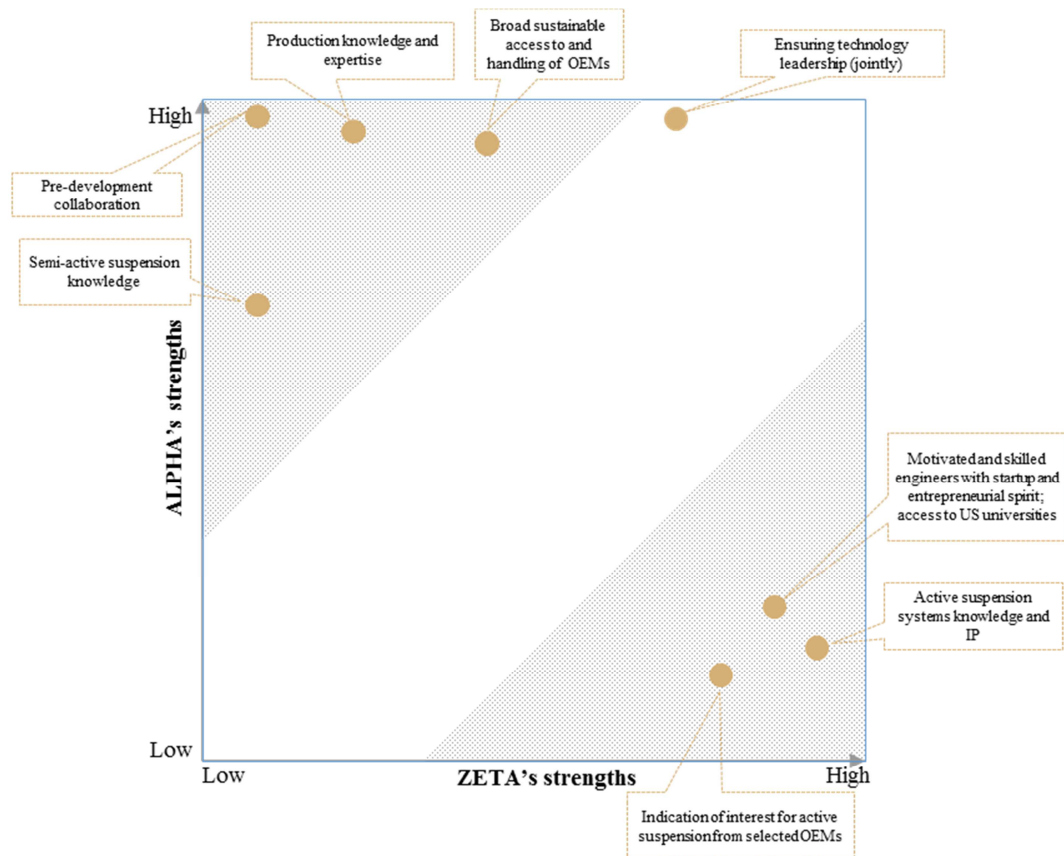

Source: author's own (2017)

Hybrid transaction 'ZETA'

This deal was one of the first technology-driven collaboration discussions at ALPHA with a start-up that would potentially lead to an acquisition discussion (see also Figure 48, which shows the relative strengths analysis of ZETA and APLHA, analogous to the one of DELTA and ALPHA in the previous paragraph). After starting as R&D collaboration in a field adjacent to ADAS (increased comfort level with special suspensions) without equity capital investment, there were various discussions about closer collaboration, such as establishing a joint venture, licensing model or acquisition. This might be termed a 'hybrid' discussion. In this, ZETA owners quickly rejected the JV, since they wanted to move on and realise their cash-inflow. Ultimately, they seemed to want to sell out to ALPHA so the next idea of licensing and tier 1 / tier 2 model, was also turned down. In the end, the deal was lapsed due to the different expectations of the ALPHA and ZETA's owners, mainly around business valuation but also regarding their different perceptions of the product readiness of ZETA. Again, this was with different partners at different steps of the value chain but this time with a start-up partner to ALPHA.

One key lesson learnt or area with room for improvement was that ALPHA entered quite late into discussions for closer equity collaboration. ALPHA's central M&A/collaboration department was involved too late, since the business unit had already negotiated a lot by themselves. Another lesson learnt was that besides a 100% takeover, minority investments could also have merit in the start-up area.

One implication for an advisory framework was that for technology critical topics, closer equity collaboration and acquisition could be relevant to overcome difficulties and limitations in terms of joint Intellectual Property ('IP'). The reason for this is the collaboration partners' reluctance to share their exclusive knowledge about products, technologies, and Unique Selling Propositions ('USPs') openly. It was also shown again that it is critical to align the interests of all collaboration partners with regard to overall strategic goals and that these collaboration forms only make sense if they are conductible at a mutually acceptable price and valuation level. Figure 48 shows the relative strengths analysis for ZETA and ALPHA with the highly complementary positions resulting in the assessment of a strategic fit.

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Figure 48: Relative strengths analysis ZETA collaboration

Source: author's own (2017)

First mover advantage was clearly a side effect in the intended ZETA acquisition, as a key internationally relevant motivation, as mentioned in the literature review. This came across clearly from the documentation but less so in the interviews.

IM&A transaction 'LAMBDA'

ALPHA's acquisition of US American electronics company LAMBDA was completed in 2008. It had a worldwide reach with European focus for automotive. LAMBDA had some exposure to the automotive industry, but was primarily active in other sectors. The deal rationale from ALPHA's perspective was to address the market mega trend of rapidly increasing electrification of passenger cars. The market segments served by LAMBDA were switches and control, computer input devices and automotive electronics. Client base within the automotive system include tier 1 suppliers and automotive OEMs. Other clients included home appliance manufacturers and private clients. One could therefore argue that both partners were at a similar level of the automotive value chain.

Since the strategic rationale was to in-source electronic control units for transmissions, this was a vertical integration play. As such, the deal was technology driven as electronics and production knowledge and capacity were all complementary to ALPHA's resources. This goal was ultimately achieved and the entrepreneurial decision was endorsed as ALPHA was better positioned after the acquisition and the strategic gap significantly narrowed. One unique aspect of this deal was the integration, which was done via an own business unit within ALPHA with no complete integration. Even the brand name was kept for all the non-automotive business and the automotive business was only branded ALPHA after the acquisition.

Challenges of the deal included over-estimation of readiness in terms of delivering and under-estimation of the need for further development. Furthermore, the business was hit by some external factors, such as the automotive crisis in 2008/09. The re-shaping of the target and selling of non-core businesses took a long time and portfolio clean-ups came quite late.

In summary, since the LAMBDA international acquisition was meant to get access to product and production technology (electronics) that was meant to be a cross-section technology, important for many divisions and business units across the ALPHA group, overall the IM&A mode was the right choice.

Implications for the advisory framework were that there is some merit in being well prepared of closing a gap, not only through an acquisition but also investments beyond this. In addition, having a distinct action plan post-closing is crucial.

Figure 49 below shows the respective strength of both partners, LAMDBA and ALPHA, as the basis for the success of this product and production technology driven international acquisition.

Figure 49: Relative strengths analysis LAMBDA international acquisition
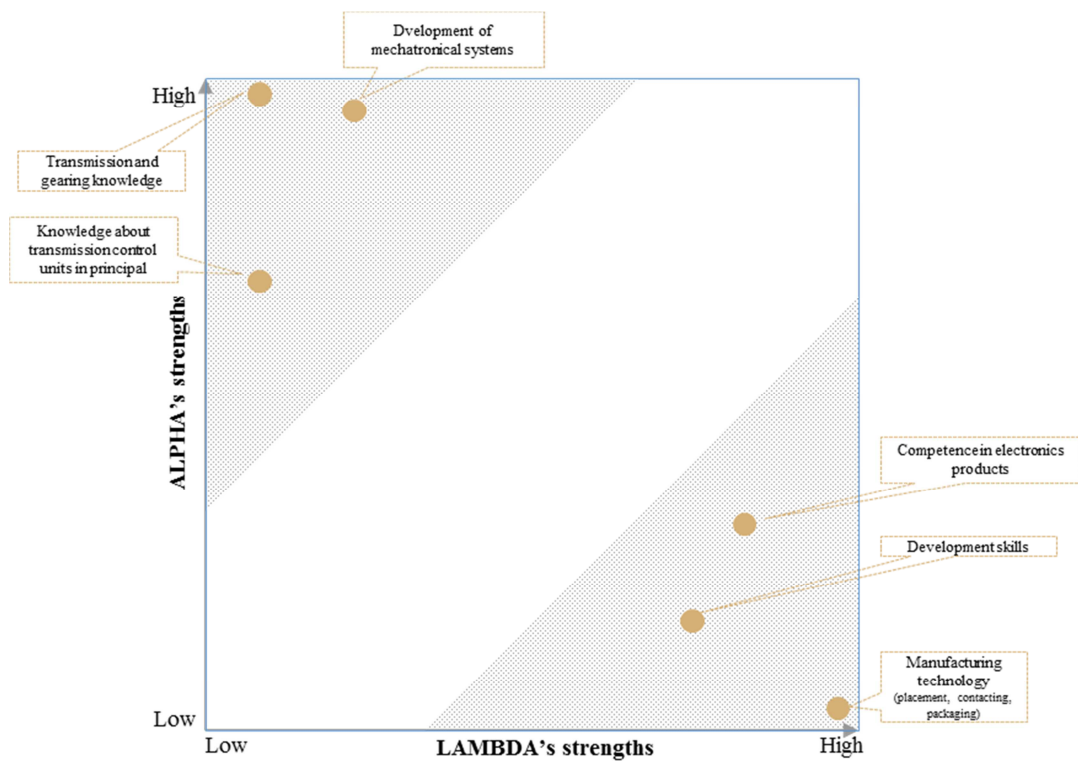
Source: author's own (2017)

The key best practices and lessons learnt for the collaboration cases of the DELTA IJV, ZETA and LAMBDA are summarised in Table 9. This table and its content were developed based on the findings from the expert interviews, with a specific focus on each case.

Table 9: Selected best practices and lessons learnt of cases studied

	Best practice	Key lessons learnt
'Delta'	• Market access ensured • 'Conclave meetings' of project teams to get results	• Legacy issues • Align interests via IJV • Positive spillover effects
'Zeta'	• Development of equity collaboration discussion/M&A via strategic R&D collaboration first • Clear strategic vision to close the product portfolio gap	• Early involvement needed • Freedom for start-ups to operate • Manage valuation expectations early on
'Lambda'	• Systematic analysis, paired with flexibility when opportunity came up • Use time gap and development time wisely with other projects	• Timing critical: in particular OEM model switching dates and time post Closing for 'clean ups' • Spill-over effects

Source: author's own (2017)

4.3. Summary and interim conclusion

Chapter 4 was organised similarly to the previous one, firstly discussing the literature review findings then the findings from the empirical part.

The literature in this field is characterised by a broad basis literature on each of the four building blocks and some literature on the combination or pairwise analysis with IJV and IM&A in the centre but no literature on the specific intersection of the current study. Hence, a literature gap is perceived to be there. Furthermore, there is a tendency to use quantitative studies. Generally, the work of industry experts and consultants play in important role in this research field. This descriptive analysis was complemented by a thematic one.

Here, I would like to start with the building blocks addressing the context of collaborations (RQ/RO #2). There are three main industry trends that are mostly consistent across publications; autonomous driving including connectivity, efficiency, and safety. There are also other trends, such as design features. Furthermore, the industry is characterised as VUCA (volatile, uncertain, complex, and ambiguous) which makes decisions difficult. Additionally, there are changes in the industry structure, characterised by consolidation and entry of players that are new to the industry (for example electronics conglomerates or start-ups). All of these factors add complexity and force suppliers to re-think collaboration strategy in order to determine which sectors to compete in and which ones to deliberately neglect.

The second context was the international one, mainly focusing on the USA. There is a myriad of theories and potential motives for why to engage in internationalisation and more precisely, international inter-firm collaboration. In the USA context specifically, one can posit that this market is highly important for automotive given its size and dynamics, in particular in the new field of autonomous driving and connectivity. Additionally, the market is characterised by a high degree of transparency and stability. Having said this, I would nevertheless argue that there are new unknowns in the political arena of the US as a consequence of Donald J. Trump's election as president. No one can now predict what the impact will be on the domestic automotive industry and its relation to third party countries.

The literature on strategic gap analysis is also well covered. Here, it is frequently posited, that it is crucial to have a clear view on a company's own resources and capabilities as well as the external factors and the market. Decision-making for inter-firm collaboration is embedded into organisational processes and is perceived to be generally characterised by bounded reality.

These days, IJV and IM&A are widely recognised as strategic tools and central elements of corporate strategy. The value-oriented and strategic theories and motives seem to be the most important. This was confirmed by the empirical findings and my own observations. The transaction costs theory, which can be aligned with the OLI paradigm (ownership, location, and internalisation) seems to be particularly good. Its explanation concepts are often quoted, together with the central element of access to resources. All inter-firm collaboration modes can be placed on a continuum of costs, control, risk, and resources/market access. In this regard, IJV and IM&A are among the most similar strategies but also different in many aspects such as strategic objectives and corporate governance. There are numerous challenges to be taken into account for both transaction types, as there are high failure rates if not conducted or managed appropriately. This applies to both IJV and IM&A. The main execution parameters to focus on are the considerations on industry context, the choice of partner/s and their performance, the relationship between these partners and ultimately the complementarity of resources. There are many publications from industry experts and consultants regarding publication sources that have a distinct focus on M&A, as opposed to JV activity.

On the one hand, IM&A in automotive may help to reduce the value-chain complexity, and tackle the industry's challenges such as new models and accelerating trends. On the other hand, IJV in automotive are perceived to have a different focus including access to new low cost production capacities, market access, or new technological capabilities. Furthermore, it might mean that the 'cost of disentanglement' (for example carving-out from a larger conglomerate) might be circumvented. What both collaboration modes have in common is the management of industry uncertainties with a partner or various partners.

The conceptual, literature based framework introduced in section 4.1.2 is analysed in a sequential way, along the steps of strategic analysis and subsequent transaction execution. It shows the various aspects perceived to be most important, including context factors that need to be taken into account.

On the empirical side, the thematic analysis was conducted along the lines of the building blocks and a coding structure was established. The complexity of the blocks was illustrated in the 'mapping charts' showing the different recurring themes (Figures 40-44) and there are also various interdependencies between the building blocks. In organisational decision-making, for example, the focus was on the clear tasks of project teams, BoM and the Supervisory Board. Regarding the automotive industry, the role of the OEMs was re-iterated. Insights about the strategy analysis (content and process) are also presented). The transaction documentation analysed had a clear focus on the respective transaction execution. The strategic analysis of the selected in-depth case studies revealed the complementary benefits of partners to be a main pillar for consideration. However, of course each case is different and ultimately context specific.

5. Synthesis, discussion and reflective commentary

After the presentations of the main findings from the review of the relevant literature and the empirical part of the study, this chapter aims at synthesising the findings to further reflect on them (Section 5.1). The synthesis tables (Tables 10-14) can be considered then as 'sub-frameworks' which are part of the overall advisory framework, which the will be introduced subsequently (Section 5.2). The chapter finishes with a summary (Section 5.3).

5.1. Findings relative to the study context

The section aims at finding similarities and differences between the literature and the empirical part. Furthermore, implications from the various findings on the collaborations are indicated.

By nature, the empirical part is less theory-focused but is perceived to contribute valuable insights from the practice. Therefore, the idea is here to combine views, the empirical findings, and the theoretical groundwork to cover both angles. As such, the synthesis of the findings in 'sub-frameworks' are basis for the advisory framework of Section 5.2.

The empirical findings have slightly different focus points but overall confirm the theories and findings of the literature on the different aspects.

Automotive context.

All trends in the industry, as outlined in Section 4.2, seem to be relevant for tier 1 automotive suppliers. Megatrends were mentioned in both parts of the research.

The VUCA concept seems less important, in the interviews at ALPHA. This might be due to its fast follower strategy in terms of innovation. Hence, there is less ambiguity for example about the future importance of electronics and software in automotive.

The importance of OEMs in industry structure was reinforced by the empirical part, as well as by new entrants to the industry. Hence, the automotive industry is an industry

undergoing change (also see some strategic considerations on the automotive industry in Appendix 7.1. on p. 229ff.).

Table 10 below summarises the synthesis of selected key findings of the literature review and empirical part, as well as implications for collaboration / acquisition considerations. The summary looks at aspects of the industry structure as well as its trends and challenges.

Table 10: Synthesis of the automotive context considerations

Aspect	Literature review	Empirical part	Implications
Industry structure	• Changes (new players/business models, Asia, etc.) • Role of OEMs exercising pressure • Increase in specialisation (OEM more on branding, supplier tier 1 as system providers)	• OEMs as 'pace makers of the industry' • Product/model lifecycle management crucial • Similar perceived corporate cultures within European tier I suppliers	• Consider own position and competitive edge/stay focused • OEM/start-up collaboration: be aware of their own agendas and particularities
Trends and challenges	• Mega trends (for example safety, ADAS, connectivity, efficiency) • 'VUCA' in particular ambiguity and uncertainty • R&D and innovation increasingly important	• New technologies as result of mega trends • 'Right time and right product' crucial • Importance of rigorous cost management and financial analysis when addressing trends	• Anticipate developments • Strengthen R&D through collaboration/M&A • If full technology access / USP needed then M&A could be better

Source: author's own (2017)

US America context.

There are various links between the theoretical underpinning of international activities and the empirical findings. The 'OLI paradigm' (Ownership, location, internalisation), seems to be one good explanatory framework as it captures various aspects of internationalisation of the automotive supplier industry. The USA offers ownership (access to resources and experience, for example with regard to cost management, IT/automotive innovation), location (large, dynamic market), and internalisation (saving of transaction costs). In addition, Porter (1980) can be substantiated as European suppliers can leverage their domestic advantage in the USA (for example "our advantage would be from the technology side to bring new technologies to the US market and also the part of our global footprint" E1 52). The USA is also still seen by practitioners as a more or less open market. However, this might change in the coming years given the unknown implications of Donald J. Trump's presidency.

Table 11 summarises the synthesis of selected key findings of the literature review and empirical part, as well as implications for collaboration / acquisition considerations, analogous to the previous table. The focus is on aspects of the general market and transactions as well as collaboration specific considerations.

Table 11: Synthesis of the US America context considerations

Aspect	Literature review	Empirical part	Implications
Market considerations	• Volume and size: one of the largest economies and a key automotive market • Attitude of participants (cost sensitive); strong recovery of suppliers after crisis 2009 • High dynamic and innovation potential, also for 'hunt for talent'	• Important market with size and volume • US auto companies with higher cost focus than in Europe • Gain further dynamics since IT and traditional industry converge	• Attractive market but differences to Europe need to be considered • Need for globally balanced automotive suppliers to be present in the USA • Mutual learning possible
Collaboration / acquisition geography	• Options available and high transparency • OEMs requesting local presence • OLI advantages: ownership, location and internalisation given	• Leverage technology advantages in large and dynamic market • If technology central → location potentially less relevant • Cross-border aspects important in integration • Consider legacy aspects of partners	• Access to innovative companies in US America • Leverage differences • Collaboration to help stringent product innovation, active portfolio management and cost improvements

Source: author's own (2017)

Strategic gap analysis and decision-making.

In the literature review, the strategic gap analysis was outlaid as an important tool for the long-term performance and success of a company. This was reinforced through the evidence of the case interviews. Interviewees effectively saw a commercial, technology and regional strategy as pillars to success. In projects of strategic importance this is in contrast to the company's resources. The current study can be seen as evidence for this process within an internationally active automotive supplier.

Table 12 below summarises the synthesis of selected key findings of the literature review and empirical part and gives implications for JV collaboration / acquisition considerations. It summarises the overall strategy as well as strategic gap analysis and cross-border aspects.

Table 12: Synthesis of the strategic gap considerations

Aspect	Literature review	Empirical part	Implications
Strategy overall	• Long-term performance • Clear view on positioning, delimited activities and fit between activities	• Technology and innovation as key pillars and core competence • Value driven approaches important • Besides some signalling effects	• Keep technology / innovation advantage • Continuous cost improvement necessary • Timing of OEM SOP crucial • Active portfolio management
Strategic gap analysis	• Use of various models (for example Perlitz's decision-tree, Ansoff matrix, Five forces, PESTLE-framework)	• Use of technical analysis and 'gut feeling' • Always entrepreneurial aspects to it, collaboration seen as tools	• Mix of analytical approach and flexibility and instinct seem favourable • Clear boundaries how collaboration can help fill the gaps • Capture full complexity of issue, including strategic particularities
Inter-nationalisation / cross-border consi-derations	• M&A/collaboration as 'entry mode' • Various theoretical models supporting the choice of collaboration and analysis	• In practice much more pragmatic • Regionally, US America elementary	• Reflect models and theories in gap analysis • Align international collaboration with overall strategy

Source: author's own (2017)

It should be noted that the irrational behaviour and individual interests and agenda of stakeholders in the process (e.g. Aharoni, 1966) were not the focus of the interviews. The corporate set-up seems to be highly important and includes a central function department that supports both collaboration and acquisition activities. This was also evidenced in the interviews.

There was general support for the process of staggered decision-making in the interviews. The process includes recommendation by the deal team (consisting of HQ and business unit personal), followed by divisional management, senior corporate management and ultimately, supervisory board approval, if needed. While there was little explicit reflection in the interviews of cognitive biases or certain heuristics that can help managers to make decisions in VUCA environments, there was broad support for the intended advisory framework.

Table 13 summarises the synthesis of selected key findings of the literature review and empirical part, as well as implications for collaboration / acquisition considerations. The processes and stakeholders are the main focus.

Table 13: Synthesis of the process and decision-making considerations

Aspect	Literature review	Empirical part	Implications
Process	• Defined processes facilitate decision-making • Crucial: level of analysis, analysis of events and capturing of complexity • Corporate set-up influence	• Experience in collaboration important • Joint-process with HQ and BUs seen as positive • Dual reporting (line function and M&A/collaboration) tiring • Development from gut feeling towards more systematic approaches	• Reflect corporate experience with regard to collaboration • Systematic approach with benefits • Strengthen in-house corporate team to support corporate development ('one stop shop')
Stake-holders	• Heuristics to reduce effects, for example from 'bounded reality' and 'cognitive biases' • Other effects (for example power and hierarchy)	• Mix of top-down and bottom up perceived positive • Also within senior management driving and monitoring • Within senior management there is a hierarchy • Set-up as projects right approach; think about organisation and integration early on • Relationships and networks are essential	• Be aware of heuristics and potential cognitive biases • Use mix of stakeholders and corporate organisational units wisely

Source: author's own (2017)

IJV and IM&A.

Generally, the empirical part confirmed the findings on IJV and IM&A as strategic tools from the literature review. The answers and the empirical case study based evidence, suggest that the value-oriented theories such as the transaction cost theory and the strategic/resource based view theories in particular have explanation merit. However, while the literature review was more focused on theories and concepts, the empirical part focused more on practice-related topics. On the one hand, key aspects and success factors, as identified in the literature review (on page 145), are substantiated through evidence from the interviews and case studies. In more practice-related topics, the 'clean-ups' after strategic IM&A transactions and distinct strategies, seemed to be frequently mentioned and considered important. On the other hand, the VUCA context, which is apparent in the automotive industry, was less often mentioned.

The empirical focus was on the choice of collaboration mode and the partner-related topics for the transaction itself. This again is in line with the literature, mainly stressing the win-win situation and the necessity of good preparation and thorough investigation of the partner (for example in a due diligence process or through previous collaborations such as R&D collaboration).

With regard to organisational issues, the integration and political topics including legacy of the partners were the most important.

Besides the primary objective of a collaboration or an acquisition, spill-over effects are also interesting but beyond the scope of the screened literature. The key criteria of collaboration modes and IM&A are also interesting (for example in Section 4.1.2 Figure 35, on page 141): Some interview participants perceived JV to be riskier than M&A, given that JV imply less control over the activities. Commitment mainly seems important in the case of OEM JV to ensure that the OEM's interests are aligned with the supplier's.

If collaboration partners are either new entrants and/or start-ups, with all their particularities, there might be a need to give them their necessary "freedom" which was a consistent finding from the expert interviews, the author's experience, and adviser discussions. Boundaries of collaboration and M&A, called 'digestibility' in the literature, was also mentioned and, depending on size of potential target and/or partner, would favour IJV over IM&A. Opportunities were also perceived to play an important role and actively searching for them if needed using signalling seems a lesson learnt from historic transactions. In many cases, IM&A and IJV collaboration evolves from different activities of collaboration, such as joint strategic R&D projects. This is also partly covered in the literature.

Table 14 summarises the synthesis of selected key findings of the literature review and empirical part, as well as implications for collaboration / acquisition considerations. The main findings were around strategic and transaction aspects as well as those that are less likely to be influenced, such as opportunities.

Table 14: Synthesis of IJV and IM&A as strategic tools

Aspect	Literature review	Empirical part	Implications
Strategic considerations / Rationale	• Value-orientation motives, financials driven • Strategic motives (for example access to resources)	• Collaboration strategy important, within this in particular change management and clean-ups after M&A • Access to volume markets • Safeguard USP (for example electronics knowhow)	• Clear focus of collaboration • For example tech focus, low cost production, market access • Delimitations important

Transaction aspects	• Key parameters: control / commitment / risk
	• Success factors stated:
	  ✓ Complementary/win-win
	  ✓ Choice of partner
	  ✓ Ability to perform
	  ✓ Competition/industry structure
	• JV favouring aspects: disentanglement, digestibility and divisibility
		• Spill-over effects noticed (for example additional business with other partners, learning effects)
		• All partner-related topics (cultural/personal fit, etc.) important
		• Of key parameters, main focus on control and risk
		• Integration (incl. 'not invented here mechanism')
			• Match collaboration type with rationale (access vs. full control)
			• Create 'win-win' situation
			• Crucial success factors: complementary resources and choice of partner
			• Factor in instability of IJV

Other aspects	• Chance	• Opportunities important	• Actively seek opportunities, for example using signalling to the market

Source: author's own (2017)

5.2. The advisory framework

The concept represented in this section intends to encompass the various aspects with regard to the research study focus and its research objectives. It can therefore be considered an overarching advisory framework with the different elements identified in Chapter 4 and Section 5.1. The advisory framework is based on the theoretical findings (see the conceptual framework based on the research focus Venn diagram and the flow chart, i.e. Figures 36 and 37 on pages 164 and 166 respectively), which were substantiated and enriched by aspects from actual projects and collaborations (empirical part). The advisory framework was cross validated with collaboration experts in the field, my doctoral supervisors and members of an Action Learning Set ('ALS') in order to further enhance its clarity and value add.

On the one hand, given the collaborations' complexity, as stated many times, the initially intended 'decision-tree' approach for collaborations in the US American supplier context was rejected since the inter-relations are multi-dimensional and not linear. The advisory framework is not universal since all situations are unique, for example strategic rationale, context (for example sheer necessity and no alternative), timing, partner. There are no 'one-dimensional' relations or 'cooking recipes' possible.

For example, if a specific technology is needed as a crucial strategic rationale, an acquisition might not always be the best solution since a win-win situation with the partner might only be possible in a JV construct with shared ownership. Ultimately, in many situations there are trade-offs that companies need to decide on.

On the other hand, the merit of the advisory framework is to point out relevant aspects in the context of these collaborations, increase awareness for making deliberate and reflected decisions about collaboration in a JV vs. acquisition and give practitioners and academics further 'mental stimulation'. For additional thoughts on the significance of the study, see Section 2.2 page 34f.

However, the concept is a model, and it can hence not completely reflect the reality but only a phenomenon, i.e. abstract to show certain relevant elements (e.g. Janczak, 2005).

The various data analysed showed that there are a lot of challenges and critical situations if trends are not addressed appropriately. There are some prominent examples of companies that did not manage their industries' challenges appropriately, for example in the consumer electronics industry, an industry that is now converging with automotive for example Nokia in Finland. (Aspara, Lamberg, Laukia, & Tikkanen, 2011; Johnson, Scholes, & Whittington, 2008) This also applies to the decision-making process where there seems to be merit in thinking about refining companies' strategic collaboration analysis and decision-making.

The key recommendations in summary would include:

- Clear rationale / strategic analysis: entrepreneurial decision as a starting point/beside the collaboration project
- Context factors: automotive and regional
- Process refinements could have merit: add an explicit step 'discussion of collaboration mode' and embed the advisory framework and collaborations in the overall strategy process of the company (for example as presented broadly in Figure 8: 'Schematic corporate strategy process and collaboration process' on p. 23)

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- Cultural differences of partners, in particular when partner is at different step of the value chain (for example start-up or OEM)

IM&A remains an important strategic tool but it needs to be appropriate (for example to secure strategic goals and at an adequate price), otherwise alternative types of collaborations firstly IJV should be considered.

Figure 50 shows the overall advisory framework of the current study as result of the engagement with the relevant literature substantiated with the empirical analysis of the current study. This framework is meant as a complexity-reducing and distinct guide through the analytical thought process with regard to international collaborations and acquisitions in the automotive supplier industry. After the study, the initial thought of having a decision-tree or 'cooking recipe' or linear approach, to the choice consideration between IJV and international acquisition was dismissed. The reasons were outlined in the earlier sections, such as Sections 4.1, 4.2 and 5.1 and mainly related to the complexity of the researched matter. However, what the advisory is meant to give is a collection of analysis points to consider and think about in the decision-making within the context of the study.

In terms of analysis process, the advisory framework should and could be seen as a step within the overall corporate strategy process (general: Figure 8, p. 23; strategy process within ALPHA: Figure 45 on page 188).

The advisory framework is an 'umbrella framework' with a modular set-up. What it means is that it is set up as a sequential process following several analysis steps. Behind these steps, the framework suggests certain 'lenses' and makes process recommendations from what was perceived to be good practice in the cases and referred to in the literature.

Additionally, the frameworks incorporates and refers to the summary of various underlying sub-frameworks. These sub-frameworks deal with the various blocks and themes of the advisory framework in more detail. They were covered in the previous section (Section 5.1) and should be seen in a very close connection to the advisory framework.

The advisory framework shows three main process steps including strategic gap and context analysis as well as international collaboration vs. acquisition considerations.

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Ideally, practitioners and academics in the area use the advisory framework to get a clearer link of corporate strategy and IJV / international acquisition to address strategic challenges followed by assessment and choice considerations. In that regard, the recommendation is to integrate context considerations (automotive suppliers, US transaction, and processes) deliberately and explicitly. There is a high dependency on context and strategic goals for these transactions and hence both strategic and transaction considerations are to be reflected.

The aspects of project execution and monitoring which are also part of the process, as outlined in Figure 37, in Section 4.1.2 on p. 166, which was the starting point for the advisory framework, are less important for this framework (since they come later in the overall sequence of equity collaborations). For convenience and to establish a clearer link, the various themes have the same steps and colour coding as the conceptual framework-

Ultimately, it is to note that both transaction modes have good reasons to be considered. IJV can be good particularly good modes in a VUCA environment such as automotive industry. However, IJVs tend to be more complicated operationally and no long-term solutions, given the increased complexity, compared to international acquisitions. In that light, the comparison of IJV vs. IM&A (Table 6 on page 144) and the conceptual framework as the summary of the literature review (p. 164) should be considered.

For further information on the sub-frameworks and its components, see the previous section of 5.1 in conjunction with sections 4.1 and 4.2.

Figure 50: The advisory framework
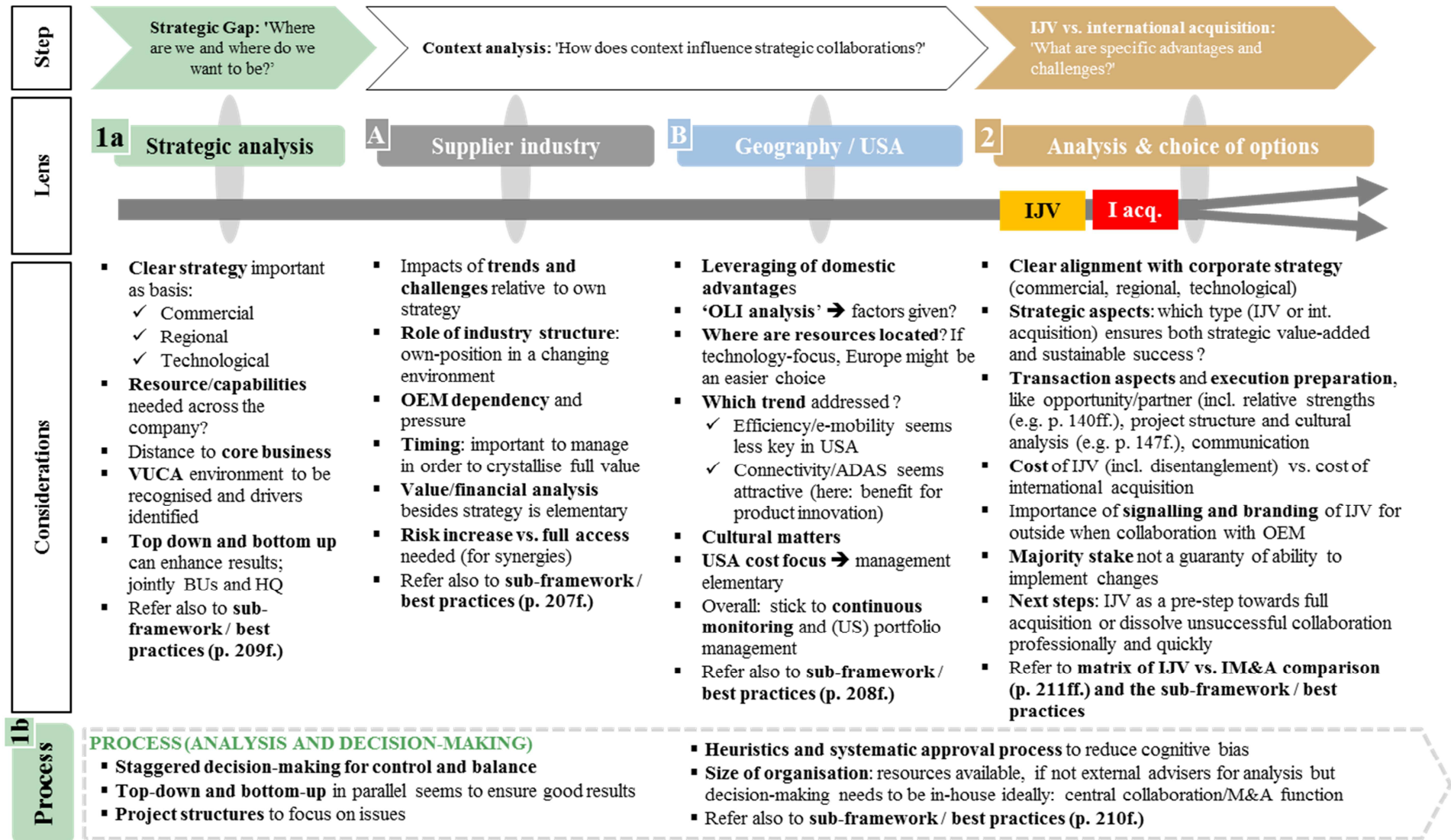
Source: author's own (2018); n.b. the 'sub-frameworks' from Section 5.1 are included for illustrative purposes only, for further detail please refer to Section 5.1

5.3. Limitations

Generally, qualitative research is difficult or even impossible to generalise (e.g. Creswell, 2013; Mayring, 2007). In the current study, there are also a limited number of (exemplary) cases and the outcome of these collaborations is dependent on many parameters, which are not covered in this study. The collaboration process is complex and collaboration success dependent on many external factors such as economic crisis such as market developments, which are impossible to control. Furthermore, the industry and US context specifics are difficult to transfer to other industries and geographies. However, since the advisory framework (incl. its sub-frameworks) is rather modular in its structure, the one or the other 'lens' of it might still be useful while other lens(es) might have to be exchanged when considering a different collaboration setting (e.g. with regard to equity collaboration in China).

It is important to give a distinct picture of what is not being studied, as a 'negative definition' of the research subject (e.g. Gray, 2013). There are strong relationships between corporate strategy and international collaboration and acquisition. Therefore, the recommendations suggested in the advisory framework might be used to gain additional insights and to be applied to actual projects and transactions. In the current study, the focus was on the intersection of the outlined parameters of international inter-company equity collaborations, automotive industry, and decision-making. Decision-making is more of an organisational process approach than concerning the parameters of the individual stakeholders (feelings, motivations, etc.) involved in the decision-making.

The results and the implications drawn from this study should be viewed in light of the research design and research strategy employed. Even though a rigorous research design was used, some of the findings could have been different with a different or larger sample. The case studies came from a single but broad company and hence the generalisability of the results is limited (see Section 3.2.1, p. 70ff.). Other limitations include the selection of the case studies, the selection of interviewees, and me as an interviewer without extensive experience or interview training. As a result, caution must be exercised in drawing conclusions for the automotive supplier industry in general.

Having stated the above and as stated in Section 3.2.1 on page 61f., from personal experience and expert feedback, additional cross validation with other suppliers would most likely not have contributed a huge amount to the advisory framework at this stage. The ALPHA level of detail and material was deemed sufficient. Within the empirical part in the data generation, a triangulation approach was used to incorporate various viewpoints into the analysis. Furthermore, as outlined in the Chapters 3 and 4, the empirical part an extensive literature review was conducted to strengthen the findings.

Studies involving dynamic processes, such as the choice of collaboration mode and design in an international setting, may require a temporal focus suited to longitudinal designs. Therefore, further research on the subject could include action research and the implementation of changes in the analytical and the decision-making processes regarding equity collaborations. As said in previous sections, a further line of thought could be to provide another advisory framework mirroring the current study but focusing on dissolving collaborations.

Another limitation, which is impossible to control for at this point in time, I would like to address at this stage is the presidency of Donald J. Trump in late 2016 (please refer for example to Section 4.1.2 p. 126f.). There are potential changes in US politics towards a more protectionist economic approach with implications for M&A and collaboration activities for foreign companies in the US. This issue could be researched further in the (near) future.

In spite of these limitations, the current study is, to my knowledge, among the first in its research area, as it combines literature review findings and empirical findings, substantiated through various sources of evidence. As such, the analysis provides an indication and a framework for the researched matter. Other studies could use the current study as a basis for extending the work in this area toward a better understanding of how managers make collaboration decisions and how to potentially further improve the process.

5.4. Summary and interim conclusion

Chapter 5 of the current study presented the findings of the empirical analysis regarding the literature review. Considering the research question and objective of investigating the context factors (research question/objective #2) of the automotive supply industry and US America, one can say that generally the findings from the empirical analysis and the literature review are consistent. For example, VUCA as a characteristic of the current automotive industry was not explicitly mentioned but elements of it were mentioned during the expert interviews. In practice, a more hands-on and at the same time entrepreneurial approach is used for the strategic gap analysis. Collaboration opportunities that are actively sought are one of the most important factors.

A top-down approach for strategic decision-making, flanked by bottom-up impulses from a company's business units and divisions, seemed to be beneficial. The importance of the partner's capabilities, including technology aspects, was confirmed. The general considerations on theoretical basis and motives, such as the value-added strategies of OLI, were re-confirmed on IJV and IM&A as a strategic tool (research question/objective #1). However, additional aspects that were not so pronounced in the literature were added. These include considerations of legacy characteristics of partners (e.g. unionised plants) or side and spill-over effects in areas from the original rationale of collaborations (e.g. an acquisition in electronic transmission control units for passenger cars was initially tested in other areas such as construction machines).

Generally, the findings from the literature review seemed to be confirmed by the empirical evidence. However, these were enriched by additional aspects and considerations, such as unionisation in the US plants or the timing aspect of product launches in automotive).

Ultimately, the advisory framework and its sub-frameworks were presented which addressed research question/objective #3. The research and analysis showed that given the complexity, a generic 'cooking recipe' for these types of collaboration was not considered to be encompassing all facets and was hence not developed. However, there is still merit in the framework since it gives a lot of 'mental stimulation'.

Even though in Section 5.3 mitigation measures of the study's limiting factors were presented, one needs to be cautious with drawing generalisations given the fact of its limitations and given that the framework would need to be tested in practice. However, since the advisor framework is no 'cooking recipe' and should be considered (incl. its sub-frameworks) as a structured collection of 'mental stimulation' with its modular set up, parts of it might be used still even though the setting of a collaboration might be different is some aspects. Finally, in future research one could intensify elaborations in specific areas. This will be covered in the next chapter.

6. Conclusions, contributions and future research

A set of conclusions are drawn and discussed below, based on the collective insights acquired throughout the research process. This is supplemented with a number of managerial implications and strategic recommendations for international collaborations in the automotive industry (IJV and IM&A), in accordance with the research questions and objectives specified at the outset of the current study. Thereafter, the contribution to the literature is affirmed. Finally, the possibilities for further research are acknowledged and explored.

Conclusions

The current study considered international Joint Ventures and international acquisitions (as modes of equity collaboration) with a focus on automotive suppliers in the passenger car market and regionally on US partners. These key areas were explored throughout the current study. The rationale for this focus was based on the experience of the author and a review of existing literature on strategic deficiencies and international collaboration in the automotive market.

In line with these thoughts, the early sections of the current study developed the research questions and objectives to demarcate the scope and the parameters of enquiry (Section 2.1); these served as guidance and will now give structure to the various conclusions. Subsequently, the methodology was introduced for a systematic literature review as well as the empirical part of the study. The direction of the chosen unique research approach for the current study was presented in Chapters 2 and 3. The starting point for this was the philosophical paradigm of constructivism through discussing qualitative methodology and comparing various research strategies to select the most appropriate one and multiple case study analysis with expert interviews as the main data generation method (besides documentation analysis and own observations). Apart from being in line with the paradigm, another justification for the choice was the flexibility to offer an explorative approach to a complex real-life problem and to answer the research questions.

In summary, the objective of the current study was to generate in-depth knowledge by bridging the gap between management research and practice. The research questions focused on illuminating the research subject and developing a strategic tool to enhance a more deliberate analysis of choice and decision-making for '*international acquisition and Joint Venture collaboration as means for closing strategic deficiencies of automotive suppliers'*. This was done from different angles as a way to contribute to reducing failure rates in these types of collaborations. This is combined in Sections 4.1, 4.2 and 5 in the synthesis of literature and empirical findings and the 'advisory framework' conceptual model is established.

The two sets of data (literature review, substantiated by an extensive empirical part) were followed by the data analysis, interpretation and ultimately by the advisory framework. The following insights regarding the research questions ('RQ') were found:

RQ #1: *How can a clear choice between the two strategic development modes (IJV vs. an international acquisition) help in closing strategic deficiencies of companies in the automotive supplier industry?*

Strategic equity collaboration is in certain circumstances the only way to address strategic challenges (lack of resources, access to customers, products, technologies, timing constraints, etc.). Hence, IJV and IM&A are appropriate means to close strategic gaps. However, the use of these strategic tools needs to be consistent with the corporate strategy and its respective characteristics need to be taken into account (see for example Table 6 in Sections 4.1 or the sub-frameworks of Section 5.1).

Furthermore, decision-makers need to fully understand the strategic purpose and the characteristics of each of the equity collaboration modes, for example with regard to control, risk, and commitment. This is also true for the international aspect of the transactions for which reason the motives, theories and frameworks of international collaboration were elaborated on (strategic and value-oriented explanations seemed most important, but the rationale of a certain collaboration is usual a mix of various theories). Closely linked to these considerations were the various challenges of the transactions, since the choice of collaboration mode is one of the first steps but needs to follow with good execution, hence a focus on these elements is also crucial since many of the collaborations do fail.

Ultimately, with regard to the choice question a mix of a systematic paired with an entrepreneurial/'gut feeling' approach seemed to have yielded good results, in particular when this is paired with a mixed top down and bottom up driven strategy approach. There is no universal answer to which mode IJV or an international acquisition is the best mode, since every situation is unique. Only, mental stimulation can be given, e.g. that in times of VUCA and uncertainty such as the current automotive environment, IJV seem valid option to be considered. Another example is a situation in which a technology is being looked that can be used across a company and create positive spill-over effects an international acquisition might be the best choice (e.g. currently, electronics and software competences in automotive).

RQ #2: *How do context factors, such as industry and regional focus, affect the choice of IJV collaboration and international acquisitions to close strategic gaps?*

The context in which the collaborations are embedded was extensively analysed in Sections 4.1.2 (p. 115ff.) with the automotive trends and changes in industry structure and the US-context and its implications on collaborations. Besides these findings in literature review, they were confirmed through the expert interviews as well as advisory discussions/expert conferences. It is acknowledged that the environment, the setting of collaboration has tremendous impact on the collaboration mode choice. In that regard, in particular the market characteristics of the automotive industry (technology and other trends, changes in the industry structure, etc.) as well as the specifics of collaborations with US partners (relatively open and transparent regulatory environment, with the effects of new policies creating uncertainty) are to be factored in. Furthermore, in international collaborations corporate culture and other partner specific issues are always to be considered. Overall, US automotive companies remain attractive for international partners and the same applies to the US market itself, given its dynamics and volumes.

RQ #3: *How might an organisation's strategic decision-making process be enhanced to make more suitable and deliberate choices between IJV and IM&A as collaboration modes?*

The advisory framework, which was presented in Section 5.2, is meant to address this research question. While there is no universal approach that needs to be implemented,

there are certain directions that can be used in the analysis and decision-making process. In any case, it is recommended to include an explicit step of analysing collaboration modes and incorporate this step into the overall strategic considerations. This analysis applies to strategic and transaction related, as well as organisational matters (for example the level of control needed over new technologies given a high uncertainty context; use of the OLI analysis tool; bottom-up and top-down decision-making approach).

The advisory framework of the current study represents a unique tool for mental stimulations. As such, it is an umbrella framework, set up in a modular way with its different sub-framework and lenses of analysis. This is due to the complexity of the collaboration analysis. Hence, a holistic approach is recommended, giving each of the sub-facets of the current study its appropriate attention that applies to the two context aspects as well as the strategic analysis and choice of collaboration modes in the narrower sense.

In summary, IJV and IM&A continue to be important strategic tools to bridge strategic gaps in the automotive supply industry, both in their own right. Hence, it is to note that both transaction modes have good reasons to be considered, IJV in particular in a VUCA environment such as automotive industry. However, IJVs tend to be more complicated operationally and most often no long-term solutions, given the increased complexity. For these reasons, IJV need to be having a particularly strong rationale to be the most appropriate solution to address a specific strategic gap or deficiency. In that light, the comparison of IJV vs. IM&A (Table 6 on page 144) and the conceptual framework as the summary of the literature review (p. 164) should be considered. In order to be successful, strategic international JV or acquisitions need to be used systematically and deliberately given their context; the advisory framework can help to fulfil this aim, without providing offering a pre-described 'cooking recipe'.

Contributions

The current study made a number of significant contributions to the literature. These contributions are relevant to academics and practitioners in the fields of international business, corporate strategy, and organisation. This research has expanded the body of knowledge in the area of inter-firm equity collaborations with the aim to close strategic gaps: many other publications in the field are based on quantitative analysis, or are descriptive. It has hence added to the available literature on cross-border collaboration, with a qualitative method approach and a focus on getting a deeper understanding in the contexts of the automotive supplier industry and on cross-border equity collaborations with US partners.

There was no literature in the specific research area of the current study and for the other studies that are in the wider area of the study have a quantitative approach while the current study has a qualitative one. Hence, the contribution to the literature was getting further in-depth insights and illustrations through the empirical work and ultimately the advisory framework (see p. 217). In that line of thought, one of the contributions of the current study are the substantiation of the findings from the literature by the empirical part, enriching it with additional aspects such as legacy topics of partners and ancillary/spill-over effects that are to be taken into account (see page 201ff. for example). Industrial and geographical context play an increasingly important role and need to be considered in strategic analysis and collaborations.

The automotive industry is unique as OEMs are playing such an important role, for example, with regard to the timing of collaborations. The US American automotive industry is important on a global scale and international collaboration with US American partners has gained further momentum as a result. This will include European suppliers in the near future (with the caveat of some unknowns, such as the political directions currently taken in the USA). This work has provided a look inside a selected number of cases of this type of collaboration activity.

This research has shown how and why firms can pursue competitive advantage through international collaboration for technically and market oriented reasons. The suggestion

was to re-shape the process and decision-making towards a more deliberate approach, factoring in relevant context parameters in the advisory framework.

I would like to re-iterate that I was an emic researcher; i.e. I was researching my own industry and the area of industry processes. Insights from these activities were also reflected in the current study. In summary, the current study, with this thematic focus, qualitative design, and emic insights is, to my knowledge, unique in its form. Overall, I feel that the chosen study design, including continuous inputs and validation through third parties, made a positive contribution to the study's findings and its quality.

Future research – Areas and recommendations

As stated above, the current study is based on the literature review substantiated and backed up by the empirical part. A variety of recommendations and 'mental stimulation' can be gained from it. Therefore, future studies should be encouraged in the area of inter-firm collaboration in the automotive industry, in both the established and emerging markets. In this respect, the advisory framework can by a basis since it can be partly used also in other settings due to its modular set-up. In order to further test the advisory framework, it would certainly be interesting to conduct further research that could focus on its implementation, for example, in an action-research based study.

Other points of interest include the cultural aspects of such equity collaborations, which could be further investigated and explored given the specific industrial context (for example comparing automotive suppliers' strategic approaches to such collaborations in the US, Europe and China).

Even though not explicitly covered in the current study, I would like to say a couple of words about dissolving IJVs and reversing IM&A. As outlined in the introductory chapter, many of these projects fail. The reasons for failure can be various, such as different and not aligned interests of the partners or mistakes in the integration phase; this was reinforced through the findings of the empirical part of the current study. While the advisory framework of the current study intends to support academics and practitioners in the analysis of collaborations and acquisitions to close strategic gaps, it

could also help when the transactions are the 'other way around' (i.e. an international divestments or dissolving of an IJV). More concretely, areas to reflect on in such reversals should cover the opening of new strategic gaps for a supplier company, the impact on the positioning within the automotive supply industry and value chain and the impact of losing US America footprint. As one of the interview partners rightly pointed out, dissolving an IJV professionally is as important as founding one. For this reason, a sound, but partly flexible, contract is needed. This could be researched more specifically.

Finally, this study considered its subject from a constructivist and qualitative perspective. Therefore, the application of a different approach, such as the mixed methods technique could further increase the certainty of the results generated in the current study.

7. List of Appendices

The Appendix is split into three parts. Section 7.1 gives further background on the study topic (for example the automotive industry), Section 7.2 provides additional insights into the current study's methods and 7.3 gives further detail on the author's research journey.

7.1. Background to selected automotive strategic considerations

As outlined in the main text body, the automotive industry faced many strategic challenges historically. Figure 51 gives an overview of these.

Figure 51: Historical strategic challenges of the automotive industry
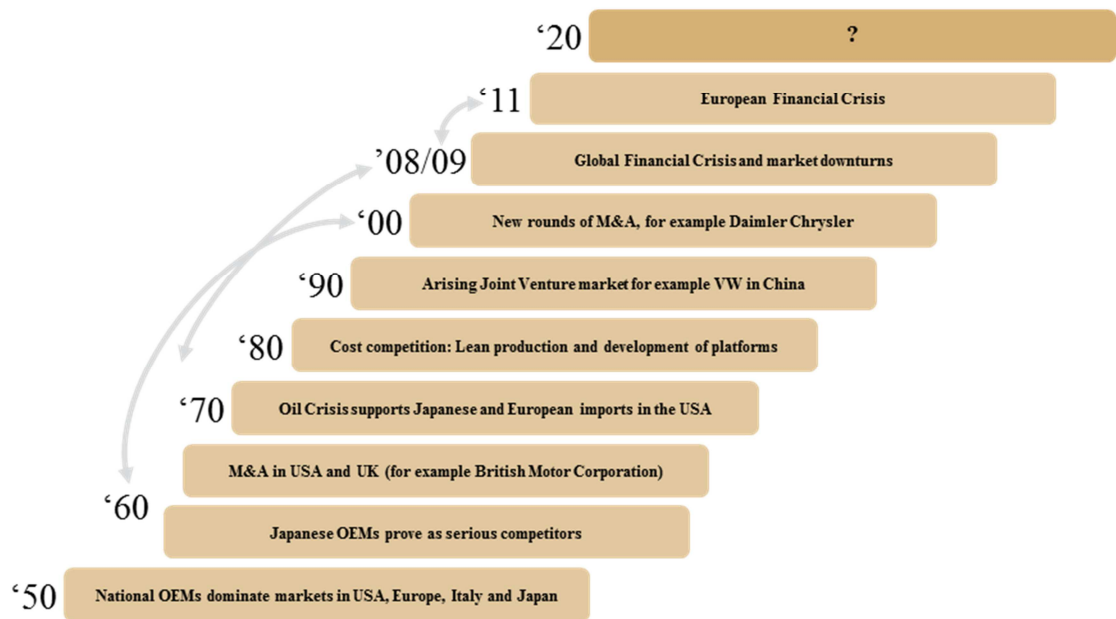
Source: Ringlstetter (2015)

There are various methods to analyse the automotive industry and its strategy such as the strategy frameworks of 'SWOT' (S for Strengths, W for Weaknesses, O for Opportunities and T for Threats) or 'PESTLE' (P for Political, E for Economic, S for Social, T for Technological, L for Legal and E for Environmental (e.g. Kerth, Asum, & Stich, 2015). Strategy development and identification of strategic gaps were the starting base and most relevant for the purpose of this study.

Another highly important element of the automotive industry, mentioned in various parts of the main text body (e.g. Section 4.2 on p. 169ff.), is the bargaining power of buyers/clients, i.e. the automotive OEMS. Three main factors affect this bargaining power of buyers of tier 1 suppliers, i.e. the major OEMs. The first one is globalisation and harmonisation leading to economies of scale. Secondly, there is the concentration of the OEMs as evidenced by its on-going consolidation (see Figure 5 on p. 17 in the main body of the text and Figure 52 below).

Ultimately, a decrease of value chain depth has led to increased innovation, component quality requirements, and system integration capabilities of the tier 1 suppliers. Suppliers currently have ca. 80% of the automotive value chain in their hands (e.g. Staudenmayer & Hauptmann, 2014; Stockmar, 2014). As a result, the suppliers have increased cost pressure and entrepreneurial risks. These factors have generally further increased the bargaining power of their customers, i.e. the OEMs (e.g. Fraß, 2012; Laabs, 2009).

Figure 52: Global car brands evolution / consolidation
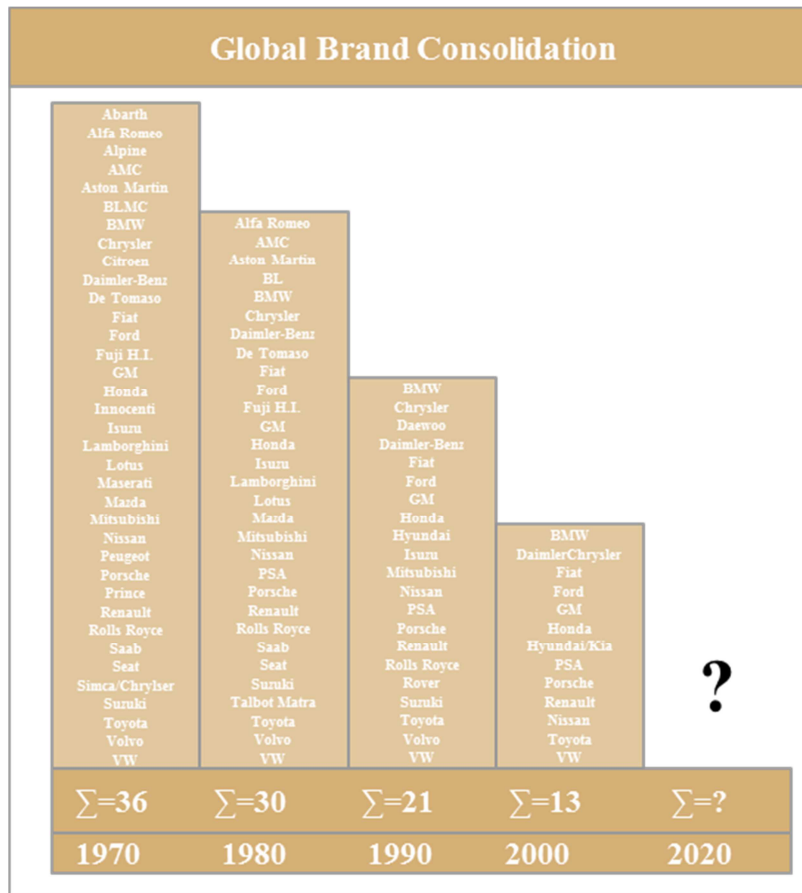
Source: adapted from H. Becker (2007), Deans, Kröger, and Zeisel (2013), Ringlstetter (2015);
n.b. the figure shows the most relevant, classic OEMs (for example not the Tech, niche OEMs and new Chinese OEMs)

7.2. Additional material on methods

The following appendix sections add further backup material on the methods used in the current study.

7.2.1. Interview guide

Please note that in the interview guide reference is sometimes made to North America or 'NA'. However, this was intended to refer to US America and so it was changed in the main body of the text to enhance clarity and delimitations.

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Interview document package: Doctorate of M. Hagel (2016)

Cover letter (to be sent)

Dear [name],

Many thanks for agreeing to participate in the on-going research study on strategic inter-company equity co-operations. Please note that your participation in this study is completely voluntary and can be stopped at any point in time.

International co-operation is important for many Germany- and North America-based automotive supplier firms. It is often the key to gaining global competitive advantages. I am doing a research study to further investigate how and why firms decide to go for equity joint ventures versus M&A as forms of international co-operation in the wider sense.

The upcoming expert interview deals with [xyz IJV / international acquisition (the "Transaction")] as a milestone for ALPHA's corporate development. I would like to explore the strategic rationale behind this Transaction in-depth. In particular, the analysis and assessment of the strategic choices, its process and decision-making are in the focus.

With the expert interviews, I aim to gather information relating to the selected Transaction, its analysis and strategic rationale and results as well as internal decision-making and analysis processes. These interviews are at the heart of my study besides other data generation tools such as documentation, as well as academic / theoretical analysis. The ultimate goal is to recommend a framework or advisory concept -based on best-practices- for North America-focused equity co-operations in the automotive supply industry.

Please be assured of strict confidentiality: all gathered data will be treated in a classified way and only evaluated in anonymised form. All data (including the final study itself) is restricted by a non-disclosure note or embargo (German: 'Sperrvermerk') as well as a confidentiality agreement between the University, the doctorate advisors, company

ALPHA and me. Please also note that this study is entirely funded by me, so that there is no conflict of interest of any kind.

With the brief overview below, I would like to give you an idea beforehand of what to expect during the interview.

I would also like to especially thank you in advance for taking the time to participate in this interview.

Kind regards,

Michael Hagel

PS: This research is being conducted under the guidelines of the University of Gloucestershire's Handbook of Research Ethics. The research plan has been approved by the University, but the contents and opinions expressed in this research instrument are those of the researcher and in no way represent those of the University of Gloucestershire.

Overview of the Sections of the interview and guiding thoughts

	Section I	Section II	Section III	Section IV
Topic	Strategic analysis	Equity collaboration analysis (technical)	Organisational / decision-making considerations (process)	The role of context
Short description	ALPHA's **(regional and technology) strategy** in general and specifically for the North/US American market. Link between the **Transaction and this strategy.**	Reasons **why was the equity collaboration** favoured over other solutions. Two major drivers: regional footprint and access to technology.	Overall **process of decision-making** with regard to that project, starting with strategic analysis through to the execution of the collaboration (critical incidents/lessons learnt).	Impact from **context factors on the process** (group/institutional; individual/psycho-logical; environmental/others).

For internal use (not to be sent)

- Check questions: open, not closed; no leading questions
- One idea per question only
- Less generic, more to the specific study topic…
- 'Analysability': enough 'juice' that can be extracted?
- Possible to answer research questions / objectives?
- Anticipate some answers
- Check that you have elaborations?
- Courtroom procedure: firstly open, narrative questions then more specific follow-up questions

Interview guide for ALPHA (not to be sent)

Introduction:

- Introduce interviewer and the study topic/purpose
- Brief overview of the 4 sections plus wrap-up
- Interview duration will be approximately 60 minutes, max. 90 minutes
- Participation is voluntary and can be interrupted at any time
- Is it OK to tape the conversation for further analysis?
- The interview can be in English but if you need to switch to German for specific explanations please feel free to do so.
- Data from interview only used in anonymised form (confidentiality agreements in place)
- Possibility to give approval to transcript for avoidance of misunderstandings.
- Do you have any questions before we start with the interview?

General information

- Name
- Department
- Job location:
- HQ vs. Div/BU?
- General professional experience:
  - How many years of relevant professional experience do you have?
  - Position
  - Leadership / # of subordinates
- Project specific experience:
  - Function in project
  - Phase of the project involved
  - How many comparable projects done over the past ten years; also "pre ALPHA"

Section I: Strategic analysis (RQ #1)

Description:

ALPHA's strategy with focus on technology and regional footprint. Link between the Transaction in North America and this strategy.

Specific questions:

1) What was ALPHA's (North America-) strategy (at the time of the Transaction)? Who / what determined it?

2) Which gaps were identified and how were they identified in that regard? Active portfolio management? [RBV]

   - Side note ideas/probes:

      - If necessary introduce strategic gap concept

      - For the analysis, focus shall be on innovation leadership (one of ALPHA 2025 strategy key pillar)

      - Was a thorough analysis of industry trends and –needs conducted (for example through balanced scorecard or the PESTLE framework)? Based on this, what was the outcome of ALPHA vis-à-vis these challenges?

      - Value vs. non-value oriented motives

3) Specifically, what was the strategic rationale of the Transaction? Which gaps should be closed through the Transaction? [RBV / transaction costs]

   - What were ALPHA's core competences/competitive advantages useful in this co-operation? [RBV]

   - Side note examples also for other competences:

      o developing and maintaining unique, field-specific capabilities / innovation power

      o access to customers and concentration

      o differentiation

      o continuous further development of products and services

      o generating value-add for customers

      o limiting copies and imitations by competitors

      o continuous optimisation of the value chain

4) How do you think the project has closed the strategic gap(s)? Was the Transaction successful from a strategic point of view? Would you make the same decisions again and/or have you had a similar situation?

Section II: Equity co-operation analysis (technical) (RQ #1)

Description:

Reasons why the equity co-operation was favoured over other solutions.

Specific questions:

5) Which co-operation type (and internal solution) was considered suitable to achieve the strategic objective / to close the strategic gap and for which reasons? Why?

   o Pro-active analysis vs. opportunistic approach vs. "gut feeling"
   o Transaction variables considered? Control/Risk/Commitment; Synergies; Relations to partner; availability of partner; nature of combined resources
   o Strategic variables considered? Degree of uncertainty; Capability to close gap; level of competition; ownership/localisation/internalisation ('OLI paradigm')
   o Was a "pros and cons analysis" conducted for the co-operation approaches?

Please elaborate on the target/partner selection process and –analysis in particular in light of the co-operation in the North American market.

Specific questions:

6) What were the key features and competitive advantages of alternative targets/partners analysed (incl. risks/chances)? [RBV]

   o What were the attributes that the identified target/partner brought to the table?

7) How were the relevant features and competitive advantages of the target/partner identified?

   • Side notes, possible topics / probes:
      o by recognising field-specific capabilities

- by analysing the value chain
- by analysing innovative capacity (product and service development)
- by recognising competitive advantages through differentiation, cost leadership, or concentration
- through cross-sector comparison (benchmarking) of products and services

8) How different was the target/partner to ALPHA?
- Side note examples/probes:
  - technology
  - products/services
  - cost position
  - size
  - corporate culture
- Which measures were contemplated to bridge these differences? for example corporate governance

Section III: Process/decision-making considerations (process) (RQ #3)

Description:

Overall process of decision-making with regard to that project, starting with strategic analysis through to the execution of the co-operation. (critical incidents/lessons learnt: what went well, what did not go so well?)

Specific questions:
9) How were important and project-related business decisions organised?
10) What was impact of this organisation on the decision itself?
- Side note examples/probes:
  - Who was involved in the decision-making process of the project? through the senior management hierarchy vs. at the lowest possible level within the management hierarchy
  - What qualified the "whos" to be involved? How are the "whos" involved? (e.g. process, roles, responsibilities)
  - Systematic vs. rather gut-feeling?

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        ○ independently, based on own experience and level of knowledge vs. after consulting internal/external experts or specialists

        ○ Was the project/ decision-making process clear to you? What was your role?

        ○ How would you assess the communication/information flow during the Transaction?

11) What improvements would you suggest? Which changes would you make to the decision-making model of ALPHA?

- Are there any improvement potentials in terms of developing and maintaining efficient and "thought-through"/deliberate decision-making?

- Side note examples/probes:
    - ○ in the decision-making process
    - ○ in the decision-making abilities of superiors
    - ○ in your own decision-making abilities
    - ○ in your involvement in the decision process
    - ○ in access to internal experts or specialists
    - ○ in accessing relevant information via Intranet, files, or knowledge databases

12) What is the link between ALPHA's organisational set up/corporate culture and its decision-making?

- Side note examples/probes:
    - ○ high degree of standardised process
    - ○ focus on documentation of processes and guidelines
    - ○ focus on project management
    - ○ "out-of-the box"-thinking welcome?

Section IV: The role of context (RQ #2)

Description:

Impact from context factors on the process (group/institutional; individual/psychological; environmental/others).

Specific questions:

13) What kind of context factors do you think influence the choice of international equity co-operations in the North American automotive space (volatile, uncertain, complex, and ambiguous)?

- Side note examples on context on the decision-making/probes:
  a. What influence had group/institutional factors <u>inside</u> ALPHA? (for example, timing; interests of BU/Div, or HQ, stakeholders in the process; risk attitude/corporate culture)
  b. What influence had individual/psychological factors of the decision-makers? (e.g. experience, motivation, beliefs)
  c. What influence had external factors <u>outside</u> ALPHA? (e.g. time pressure; industry developments; economic cycle; competitors)
  d. Any implications from the cross-border (Germany-US) and automotive industry setting? (Side note ideas/probes: different characteristics of North American automotive players -and their importance could be clients, technology, innovation, cost cautiousness, results/performance, employees, communication, processes, leadership, artefacts)

14) How do you think that these context factors actually influence (where and on which level) the choice of co-operation?

15) How were these context factors addressed and reflected in the decision-making?

16) Current automotive industry (new megatrends; innovation sometimes at Silicon Valley; new players). Thinking ahead: what do you consider key elements for securing access to co-operations with innovative companies in the future?

- Side note examples/probes: for example incentives/retention of staff, earn-out models, etc.); changing industry structure?

Wrap-up

- Are there any additional points not mentioned yet?
- Any further remarks or tips for the study?
- What would be your expectation of an advisory model for North America focused equity co-operations in the automotive space?
- If you are interested, the transcript of this interview can be made available to you.

- Do you have any questions you would like to ask me?
- Finally, I would like to sincerely thank you again for your time and effort put into this expert interview.

Literature references: Boyce and Neale (2006), Gläser and Laudel (2010), Harke, L'hoest, and Wingen (2000), Laforest, Belley, Lavertue, Maurice, and Rainville (2009), Mieg and Näf (2005), Turner III (2010)

Overview of questions by section:

[Heuristics: (1) Strategic analysis/Prioritisation; (2) Choice/Selection; (3) Process/Organisation/Sequence; (4) Feedback/Reflection]

Section	Question	Envisaged heuristic
I	1) What was ALPHA's (North America-) strategy (at the time of the Transaction)? Who / what determined it?	Strategic analysis/ Prioritisation
	2) Which gaps were identified and how were they identified in that regard? Active portfolio management? Side note ideas/probes: - if necessary introduce strategic gap concept; for the analysis, focus shall be on innovation leadership (one of ALPHA 2025 strategy key pillar); - was a thorough analysis of industry trends and – needs conducted (for example through balanced scorecard or the PESTLE framework)? - Based on this, what was the outcome of ALPHA vis-à-vis these challenges? - Value vs. not-value oriented motives	Process/Organisation/Sequence
	3) Specifically, what was the strategic rationale of the Transaction? Which gaps should be closed through the Transaction? - What were ALPHA's core competences/competitive advantages useful in this co-operation? - Side note examples also for other competences - developing and maintaining unique, field-specific capabilities / innovation power - access to customers and concentration - differentiation - continuous further development of products and	Strategic analysis/ Prioritisation

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	services • generating value-add for customers • limiting copies and imitations by competitors • continuous optimisation of the value chain	
	4) How do you think the project has closed the strategic gap(s)? Was the Transaction successful from a strategic point of view? Would you make the same decisions again and/or have you had a similar situation?	Feedback/ Reflection Analysis/ Selection
II	5) Which co-operation type (and internal solution) was considered suitable to achieve the strategic objective / to close the strategic gap and for which reasons? Why? • Pro-active analysis vs. opportunistic approach vs. "gut feeling" • Transaction variables considered? Control/Risk/Commitment; Synergies; Relations to partner; availability of partner; nature of combined resources • Strategic variables considered? Degree of uncertainty; Capability to close gap; level of competition; ownership/localisation/internalisation ("OLI paradigm") • Was a "pros and cons analysis" conducted for the co-operation approaches?	Choice/Selecti on Strategic analysis/ Prioritisation
	6) What were the key features and competitive advantages of alternative targets/partners analysed (incl. risks/chances)? What were the attributes that the identified target/partner brought to the table?	Strategic analysis/ Prioritisation
	7) How were the relevant features and competitive advantages of the target/partner identified? Side notes, possible topics / probes: • by recognising field-specific capabilities • by analysing the value chain	Process/Organ isation/Seque nce

244	• by analysing innovative capacity (product and service development) • by recognising competitive advantages through differentiation, cost leadership, or concentration • through cross-sector comparison (benchmarking) of products and services)	
	8) How different was the target/partner to ALPHA? Side note examples/probes: • technology and way of innovation • products/services • cost position • size • corporate culture Which measures were contemplated to bridge these differences?	Strategic analysis/ Prioritisation
III	9) How were important and project-related business decisions organised? Side note examples/probes: • Who was involved in the decision-making process of the project? through the senior management hierarchy vs. at the lowest possible level within the management hierarchy • What qualified the "whos" to be involved? How are the "whos" involved? (e.g. process, roles, responsibilities) • Systematic vs. rather gut-feeling? • independently, based on own experience and level of knowledge vs. after consulting internal/external experts or specialists • Was the project/ decision-making process clear to you? What was your role? • How would you assess the communication/information flow during the	Process/Organ isation/Seque nce

	Transaction?	
	10) And what was impact of this organisation on decision itself?	Process/Organisation/Sequence
	11) What improvements would you suggest? Which changes would you make to the decision-making model of ALPHA? Are there any improvement potentials in terms of developing and maintaining efficient and "thought-through"/deliberate decision-making? Side note examples/probes: • in the decision-making process • in the decision-making abilities of superiors • in your own decision-making abilities • in your involvement in the decision process • in access to internal experts or specialists • in accessing relevant information through Intranet, files, or knowledge databases	Feedback/Reflection Process/Organisation/Sequence
	12) What is the link between ALPHA's organisational set up/corporate culture and its decision-making? Side note examples/probes: • high degree of standardised process • focus on documentation of processes and guidelines • focus on project management • "out-of-the box"-thinking welcome?	Strategic analysis/Prioritisation Process/Organisation/Sequence
IV	13) What kind of context factors do you think influence the choice of international equity co-operations in the North American automotive space (volatile, uncertain, complex, and ambiguous)? Side note examples on context on the decision-making/probes: • Which influence had group/institutional factors inside ALPHA? (e.g. timing;	Strategic analysis/Prioritisation

		interests of BU/Div, or HQ, stakeholders in the process; risk attitude/corporate culture)	
		• Which influence had external factors <u>outside</u> ALPHA? (for example, time pressure; industry developments; economic cycle; competitors)	
		• Which influence had individual/psychological factors of the decision-makers? (for example, experience, motivation, beliefs)	
		• Any implications from the cross-border (Germany-US) and automotive industry setting? (Side note ideas/probes: different characteristics of North American automotive players -and their importance could be clients, technology, innovation, cost cautiousness, results/performance, employees, communication, processes, leadership, artefacts)	
		14) How do you think that these context factors actually influence (where and on which level) the choice of co-operation?	Choice/Selection Strategic analysis/ Prioritisation
		15) How were these context factors addressed and reflected in the decision-making?	Choice/Selection Process/Organisation/Sequence
		16) Current automotive industry (new megatrends; innovation sometimes at Silicon Valley; new players). Thinking ahead: what do you consider key elements for securing access to co-operations with innovative	Strategic analysis/ Prioritisation

	companies in the future? (for example, incentives/retention of staff, earn-out models, etc.); changing industry structure	

Interview protocol:

1. Date of the interview
2. Duration of the interview
3. Technical commentary
4. Interferences if applicable for example were only interviewee and interviewer present during the interview or a third party? If so which third parties? If so had someone interfered in the interview? Was the interview otherwise interfered?
5. Answering style for example how willing was the interviewee to answer the questions? Were emotions involved and visible?

7.2.2. Exemplary interview transcription excerpt and protocol

		DBA Michael Hagel expert interview with Expert #5; "DELTA"	Status						
		October 12, 2016							
		Protocol:							
		· Participants: Expert #5 ("Exp5") interviewee; Michael Hagel ("MHa") interviewer							
		· Duration: ca. 70min							
		· Technical information: recorded one-on-one meeting; no technical difficulties							
		· Interferences: none							
		· Answering style: open							
		· Categorisation of answers: answers reliable throughout the interview; sometimes pro-active; sometimes with a more technical focus							
		· Language: English throughout		Second cycle coding					
		Transcript:							
Row #	Speaker	Dialogue	Commentary	Paraphrase	Essence/Headline(s)	Interpretation/implication	Code #1	Code #2	Code #3
1	MHa:	Thank you Mr Exp5 for joining me today and participating in this interview. Just as a short introduction to this interview, as I mentioned the interview has four sections and the duration will be roughly 60 to 70 minutes. And your participation in this is entirely voluntary so if you feel that you would like to interrupt that can be done at any time. And, is it okay for you to take this interview?							
2	Exp5:	Yes it's okay.							
3	MHa:	Okay, the interview will be in English but if there are any complex topics that you would like to explain in German that is also possible as it would be translated later. So the data from this interview will only be used in an anonymised form and as you know there is a confidentiality agreement in place between the University, Alpha, my supervisors and myself. If the data at some point will be published then it will only happen with my consent and there will be a "Sperrvermerk" in German, on the thesis. So after this interview if you agree, I would like to give you the transcript to check that we don't have any misunderstandings and that you can give your final approval. Do you have any questions before we start? Otherwise we really do start.							
4	Exp5:	Not yet.							
5	MHa:	So if you could please shortly state your full name, the department you work in, and also your job location basically.							
6	Exp5:	My name is Exp5. I am responsible within Alpha Group for M&A and co-operations. I'm located here in Friedrichshafen but we do act worldwide depending on the transactions.							
7	MHa:	How many years of relevant experience do you have?							
8	Exp5:	I think relevant are all years of my professional experience. In the M&A and co-operations business I am more or less since 1998, with some years prior to that I was supporting the M&A department on evaluation and business plan side.							
9	MHa:	And this interview will be mostly about the Alpha DELTA transaction, so if we looked a bit closer at your role in this project. What was your function and at what phase of the project were you involved?							
10	Exp5:	I was involved from the beginning more on the execution side. However, I was relatively new in the department of that time and I was responsible for the division that the acquisition was made for. And I had the lead role in the due diligence and the business planning especially. And later on in the joint venture I was the person to coach and manage a little bit the relationship with the other joint venture partner.							
11	MHa:	And in regards to joint ventures that are comparable to Alpha DELTA, how many of these projects have you done over your career basically?							
12	Exp5:	We had one that was more or less in parallel to that. That was in the US as well, with a large US truck transmission manufacturer; it was negotiated in parallel and I was also involved in that transaction. That was one of the joint ventures we had and other joint ventures however we only had in China or basically in China and there we have several.							
13	MHa:	All right, that leads to the first section, which will deal with the strategic analysis. So what was the focus of Alpha in terms of technology and regional footprint at this point in time?							
14	Exp5:	At that time the division we talk about was only engaged in Europe, with the headquarters and R&D activities and production activities - the main activities in Germany and some smaller activities also on the same technology -the CVT technology- in Belgium. We acquired only a year or two prior to the joint venture a small Belgian CVT company that was engaged in CVT transmissions for cars with a lower torque than what we were planning to produce in the joint venture.		BU had only presence in Germany and Belgium at the time	NA as gap in global footprint		C132		
15	MHa:	So what was then the link between the joint venture and the strategy also with regard to North America?							
16	Exp5:	So number one was to get a foot into the North American market, which at the time was the largest pass car [passenger car] market in the world. It was a product for the vehicles with east-west installation of the motor and therefore also with the transmission, in German "Front-Quer". It is the largest segment of the market, so it was the largest market and within this market the largest segment; at the time the CVT was the newest technology. However, in parallel there were other technologies competing with that: torque converters and step automatic transmissions. And the manual transmissions with an automatisation was also competing with this technology. The North American market however was more or less 90 to 95% step automatic transmissions. So it was a new market and then also a new customer because US OEM was the joint venture partner at the time; [he] was not our customer for these transmissions and it was a new customer, a new product and a new market.		North America market entry, as one of the largest pass car markets and the for the JV relevant market within this market the largest also; furthermore US OEM as JV partner was a new customer	Strategy: closing gap in global footprint and get a foot into the NA market		C131		
					Context factor: US market the largest pass car market, hence significant volume potential		B113			
					Context: CVT niche market product in a sizeable market		C242			
					Other JV rationale: get OEM as new customer across the group		D521	D521	
17	MHa:	So on various dimensions it was entirely new territory.							
18	Exp5:	And it was new technology... As for the customer why did he do it with us: because he had tried to do it himself but he failed some years prior to that. But he was at the time also convinced that this would be the future technology for transmissions in the lower- to medium torque range with a continuously variable transmission you can more or less simulate it to be a if you want 20 gear transmission [while] you don't have any gears but you can simulate them. This is one of the advantages. There are also some restrictions on the technology because you can only transfer a limited torque with the technology which is maybe in the range of 400 to 420 N metres. So new customer, new technology, new market and to do the JV with an OEM means he is always the first customer. At that time we also had other customers that wanted to use the technology, some of them early and finally all of them have decided to use different technologies in the end. So we were left -and that is already the end of the story- with one customer only which was the joint venture partner.		Multi-dimensional market entry for Alpha: new product, new market, new customer; for US OEM, benefit was in the technology they did not have in-house	For OEM: future technology for transmission he did not have in-house		D226		
					For supplier new regional market (for this division), new product/technology, new customer		C221	D323	
19	MHa:	We come to the JV structure a little bit later more in detail. But for the strategic analysis at that point in time was there some kind of active portfolio management or some analysis about strategic gaps in place or was it more like an evolving strategy pattern?							

#	Speaker	Statement	Summary	Code description	Code A	Code B	Code C
20	Exp5:	Well, I think it was somewhere in between the two. I mean the fact that that we were not in the US market and that this customer was a major player in the US market, number two at the time after GM. That's not high strategic analysis [laugh] but that was the fact; it was access to that customer and we were in discussing with other German car manufacturers of the time. And this would have been an ideal combination to get in relatively short time to very significant volumes and get the costs for the product down.	No high strategic analysis, but Alpha knew about strategic necessities	Strategic goal: ideal combination to get significant volumes	D121	D226	
				Another advantage was to get there in very short time, crucial in automotive	A225		
				Spread costs for product over large volume	C111	D244	D121
21	MHa:	Okay, so you mentioned volume so that is a value-driven motive for this transactions but were there besides that non-value oriented motives that you could identify that pushed this transaction?					
22	Exp5:	Well, at the end I think in the end everything can be more or less valued. But it was new customer because we did not any relationship to the customer, so to get access to a new customer. Also a new product because we were not in that segment of the market for use with east-west installation and therefore that was the strategic approach to get then to the US as a first step of internationalisation for that division was a further factor. And last but not least, a partner to co-invest into a new technology and reduce the risk for Alpha.	Always value-driven strategy in the end; underlying motives were new customer/new product/internationalisation of the division and risk sharing	Strategic analysis always value driven	C114	E311	
				Also JV was value/business plan driven	C114	D313	
				Strategic side effect: internationalisation	D512		
				Strategic side effects: customer access for rest of the supplier	D521		
				Risk sharing via JV	D213		
23	MHa:	So there was some kind of strategic angle to which was at the time not really quantifiable...but maybe with some spill-over effects.					
24	Exp5:	At the end this was the best basis we saw at the time to be successful with that product. The customer and joint venture partner wanted the project because he failed himself. He checked the technology, saw in a due diligence that this could be the technology but it was not ready, but it was at a stage where we had prototypes that he could drive at the time. So from his analysis and our technology were the right partner. Looking backwards one of the motives for him was probably also that he would have had a new transmission for a plant that he had, to secure the workers jobs. Yeah, if you would just have purchased the transmissions from an outside supplier, he would have had to lay off probably many people.	JV partner failed with technology himself; had also other motive: not to shut down his plant; with other (M&A) constellation, he might have had layoffs	JV partner (OEM) without the technical capabilities (so strategic gap for him)	D226	D224	
				Other goal: secure employment of his staff	D226		
25	MHa:	So Alpha's core competency and competitive advantage in that co-operation was the already available product technology?					
26	Exp5:	Yes it was. At that time US OEM had annual profits of US$ 8 billion which was I think the most profitable era of US OEM in the last 20 years.	Alpha contributed the technology (product and production) to the JV	Supplier's core competency: technology	C141	C141	
27	MHa:	Okay and looking back would you say that the project actually closed the strategic gaps that you just mentioned?					
28	Exp5:	Well, we [laugh] ended the joint venture in 2004 for various reasons and there were lessons learned; we probably come to that. There were various aspects to that, we did not find other customers so looking backward it was probably the right decision to have at least the joint venture partner as a customer. Because didn't we have the joint venture we would have ended up without any customer. So from that perspective, yes. Did we get other customers also yes. Because we were engaged in the joint venture we were also successful in supplying him with other transmissions number one and we were also giving him a licence to produce a transmission for his own demand. Also that was successful. At the end we had some technical difficulties that took almost 2 years until we were ready for series production. This was a problem on -let's say- our side as the technical expert. We had some difficulties with the plant, as it was a strongly unionised plant and if we tried to change things and improve efficiency do things that worked in Germany, to become or to set up the production and become efficient, this was always not easy but difficult because the unions always knocked on US OEM's door and told them "if you allow that to happen in the joint venture we will shut down one of your plants". So this was quite difficult at the time to implement changes, at the same time things that worked in Europe cannot necessarily be transferred one by one to the US because if you have machines they need to have different electrical concepts because otherwise you can't operate them in the US because of approvals. So we had additional costs and a lot of hurdles that we had to take, which we did not see immediately when we started the joint venture; I think none of us.	Reasons for JV, from Alpha perspective: no other customers for the product available; get traction with other customers; also additional business that worked in JV partner; Problems: technical issues at Alpha side, workers union issues at the plant (since unions had high leverage over US OEM), hence efficiency gains could not be crystallised, additional costs related to regulatory issues in the US (e.g. electrical concept)	Supplier's advantage #1: use of (already developed-)product	C141	D131	
				Supplier's advantage #2: additional customers through JV = spill-over effect	D521		
				JV problem: supplier could not deliver on promised technology, in the short term	D131		
				Unionised plants prohibited swift efficiency gains ("legacy" problem)	C711	B213	D253
				Regulatory differences US vs. Germany caused problems too	B215		
				Problems were underestimated in NA context	E211		

#		Transcript		Paraphrase	Interpretation			
29	MHa:	And in light of these difficulties are there any decisions that you from today's perspective would have taken differently along the way?						
30	Exp5:	Yes one difficulty that I forgot was the car or cars that the transmission was thought for: we did not have -as it was initially planned- one product producing 1 million units a year but we needed two different products because the customer thought he could do some of the cars in aluminium but he could not do it at the time and he had to make them in the traditional way and that required in order to have a similar performance of the car to have a stronger motor with more horse powers and also stronger transmission, so we had to do a second design. So that added more cost and split the volumes. Therefore, the transmission in the end was more expensive; we had lower volumes and higher costs that we had to spend so the costs per product were significantly higher than we initially hoped to have. And the cars where the transmissions were for, were in the middle to lower range segment that was price sensitive, which at the end also had a negative impact on the success.		Operational issue: due to error in planning, two transmission designs needed instead of envisaged single design, hence volumes lower	OEM JV partner unable to deliver the promised products due to error in preparation (heavier cars in the end)	D224		
31	MHa:	And when you look at the decision and the analysis framework, was there anything that you could have done differently to identify these difficulties earlier on and react accordingly?						
32	Exp5:	Well, we maybe could have seen that implementing changes -have we had more experience in the US and with the unions at the time- [was difficult]. Most of the Alpha plants at the time were not unionised. We maybe could have seen that there would be difficulties to improve efficiency of that plant. That is one thing, but what happened at the same time was that the other customers, or did decide to take a differnt transmission for their vehicles. Volkswagen which was the other big customer that we hoped to win to go for CVT, decided to go for the DCT, double clutch transmissions, so not for the CVT's so that was also something that negatively impacted the project but could we have seen that before, probably not. The technical difficulties we had on our own side until the transmission was able to go into series production I'm not sure, that would probably had to be answered by the engineers if that could have been seen earlier that it would take another year or another two years until we could go to production. And then also I think that we were maybe too early with the technology because in the meantime CVT technology is established or very well established in Japan; however, nowhere else really. It now starts in China but at that time China was already an important but not THE important market. So the chances at that time to win other Chinese customers were relatively limited.		Alpha plants not unionised, hence limited experience with workers unions in the US; external factor: VW as other lead client did not want the product any more; timing of CVT product wrong: too early, since now China is a growing market for it	Lesson learnt: better investigate unionisation when entering existing US businesses	E211		
					Timing aspect: CVT too early for the automotive market; hard to predict as entrepreneurial decision	A225	E111		
33	MHa:	Okay, and then looking a bit more in detail on the type of equity co-operation that was favoured, maybe as an intro question why was it favoured over other types of cooperation, e.g. as acquisition of a plant or other corporation modes?						
34	Exp5:	Well, the joint venture was the favourite as it was a stronger commitment by the customer, which was at that same time the joint venture partner. So that was number one, number two was that there was additional financial means necessary so that was a risk sharing as it was new technology. That was another aspect. And through the stronger links to that partner, we were also able to get additional business in other segments as I explained earlier. In the end it is a closer link in an equity partnership than with a pure customer. We at the end brought in technology, the joint venture partner brought in a plant also with an existing product that was continued to be produced and that generated cash flow that then could be used to finance the necessary capital expenditures that were required to bring the new technology into production at the market.		JV because of stronger commitment by the customer as JV partner; risk sharing of financial burden as second reason; JV partner brought in a legacy product and the plant, Alpha the technology	Decision for JV, because of stronger commitment by partner	D212		
					Context factor: automotive transmission investment-heavy undertakings	A231		
					Decision for JV, because of additional financial means wanted/needed	D323	D252	
					One product, one plant already as "legacy": JV generated cash from day one; used to cross-finance new developments	D253		
35	MHa:	So from what I understand, you actually did do some kind of systematic analysis and it was not opportunistically-driven.						
36	Exp5:	Yes, we did some kind of systematic analysis, but at the same time it requires a partner with matching interests which is opportunistic.		Co-operation was systematically analysed; But partner in a win-win situation is important	Systematic -not opportunistic- analysis of cooperation types	D311		
					Win-win situation is important / opportunity needs to be there	D226	D414	
37	MHa:	So you mentioned commitment, that it was a strong commitment. Now, if you look at the "transaction variable triangle" where you have the control, the risk and the commitment: how did you see the other two factors and how did they impact the decision?						
38	Exp5:	It was a 51/49 joint-venture, so we fully consolidated the activities. We had also the control on the one hand, on the other hand of course the customer always has a strong impact especially if he has full view on the order books and figures and he was bringing 90% of the workforce as we took over an existing plant, which were US OEM employees and they took some time until they changed their view on things. So what was your question again? [laugh]		Alpha as majority shareholder had control but customer had significant impact via the order book and him contributing most of the workforce	JV control aspect: % of share capital	D211		
					JV control aspect: contribution of workforce and their loyalty	D211		
					JV control aspect: full visibility on order books	D211		
39	MHa:	[Laugh]. No, that was alright. So you have the control and...						

7.2.3. Coding system

Table 15: Overview of parent and child codes

Building blocks	Parent code		Child code #1		Child code #2	
A. Trends and Challenges in the automotive industry	Automotive industry structure (value chain)	A1	Suppliers (tier 2 and "below")	A11	Tier II suppliers	A111
			Competition (w/in tier 1)	A12	Attitude vis-a-vis competition	A121
					Characteristics	A122
			OEMs	A13	Contract/price pressure	A131
					Impact on product roadmap/technology	A132
					Geographic strategy impact	A133
					Timing of actions	A134
			New Entrants/start-ups	A14	New Entrants/start-ups	A141
	Drivers/challenges/characteristics of automotive industry	A2	Trends & drivers in automotive	A21	Technology	A211
					Politics/Regulations	A212
					cooperation related	A213
			Challenges in automotive	A22	Technology	A221
					Politics/Regulations	A222
					cooperation related	A223
					Cyclicality/crisis	A224
					Product lifecycles in automotive	A225
			Characteristics	A23	Importance of financial management (e.g. cost sensitivity,...	A231
					Others (e.g. cultural aspects)	A232
		2		**7**		**18**
B. US America context (for automotive)	USA automotive market in itself	B1	Structure	B11	Mind-set of players	B111
					Characteristics	B112
					Size and volume	B113
					US end-customers (e.g. buying patterns / -attitude)	B114
			Drivers/ challenges	B12	Drivers/ challenges	B121
	USA as cooperation/partner location	B2	USA as cooperation/partner location	B21	Available cooperation options	B211
					Innovation (-hubs) vs. Old economy	B212
					Unions/non-corporate interest groups	B213
					Cultural aspects/work attitude	B214
					Legal aspects/ politics/ regulations	B215
					Other implications from cross-border US context	B216
		2		**3**		**11**

	Category	Code	Subcategory	Code	Item	Code
C. Strategic gap analysis	Company strategy (overall)	C1	Vision - Commercial and overall	C11	Cost-leadership/ value-add	C111
					League Table position / scale (in itself)	C112
					Reduce dependency	C113
					Value vs. Non-value-driven	C114
			Vision - Technology	C12	Innovation-/Technology leadership	C121
					Influences on strategy	C122
			Vision - Regional footprint	C13	Balanced Footprint key	C131
					NA explicitly key	C132
					NA location less relevant	C133
			Status quo @ supplier: core competence(s)/cor	C14	Technology/engineering	C141
					Production capabilities/ industrialisation	C142
					Know-how transfer	C143
					Market access/ OEM handling	C144
	Strategic gap analysis for resources	C2	Status quo vs. vision / Gap(s) / white spots anal	C21	Systematic	C211
					Non-systematic	C212
			Regional footprint	C22	Geographical diversification aspects/costs	C221
			Technology/innovation approach(es)	C23	No strategic alternatives	C231
					Future trends/technologies identified	C232
			"Strategic particularities"	C24	Products/Services	C241
					Volume vs. niche	C242
					Competition for resources	C243
		2		**8**		**21**
C. (Organisational-) decision-making (w/in tier 1 supplier)	Process considerations	C4	Corporate set-up	C41	Relationship Business Units vs. HQ	C411
					Relationship between / differences of BU s	C412
					Top down vs. Bottom-up	C413
					Role of central functions, e.g. M&A	C414
					Corporate culture related (other)	C415
			Communication / Approvals	C42	Internal communication / approval(s)	C421
					External communication	C422
			External advisers	C43	Advisers important	C431
					Advisers less important	C432
			Method(s)/Approach(es)	C44	Flexible / "gut feeling"	C443
					Systematic	C444
					Resources	C445
	Stakeholders involved	C5	(Senior) Management / BoM	C51	Internal pressure factor	C511
					Driver/initiator/monitoring	C512
					Decision maker	C513
					Individual/psychological (motivation, intere	C514
			Supervisory Board	C52	Decision maker	C521
					Union/employee representatives	C522
					Individual psychological (motivation, intere	C523
					Shareholder representatives	C524
			Project team	C53	Role of project team (-members)	C531
					Team set-up	C532
					Individual psychological (motivation, intere	C533
					Influence on process	C534
					Relationships/networks (internal & external	C535
	Organisational (Group / institutional)	C6	Timing	C61	Internal pressure/ influence on timing	C611
			Interests	C62	Intra organisational	C621
			Experience	C63	M&A related	C631
					Cooperation related	C632
	Environmental (politics, industry)	C7	Government/ politics / unions	C71	Workers unions/ workers council	C711
					Regulatory bodies (e.g. anti-trust, courts)	C712
			Industry participants	C72	Timing / cycle	C721
					Impact on the organisation	C722
					Source of information	C723
		4		**12**		**34**

D. Equity collaboration (IJV and IM&A) and link to strategy

Category	D	Subcategory	D1x	Item	D1xx
Strategic considerations (internal & external) (w/ regard to equity cooperations)	D1	Cooperation strategy	D11	"Buy-and-build"	D111
				"Clean-up"	D112
				Strengthen core business	D113
				Risk attitude (generally)	D114
				Synergies / cross-sectional benefits (e.g. tec	D115
				Signalling	D116
		Access to resources	D12	Increase scale/ market share/ volumes	D121
				Production/Industrialisation	D122
				Product (technology)	D123
		Own capability to close gap (in cooperation)	D13	Own ability to perform / close gap	D131
		Innovation & VUCA	D14	Factors of VUCA	D141
				Implications from VUCA	D142
Transaction considerations (for cooperation)	D2	Control / Commitment / Risk	D21	Control associated w/ cooperation mode	D211
				Commitment associated w/ cooperation mo	D212
				Risk associated w/ cooperation mode	D213
				Costs…	D214
		Partner considerations	D22	Cultural / personal fit (between co-operatin	D221
				Structural/organisational fit (between partn	D222
				Partner resources (e.g. knowhow)	D223
				Partner ability to close gap (or need to deve	D224
				Divestments at target/partner	D225
				Partner's view/goals/ win-win	D226
				Partner selection	D227
		Partner type specifics	D23	OEM as a partner	D231
				Start-up/new entrant as partner	D232
				Supplier as partner	D233
				Competitor as partner	D234
				Medium sized/Family-/Founder-owned bus	D235
		Timing	D24	Critical period post closing/operational	D241
				Strategic, long-term view	D242
				cooperation / M&A to gain time	D243
				Preparation / planning	D244
		Synergies/Integration/Organization/Dissolving	D25	Integration/ Organization	D251
				Synergies (internally)	D252
				Legacy / political topics	D253

E. Best practice/lessons learnt/recommendations	Automotive context	E1	Best practice/Lessons learnt & critical issues		1	E11	Best practice/Lessons learnt & critical issues	E111
			Recommendations / Outlook		2	E12	Recommendations	E121
							Outlook	E122
	Cross-border / NA context	E2	Best practice/Lessons learnt & critical issues		1	E21	Best practice/Lessons learnt & critical issues	E211
			Recommendations / Outlook		2	E22	Recommendations	E221
							Outlook	E222
	Strategic analysis	E3	Best practice/Lessons learnt & critical issues		1	E31	Best practice/Lessons learnt & critical issues	E311
			Recommendations / Outlook		2	E32	Recommendations	E321
							Outlook	E322
	Process/decision-making	E4	Best practice/Lessons learnt & critical issues		1	E41	Best practice/Lessons learnt & critical issues	E411
							Critical issues	E412
			Recommendations / Outlook		2	E42	Recommendations	E421
							Outlook	E422
	IJV / IM&A related	E5	Best practice/Lessons learnt & critical issues		1	E51	Best practice	E511
							Lessons learnt	E512
			Recommendations / Outlook		2	E52	Tool, check list, or similar	E521
							Process complexity to be captured	E522
							Flexibility in solution	E523
							Timing / sequence considerations	E524
							Integration-/organisation related	E525
							Outlook	E526

Legend:

First ideas after literature review and based on experience
Inductively added in first cycle coding (Nov/Dec-16)
Inductively added in second cycle coding (Jan/Feb-17)

Source: author's own (2017)

7.3. Background to the author's professional development

In this section, I would like to introduce three sequential phases of my personal development: the past, my current doctorate studies, and the future, with the doctorate itself as the anchor point.

Critical reflection and reflective practice are central themes in academic research and are recommended by several authors (see Dewey, 1933; Gibbs, 1988; Hullfish & Smith, 1961; J. A. Moon, 2013; Reynolds, 1998; Schön, 1983). In particular, in the areas of education and health, the concept of reflective practice has been widely employed (Hartman, 2001; Hendricks, Mooney, & Berry, 1996; Price, 2004; Yates, 2006). However, in recent years critical reflection has also gained importance in management education and learning (e.g. Reynolds, 1998).

In fact, reflecting on myself as the researcher and my own professional and academic development is the basis for my understanding myself and I considered it as an important process throughout any research endeavour. Dewey (1933) was one of the first to incorporate a literature and systematic analysis of the subject and this has gained significant additional momentum since the 1970s.

Reflective practice means enhancing learning processes and informed decision-making by continuously reflecting on actions and experiences (Bolton, 2001; Schön, 1983). J. A. Moon (2013) posits that there are three key features of reflection; it implies a learning process and its outcomes, it has a certain purpose and it implies the necessity of a complicated mental processing.

Many authors, such as Kolb and Fry (1974) in their seminal paper, describe reflection as an on-going, circular process. Another example of this approach, is Gibb's 'cycle of reflection' which has the aim to make tacit reflection transparent and use it in an analytical approach (Gibbs, 1988).

The doctorate 'cruise'

This section primarily describes my intellectual, academic, professional, and personal development before and during this current study on strategic inter-company collaborations in the automotive industry. The main purpose and objective is to reflect on these developments and their impact on the study to provide an outlook and thoughts on potential future developments. The reflections include the time prior, during and after the doctorate programme (DBA) of the University of Gloucestershire. Figure 53 shows the programme's timeline with two phases: the module phase with its residential weekends in order to prepare for the research study and a second phase, with the doctorate itself.

Figure 53: DBA Curriculum of the University of Gloucestershire
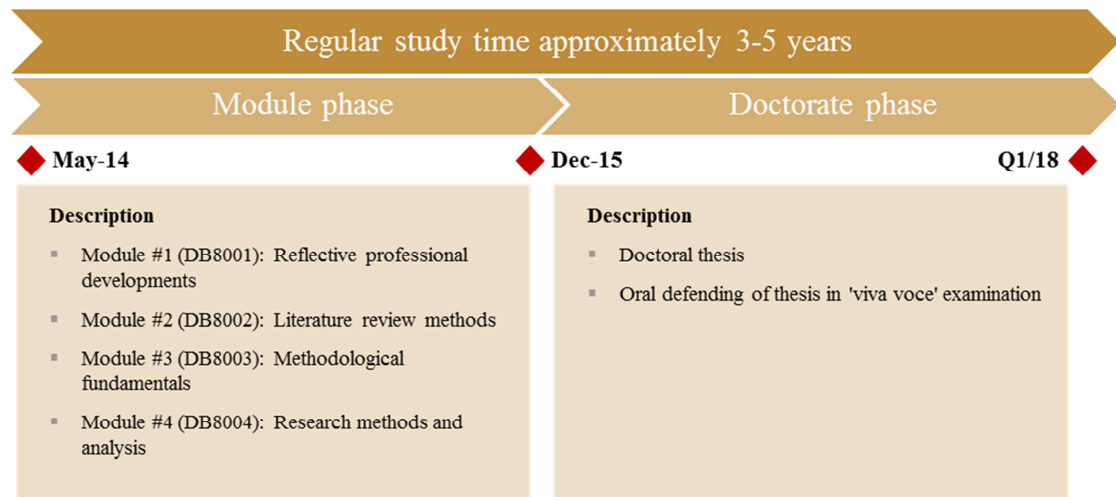
Source: GLOS (2014)

As a passionate sailor, I would like to continue to use the metaphor of a virtual sailboat cruise (the 'doctorate cruise'). I use this to describe my academic/professional/private developments over the last years. This metaphor will be referred to throughout this section. Actually, the virtual sailboat cruise can be seen as analogous to M&A and inter-company collaboration projects, which are at the core of the research subject. Professional decision-making, involvement of stakeholders, competition, thorough preparation, professional execution, and monitoring, as well continuous learning/reflection are the key to their success. This applies to academic projects, such as a doctorate, and to sailboat cruises alike.

To conclude this introduction, I would like to give an overview of the next paragraphs. I chose a chronological approach to let the reader take part in the doctorate cruise. Firstly, the developments from the past that lead to the doctorate are analysed, followed by present developments as with the preparation and execution of a sailboat cruise. Ultimately, potential future developments are provided to show a glimpse of the horizon and future potential cruises. A separate Section of the main text body (2.3) focuses on the philosophical underpinning of the doctorate cruise, like a compass that guides the way.

The next paragraphs are organised along the dimensions of the reflection triangle (Figure 13 on p. 42), as it reflects on all three of them (academic/doctorate, professional, private).

Preparations / previous cruises (the past)

This paragraph covers the time prior to joining the DBA class i.e. until May 2014. During that time, I engaged in other virtual academic sailboat cruises, such as the studies of international management to become a 'Diplom-Kaufmann' ('Dipl.-Kfm.' – German Master of Business Management). It outlines how the seas have been both calm and stormy during that time period.

Academic/doctorate:

In May 2006, I completed my studies in International Finance and Management at the Catholic University of Eichstaett-Ingolstadt Business School (Wirtschafswissenschaftliche Fakultaet or 'WfI'). During that time, the focus of the education in Germany seemed to be on gaining management knowledge and learning about tools and critical thinking. As part of the studies, one year was spend abroad in France and Mexico. The key insights gained were about different cultures, for example on time perceptions, teamwork, and learning processes.

In German universities, as in the ones I came to know abroad, academic research philosophy and methodology seemed to not receive that much attention. However, different research methods were key aspects of study. Pressure for academic achievements at the end of my studies was high, as in stormy seas. There was both time

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pressure and the urge to find a permanent job. My focus was therefore result-oriented and showed my enthusiasm for international strategy topics. My master (German 'Diplom') thesis on cross-border M&A in the banking sector followed a quantitative and statistical approach (Hagel, 2006). As I described a reality that was assumed objective, I could be named a 'pragmatic realist' back then.

After graduation from WfI, I had no immediate doctorate in mind. I wanted to gain professional experience and a doctorate in Germany seemed rather theoretical with limited perceived practical relevance. However, a doctorate always held a certain appeal to me because I enjoyed studying and developing ideas in my Diplom thesis. However, the attractions of the professional world exceeded and I only had limited exposure to the 'academic world' between 2006 and 2014.

In January 2014, I heard about the DBA programmes, more specifically the one at the University of Gloucestershire ('GLOS'). After getting further information on the programme and some short reflection, I decided to enrol. The reasons for me to join the DBA programme were threefold: (1) the mix of a more theoretical PhD and a more 'hands-on' MBA-like approach sounded like what I was always looking for as it provided the opportunity to engage in practice-relevant management research at a doctorate level; (2) I liked the idea of studying abroad in an international programme; and (3) I wanted to get acquainted with like-minded practitioner researchers and extend my network.

The application to GLOS followed recommendations by two university professors of the WfI. The topic idea for my study came from my university background paired with my professional experience and reflection about potential for improvement. The working title at the beginning was: '*Strategic inter-company co-operation as means of internationalisation in the automotive (supplier) industry - An analysis of motivation and key success factors*'.

Professional:

I started my professional career in the investment banking ('IB') industry in 2006 with a focus on corporate finance advisory (M&A, financing and capital market transactions). Job locations were Munich and Frankfurt, followed by London. There are only minor

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differences to report between these locations in work approaches and ethics since this is a relatively homogeneous and international industry. Intense workweeks of 70-100 hours were not unusual and therefore a research cruise such as a doctorate was impossible during that time of stormy seas. However, the time as investment banker was rewarding. With the different tasks including cross-border M&A analysis/advisory and project management, certain skillsets were developed. These proved highly relevant for research cruises for example project management, critical thinking, technical skills, and experiences in different industry sectors. However, after some years in that environment I reflected on the value-add for me. There was only limited involvement in strategy formulation as investment bankers and advisors are not principals in the decision-making process, regarding how our clients took decisions or regarding what happened to our advisory projects after completion (e.g. integration into the acquiring company). Therefore, I decided to change course in my professional cruise and ventured into a new and different territory. I moved back to Germany and into the corporate world of the automotive supplier industry in 2012. As a senior manager for the M&A/collaborations team, I wanted to be an integral part of the projects of the decision-makers (or principals) as well as working more practice-related and tangibly. There, I gained further professional experience in particular with corporate strategies, since I was now working on the principal side who makes the final 'collaboration or no collaboration' type of decisions. This had a significant influence on my research topic. I came to realise that in some circumstances only limited strategic analysis with regard to collaboration modes seemed to be conducted but that instead a 'hands-on' and entrepreneurial approach was used. This is in principal not good nor bad, but I thought then, and still do, that there is need for more profound and systematic strategic analysis to accompany strategic collaboration projects. Hence, the aim was born to bridge the gap between existing academic literature and professional practice (decision-making often led by 'gut feeling'). Even though work is still intense during peak times, the sea in my new territory is somewhat calmer. For this bundle of reasons, I took heart and enrolled in the DBA programme in May 2014.

To complete the picture, I would like to share some reflections on my management style as far as it certainly affects my study (this applies to both 'IB and corporate professional life').

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- Leadership: control appreciated, result-oriented, analytical, clear objectives, motivation important
- Decision-making: deliberate after analysis of different options, views/advice welcome, able to re-consider when proven wrong
- Profile: expert practitioner rather than general manager
- Enhancing external/organisational factors: time constraints (project environment with clear time tables, additional management task: recruiting, coordination and mentoring of trainees and interns at the M&A/collaborations team), milestones, (financial) resource constraints, process orientation, hierarchical corporate structures

Private:

The various changes in my professional life, outlined above were reflected in my private life, including changes of locations and social environment. During that time, I came to realise and further appreciate the importance of family as a supportive crew you can rely on in all cruises. This includes in particular my (now) wife, Eva, my parents and my sister as well as the broader family. Other important and influential people in my development were doctorate friends, colleagues, and my cousin who is enrolled in the doctorate programme of the WfI in Germany. In the end, the decision to move back to Germany and to change my professional career path is partly a result of these private considerations. I wanted to sail into new territory with calmer seas in order to find a harbour and eventually settle.

Setting sails for the cruise (the DOCTORATE)

This paragraph concerns the by far the most important part of the doctorate cruise, as it shaped the study and enabled me to 'set sail'. It covers the period from Q2/2014 until Q1/2018 (see Figure 56). Before engaging in the three dimensions of reflection, I would like to comment on the important people from all three dimensions, which continue to have a strong influence on me, Michael Hagel ('MH') and the current study. These people are shown in Figure 54.

Figure 54: Influential people on the author and the study
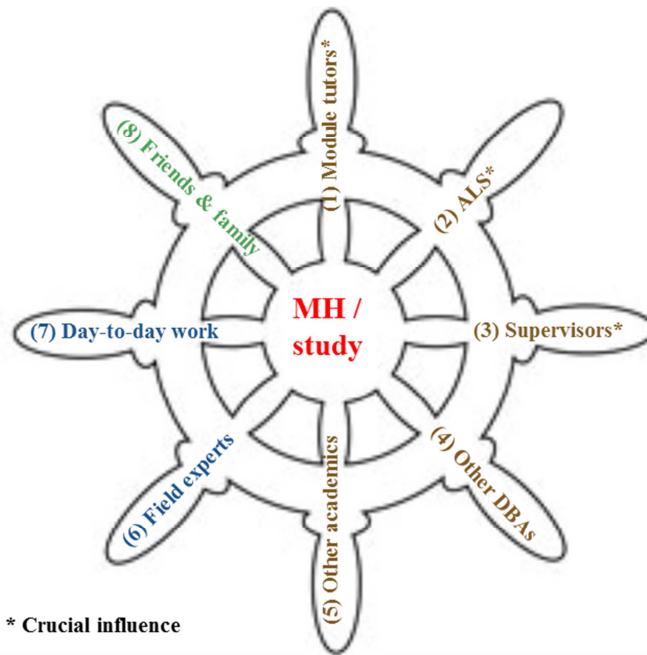
Source: author's own (2015); n.b. ALS = Action Learning Set

Ad (1): The module tutors taught me philosophical and research fundamentals during the DBA8001-DBA8004 residential weekends. This started a reflection process and gave 'food for thought' (specific findings from the modules will be discussed later).

Ad (2): My Action Learning Set ('ALS') of my Cohort Munich 10 can be characterised as other like-minded sailors on a similar cruise. We continuously exchanged ideas and reflections in a fruitful, intellectual, and sometimes challenging dialogue. Even though, in the end every member of the ALS steered her/his own boat, it is great to benefit mutually from different backgrounds and perspectives both professionally and academically (Avison, Lau, Myers, & Nielsen, 1999; Lewin, 1946; Pedler, Brook, & Burgoyne, 2003). Apart from the useful 'cross-fertilisation', it was also key to keep the momentum thanks to a supportive atmosphere, discipline and motivation, as the part time doctorate was a long and challenging cruise that we embarked on together. Furthermore, the ALS approach helped to identify skills and attitudes necessary to conduct a specific research and it increases confidence in one's decision-making. Unfortunately, five out of eleven members of our cohort (and four of them from our ALS) were 'lost in the triangle of challenges' and decided to postpone or withdraw from their respective doctorate cruises. Because of these postponements, we revived our bi-weekly 'Skype conferences', which we had stopped due to difficult logistics (all

members had busy schedules and were at different locations). The idea was to gain additional momentum in our doctorates and keep up-to-date regarding one another's projects via Skype conferencing or meetings around the residential weekends.

Ad (3): Interactions with the DBA supervisors, Dr Sue Williams and Dr Marc Helmold, took place continuously. An amendment of the subject was discussed by email correspondence, for example. The supervisors were helpful sparring partners at all times and certainly grew in importance in the second phase of the doctorate.

Ad (4): Other doctorate students in my Cohort Munich 10 also contributed to the methodological and subject discussions during the residential weekends. Another rewarding fact is that four of my fellow cohort members also work in the automotive industry, which makes them even more valuable and interesting sparring partners.

Ad (5): In day-to-day corporate life, there was continuous interaction with the key professionals within my M&A / collaborations team at my company. With regard to the module phase (Figure 56 on p. 267), the interaction was limited and was restricted to the Senior Vice President ('SVP') for M&A/Collaborations, i.e. my line manager. Others were involved during the doctorate phase, in particular for the expert interviews.

Ad (6): I re-engaged with 'university life' providing practitioner/expert support (interview) for bachelor thesis candidates in Germany (Business School of Hochschule Niederrhein in H2 2014; Hochschule Konstanz in H2 2015). Furthermore, I was a key speaker at expert discussions/panel talks held at events of German and Swiss universities. Additional interaction with universities was through my work as coordinator of interns and trainees at the M&A / collaborations team. I conducted a workshop with students (bachelor and master) on automotive M&A strategies at a university in March 2016.

Ad (7): Day-to-day professionals also influenced the current study and ultimately myself, as strategic collaborations are their regular job.

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Ad (8): Friends & family are both supportive, particularly my fiancée and now wife. This support is more of a moral nature rather than academic. As the doctorate is a time consuming and sacrificing cruise, other areas of life can 'suffer' during that time.

Academic/doctorate:

Initially, I was unsure what to expect when preparing for the doctorate cruise, as there was neither much momentum nor wind. However, the cruise project quickly gained speed with the first residential weekend and I then knew better what to expect. Then the wind and waves picked up and I learnt plenty about new concept and ideas. In fact, initially all the different ideas from philosophy through to research methodology were a bit too much and I lost traction and orientation for some time. However, with the second and third residential weekend paired with some reading of the relevant academic literature, I regained control and found my compass, formulating ideas about my research philosophy and paradigm gained shaped (see Section 2.4 of the study on page 40ff.) and a clear view on what I wanted to research. I then re-engaged with the sea but was better prepared this time…

Figure 55 shows a mind map of the academic cruise, as of October 2015. It was subsequently reflected upon with my ALS and my family.

Figure 55: Mind map of the doctorate cruise
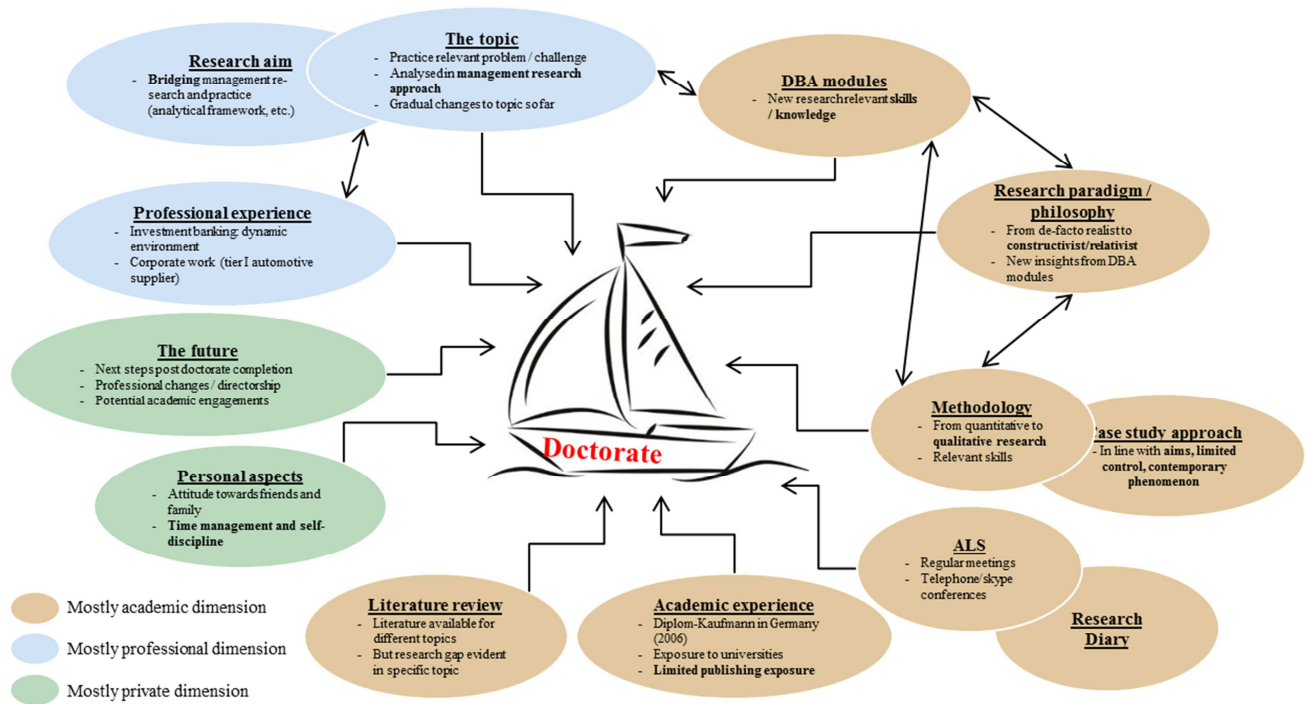
Source: author's own (2015)

The following paragraphs present the summary impressions and findings of each module phase of the doctorate programme I participated in.

For that reason, I would like to point out two highlights from the module phase: the change in study focus and title and the change in research philosophy (better awareness).

I intended to narrow down the initial working title after the first modules, applying a focus on the key regional growth markets for the automotive industry: '*Strategic inter-company collaboration as a means of successful internationalisation in the automotive supplier industry – Focus on China and India*'.

However, towards the end of the programme this title was changed to the final title of the current study. There were four reasons that led to these changes in subject:

(1) The subject was highly complex (at the junction of strategic management, internationalisation, entry modes, decision-making, automotive industry specifics) and so it was necessary to narrow down the scope where possible.

(2) If I focused on China and India as regional scope, I could not do the company case study analysis on M&A as a collaboration mode (in the wider sense) since ALPHA has not used this collaboration mode in these countries in the past.

(3) After the recent completion of an acquisition in the US, ALPHA is now a truly global company with a very broad product portfolio. Therefore, the US and the Americas have gained a lot of importance internally (as have other companies in the industry) and so can never be neglected, as they would be if the regional focus was on China and India.

(4) Many automotive OEM transactions in the automotive industry have taken place in the past and have been analysed in depth (for example the Daimler-Chrysler combination). However, there have not been so many collaborations in the automotive supplier space analysed and so I felt that I could contribute value to management research with this changed subject, even though I had to further investigate and amend my literature review accordingly.

My research philosophy was initially a de facto pragmatic approach, influenced by my previous academic education in Germany (refer to the elaborations on the past on page 40ff. in Section 2.4 and on page 258ff. in this Appendix). However, as outlined in the main text body of the study, I soon realised that an interpretivist approach better fits my ontological and epistemological views today. The methodology for the current study was selected subsequently.

Another important aspect throughout the doctorate programme was managing the complexity of my study, which accompanied me throughout the doctorate cruise. There was an on-going challenge of 'where to start and where to stop', breaking down this vast topic and not 'overloading' the sailboat during the cruise. Re-directions and refinements happened along the way, for example, expanding the regional focus and adding considerations on organisational strategic decision-making processes, after the DBA 8004 residential weekends (which were the last ones of the module phase).

I continued to work on the skill set needed for my qualitative methodology: i.e. further development of active listening skills, interview techniques, data analysis techniques, and presentation skills (these presentation skills were important for the DBA doctoral conference and my final Viva voce assessment ('Viva').

Figure 56 shows the timetable of the research project and the current study, with its two phases. The doctorate phase is further sub-divided into the various steps of the empirical part and writing the thesis.

Figure 56: Timetable of the current study
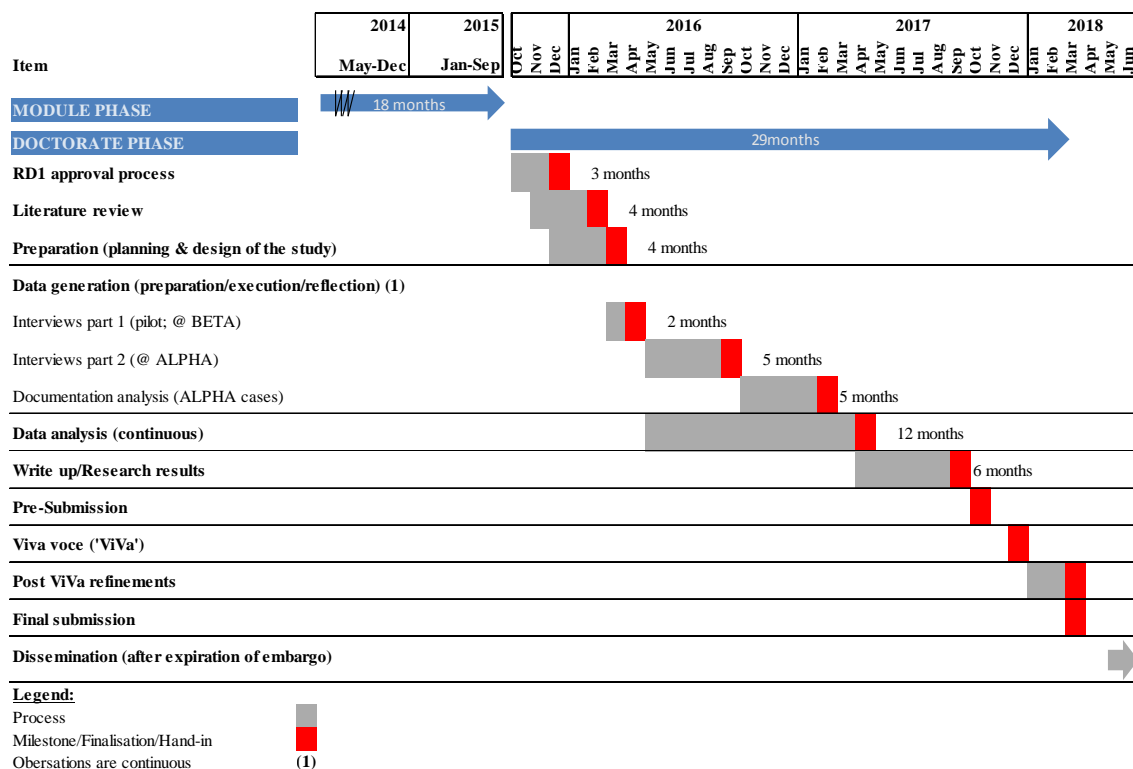
Source: author's own (2018)

Professional:

Apart from the time conflicts of the academic/doctorate and professional dimension, I faced the question of when to disclose the enrolment in a doctorate programme at work. The initial idea was to disclose this after the module phase and after the submission of the Research Degree process 1 (or 'RD1'). Before that, I intended to work on the doctorate exclusively solitarily. The main reason for this approach was not to exercise further pressure on myself by disclosing my enrolment in the GLOS DBA.

However, as is often the case, life caught me in the act. In the first summer of my DBA enrolment, my company initiated a large and complex M&A transaction in the USA and my team was involved in coordination, due diligence, valuation, negotiation support, etc. The main rationale for this transaction was indeed the closing of strategic product

and technology gaps in an international context: it was hence at the heart of my doctorate subject.

The transaction had two effects on my study and me. On the one hand, it was the first 'clash' of agendas: the professional dimension and doctorate dimension. This resulted in a break for the doctorate work of approximately two months and the disclosure at work that I had enrolled on the GLOS DBA programme and intended to complete a doctoral study programme. On the other hand, it was 'mental stimulation': What was the trade-off of big bang/game changing M&A transactions vs. incremental in-house/M&A/collaboration strategies? (e.g. pros and cons: transaction safety, control, risks, integration, financial independence, etc.) What about the regional focus? As the Americas (mainly the USA) are a key automotive market with a lot of momentum (not only with regard to collaboration/M&A activity but for other topics, for example the recent VW diesel deception crisis), potentially valuable insights can still be gained there. Apart from this major M&A transaction, I have recently been involved in other collaboration approaches in the US. A collaboration with an automotive start-up (strategic R&D collaboration) was established that eventually led to M&A discussions. All of these thoughts were eventually reflected in an amendment to my doctorate subject.

Since my team is often involved in negotiations, we attended a professional negotiation training which again gave various insights that are also important to the current study. For example, the power of speech and the induction concept as well as the 'three-step-logic to anchor an argument' reinforced my idea of conducting a triangulation approach for the current study (literature review, expert interviews, documentation/observation analysis).

In addition, I attended a management development programme at my company with training in Austria, the USA, China, and Germany. In this programme, I learned about additional aspects of inter-cultural management and entirely new concepts for me such as the Myers-Briggs Type Indicator ('MBTI') with its psychological and behaviour types and management contexts (for example the VUCA concept which gave additional stimulation for reflection about my emic approach for the current study). Although it is important to keep it in mind, the influence of various managers' characters and management styles was not in the focus of the current study.

Private:

As life continued at full speed besides the DBA programme, there was always a trade-off between the three dimensions. Some recent examples of these time conflicts are:

(1) Opportunity to make a real estate investment (Mainz, Germany): This was a time consuming private project. At the same time, it was another example of two approaches to a complex project: structured/systematic approach vs. 'gut feeling': systematic analysis (scorecard analysis used to identify the object) and project management (due diligence/site visits, organisation the financing, negotiations, coordination of meetings etc.) led to a successful completion of the project.

(2) Long-distance relationship: Even though my (then) girlfriend was encouraging about my doctorate cruise, there were always challenges. However, in July 2015 we got engaged and in September 2015 my girlfriend finally moved in. This had a positive impact, not only with regard to logistics (previously long-distance relationship) but also with regard to timing conflicts. In August 2016, we married.

When reflecting on the effects of these time constraints on the current study, I can identify three main findings: clear prioritisation is important (the performance in my full-time job and a stable private life), good time management has become even more crucial and continuous change and reflection is needed in the private dimension. These thoughts are in line with various authors who published in the field. (Bandura, 1977; Beckhard, 1969; Beer & Walton, 1987; Lewin, 1947)

Horizons and future cruises to come (the FUTURE)

It is always difficult to make predictions about the future; otherwise, many more people would make millions in the lotteries or in the financial markets. However, I will nevertheless dare to share some ideas about how the current study might impact my life (academic, professional and private) and how it could evolve after the doctorate. Therefore, let us set sail towards the horizon…

Academic/doctorate:

One aspect that has increased in importance are the new opportunities in the academic world, which have become available with a doctorate. I am considering intensifying my engagement with universities in Germany/Switzerland/UK, as a part-time lecturer engagement in parallel with my job. Another way to further develop would be publication of all or part of my research.

Professional:

As mentioned before, my main aim is to see the research outcomes applied in day-to-day corporate life. One of my goals as a practice-oriented management researcher is the implementation of a systematic strategic analysis tool for international M&A / collaborations. I will certainly face challenges that are to be overcome, such as barriers to change, for example with regard to the personal sphere as change is a long-term learning process in organisations (e.g. Lewin, 1946; Lewin, 1947).

With regard to my career goals, I strive to become director at my company and potentially set-up and realise projects such as managing a Corporate Venture Capital fund in the future. In this context, a systematic analysis tool could also be useful. Alternatively, I can consider taking on other responsibilities within my company, such as managing a Business Unit at some point. As part of these future challenges, I am in a management development programme in order to broaden my management style from a specialist to a broader approach. Apart from these goals, I might engage in advisory projects outside of my company.

Private:

This dimension is also closely linked with the other two. The cruises I would like to take independently of the other dimensions are founding a family and settling down, having married my girlfriend in August 2016.

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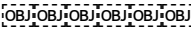
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