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Doctorate in Business Administration

International knowledge transfer in setting-up subsidiaries: the role of context

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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.

Any views expressed in this thesis are those of the author and in no way represent those of the University.

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Abstract

New foreign manufacturing subsidiary set-up is challenging, particularly when seeking to achieve operational set-up performance efficiencies. This research reveals the nature of the 'International Knowledge Transfer' (IKT) process during subsidiary set-up, uncovers local context factors influencing the IKT process, and suggests how to manage the identified influences. Specifically, the research focuses on operational shop floor knowledge, because the field is under researched and it is critical for operational set-up performance efficiencies.

As a research strategy, a constructivist research paradigm - applying a retrospective comparable case study of three subsidiaries in Brazil, China, and Mexico - is implemented. Interviews with set-up managers and shop floor employees are used to generate a deep understanding of the cases and to facilitate data triangulation.

The findings show that a processual understanding and delimitation of the IKT process during set-up are absent. 'Relationship', 'education', and 'language' emerge as the three primary context factors that influence the IKT process. By not considering local context sufficiently: firstly, communicational misinterpretation - triggered by not considering local behavioural standards - leads to an adverse knowledge transfer relationship; secondly, local educational preparation showed to be insufficient to relate to highly advanced manufacturing knowledge during the IKT, and; thirdly, the use of local translators surprisingly provides limited effectiveness in supporting IKT. In response, it is suggested that employing a knowledge 'sender' with local language skills (rather than simply a translator), an initial analysis of local job titles, including associated skill and educational levels, and sender and receiver communication preparation prior to 'Knowledge Transfer Process' (KTP) initiation, alongside a careful application of the IKT process itself positively influences IKT, and helps overcome barriers.

Through this, the research adds to theory and practice by developing an approach to foster transparent IKT during foreign subsidiary set-up. It offers a list of context factors that influence the IKT process, based on which suggestions for managerial actions are derived to lower the impacts of these local context factors. This assists organizations in minimizing operational set-up performance inefficiencies by supporting shop floor employees to more effectively engage with, and benefit from, IKT.

Dedication

To the pioneers of foreign subsidiary set-up projects.

Acknowledgements

A journey of seven years has come to an end. The thesis is done. Along the way, quite a lot of things happened: I got married, my first son was born, I was promoted twice, moved houses twice, etc. All this would not have been possible without the support of my family, my friends, my doctoral peers, my supervisors, and the organization researched.

First and foremost, a great “Thank you!” to my wife. She supported me tremendously through this journey. Not only with her strength to provide me the required time for my research, but also with her feedback and motivation.

Secondly, my supervisors were a great help along the way. Your feedback was always straight forward, challenging, objective, not personal, and supported me in achieving this thesis. At times, your feedback almost brought me to the brink of believing myself incapable of completing this thesis at all! In the end, you pulled the right strings and helped me achieve this thesis. Thank you!

Thirdly, I would like to compliment my fellow doctoral students. You were an awesome group to start this journey with. Unfortunately, we grew apart along the way a little bit. Nonetheless, you were a great help and it was always fun discussing with you the topics of our researches. The ‘after hours discussions’ will be particularly remembered.

Fourthly – and last, but not least – it was a great experience being able to perform this research about the international knowledge transfer process to three new subsidiaries in set-up for the organization researched. This was a fantastic opportunity which supported me in staying focused and motivated during these 7 years.

To conclude, I hope you can agree that your support was put to good use. You have the end result in your hands right now. Enjoy reading it and I hope you find my conclusions logical and inspiring and my suggestions for improvement beneficial.

Table of Contents

List of Figures

List of Tables

List of Abbreviations

A

AC Approval Construction Drawing
ALS Action Learning Set

C

CAQDAS Computer Assisted Qualitative Data Analysis Software
CCS Comparative Case Study
CL Cover Letter

E

ECI Externalization, Combination, and Internalization
EI Equipment Installation
EIRMSP Enhanced Integrated Reference Model for the Set-up Process

F

FDI Foreign Direct Investment
FTE Full-Time Equivalent

G

GDI General Definition of Information

I

IG Interview Guide
IKCT Integrated Knowledge Creation Transfer
IKT International Knowledge Transfer
IP Interview Protocol
IRMSP Integrated Reference Model for the Set-up Process

K

KBS Knowledge-Based view of Strategy
KBV Knowledge-Based View
KTP Knowledge Transfer Process

L

LD Location Decision

M

MBE Multinational Business Enterprise

N

NDA Non-disclosure agreement
NIH Not Invented Here Syndrome

O

OEE Overall Equipment Effectiveness
OEM Original Equipment Manufacturer

R

R&D Research & Development
RMSP Reference Model for a Set-up Process

S

SECI Socialization, Externalization, Combination, and Internalization model

T

TA Transcript Approval

1. Introduction

A part of my job was to select sites where new manufacturing subsidiaries were going to be established. The task usually ended with the closure of the land purchase and incentive package. The subsequent process of construction, equipment implementation and ramp-up, right up to serial production was taken on by other departments and other employees. Nonetheless, a certain personal bond to these sites was still inevitable for me. After a 'Global Management Meeting', I was talking to the responsible person for quality. During our discussion they mentioned the high scrap and failure rates during the ramp-up of the new subsidiaries. Given my professional connection to these new sites, the initial spark of enthusiasm to investigating the set-up process properly ignited. While examining possible root causes for this phenomenon, I quickly came to the interesting idea that something locally must have been different and not appropriately considered during the set-up, because all the other framework characteristics were comparable and not new to the organization.

Having been part of the site selection of these new sites, I knew just how intensive and comprehensive the site selection processes had been. However, it was not clear whether the same understanding and consideration of the local environment had been considered in any further set-up process steps. From further discussions with different managers for operations, the focus of interest was steered towards the struggle of having well-qualified shop floor employees available. My current assignments at that time did not allow for further investigation of this topic as part of my job. However, due to my high level of personal interest, I searched for other options to investigate, which resulted in handing in an application for the DBA.

Despite my personal interest in the topic; automotive 'Original Equipment Manufacturers' (OEMs) and consequently their tier suppliers are challenged by trends, such as: platform engineering, globalization, cost pressure, and shorter development cycles ("Global Automotive Supplier Study 2018," 2017, "The 2019 Strategy & Digital Auto Report," 2019, "The future of the Automotive Value Chain Supplier industry outlook 2025," 2017). This requires automotive component manufacturers to supply the same part to multiple customer locations worldwide at a globally competitive price. Similar to the OEMs, suppliers automize, standardize, and downsize their production processes to achieve cost reductions. In order to keep supply chains short and cut transportation prices, suppliers strategically decide to establish new subsidiaries near their customer base. Organizations, however, face certain challenges to the setting-up of new subsidiaries abroad. Little knowledge and experience of climate, law, regulations, labour market, education, safety, transportation, etc. make the set-up of a new location in a foreign country a considerable challenge (e.g. Froese, Sutherland, Lee, Liu, & Pan, 2019; Hofstede, 2011; Kelly & Ashwin, 2013; Needle, 2015; Palmer & Hartley, 2008; Worthington & Britton, 2009).

Besides these challenges, suppliers are transferring their highly automated production processes, which require skilled shop floor employees (Bessen & Kossuth, 2019). Whereas in the past, operators could run production equipment with their prior-to-the-job educational knowledge, nowadays, additional organization internal knowledge is required to handle the specifically developed manufacturing equipment. Therefore, new operators have to be further trained additionally to their prior-to-the-job education (e.g. Jackson, Lower, & Rudman, 2016; Sullivan & Kobes, 2019).

Available literature has dealt independently with the concepts of 'new subsidiary set-up' (e.g. Ammer, n.d.; Böning & Sejdic, 2015; Renner, 2012), 'knowledge transfer' (e.g. Gupta & Govindarajan, 1991a, 1991b, 2000a, 2000b; Minbaeva, Pedersen, Björkman, & Fey, 2014; Minbaeva, 2007; Nonaka & Konno, 2005; Nonaka & Takeuchi, 1995; Szulanski, Cappetta, & Jensen, 2004; Szulanski & Jensen, 2004, 2006; Szulanski, 1996, 2000), and 'context' (e.g. Estabrooks, Squires, Hayduk, Morgan, Cummings, Ginsburg, & Norton, 2015; Estabrooks, Squires, Hayduk, Morgan, Cummings, Ginsburg, Stewart, et al., 2015; Hofstede, 2011; Johns, 2006, 2017; Needle, 2015; Van Dijk, 2008). However, no research had considered the concepts in an integrated research approach. For the concept 'new subsidiary set-up', certain reference models were already established. None, however, specifically detailed the KTP. 'Knowledge transfer' was mainly identified as a sub-category of the working tasks of human resources (e.g. Ammer, n.d.; Böning & Sejdic, 2015). This was identified, although 'knowledge transfer' is a highly researched field. (See number of identified literatures in Table 6, on page 71.) Furthermore, although 'context' currently experiences a strong research focus, the 'new subsidiary set-up' concepts identified in this thesis considered, whether, if at all, 'context' mostly by applying the PEST/LE[1]-analysis in the site selection (e.g. Ammer, n.d.; Böning & Sejdic, 2015; Hartmann, 2007; Renner, 2012).

The above information shows that there is a lack of extant research on 'knowledge transfer' in 'new subsidiary set-up' models and the specific influences of 'context' on the IKT and 'new subsidiary set-up'; there exists a knowledge gap. Without managing the influences of the context factors at the new location, the ill effects on the IKT during a set-up process cannot be reduced or eliminated. Outcomes such as low operational performance, which ultimately could lead to delays in the overall project timeline, could be undesired consequences for example.

For manufacturing organizations, the shop floor is of great importance, because their financial performance is closely linked to the shop floor's operational performance (e.g.

[1] The PEST or PESTLE approach is used to understand strategic risks of the external environment. It assess the external environment implications from a 'political', 'economical', 'social', 'technological', 'legal', and 'ecological' perspective (Marmol & Feys, 2015; Perera, 2017; Sammut-Bonnici & Galea, 2015; SHTAL et al., 2018).

Jacobs, Kraude, & Narayanan, 2016; Khalfallah & Lakhal, 2020). Hence, the shop floor employees need to be well trained and need to have the required knowledge to perform the operational process and run the manufacturing equipment (e.g. Jackson et al., 2016; Sullivan & Kobes, 2019). However, comparably little research focuses on shop floor relevant knowledge. It could be that research has historically avoided the shop floor, because there are certain hurdles to be overcome to access the shop floor level – e.g. language, the fact that only on-site interviews are possible, that shop floor employees have to be at their workstations during their working hours, and finally the willingness of the plant and production leader to let a researcher talk to their shop floor employees. Multiple approaches to conduct research on the shop floor level had already been considered, however, a lack of financial funds or no affiliation with an organization did not allow for implementation. Few financial funds and very limited persuasion of the organization were required in order to perform this research, owing to being a professional part-time DBA student who is enabled by: a strong affiliation with the organization researched, the approval for this research by the group leadership team, and business trips to the locations researched required little financial funds or persuasion of the organization to perform this research.

Hence, this research sets out firstly to identify the nature of IKT on the shop floor, secondly, to explore which local context factors have an influence on IKT, and thirdly, to suggest how to manage the influences in order to achieve higher operational subsidiary set-up performance. By investigating three international subsidiary case studies within the same organization, each applying copy-plants in different countries – China, Mexico, and Brazil – a deep understanding of the influences of local context on the IKT is achieved. Through the triangulation of findings, similarities and differences between the three cases are found and this increases the finding's credibility.

In this way, the thesis closes a theory-knowledge gap, integrating concepts that are currently self-contained into one framework, and by doing so, opening new approaches for IKT research. The identification of specific local context factors further builds a new understanding of their influences on the IKT, and so practice can draw upon these newly-gained insights. Finally, managerial implications and the proposed IKT *toolbox* offer potential operational measures on how to manage the influences on the IKT. By a well-performed IKT, organizations enable an optimized new subsidiary set-up performance, which is important in a highly financial competitive business environment: "It is always cheaper to do the job right the first time." (G. H. Watson, 2005, p. 65). Furthermore, short-term benefits, e.g. higher productivity and OEE, less scrap, lower set-up costs, less operational turmoil, and motivated shop floor employees, along with long-term effects, e.g. satisfied customers, higher profitability, and stable production processes, can be achieved.

2. Research Framework

2.1. Setting the Scene

The company investigated is a multinational business enterprise (MBE) incorporated in a multinational conglomerate. The MBE manufactures advanced engine parts as a first-tier supplier for the automotive industry. Its headquarters are based in Germany. In 2013 its operations were established in Germany, China, and USA. In the following four years this MBE started building up three new greenfield subsidiaries in Mexico, China and Brazil. (See chronology depiction in Figure 1.) Each subsidiary has a similar and comparable framework: layout, size, investment, number of employees, timeline, equipment, production processes, and product(s). As such they are categorized as 'copy-plants'.

Figure 1 Timeline for the set-up of the three investigated cases.

In the first months during subsidiary set-up, these subsidiaries have demonstrated operational inefficiencies, manifested in problems with the work of the newly recruited employees. These problems were associated with the production skills of employees, resulting in mishandling of equipment, which led to an increased level of operational inefficiencies. This suggests that the 'International Knowledge Transfer' (IKT) for the shop floor level was not effective. The IKT process was comparable in structure, process, and routings for all cases – as the common factor in each this further suggests that the issues lie within this element.

In order to find an appropriate location for each new production facility, a dedicated straight forward value-benefit-analysis tool, based on the PEST/LE-approach, was used. In order to account for country specifics, the weighting and some of the selection criteria were appropriately adjusted. After the site selection, the construction was undertaken. For the construction, local general contractors were used in all cases. After the construction, the production equipment was established and the training of the operators began.

For each project a dedicated set-up project manager was assigned. In each case the set-up project managers became the plant manager afterwards. The project manager for the China case originated from a German location. They had, however, spent, several years in the existing Chinese subsidiary, before becoming the set-up manager for the China case.

In the case of Mexico, the set-up manager was hired from outside the company specifically for this job. He was Mexican and had spent several years working in Germany. Further, he had worked mostly for German companies in the automotive field.

For the Brazilian case, the set-up and later on plant manager was an expat from Germany. He started his career on the shop floor in the German location. Before becoming the project manager for the Brazil case, he was responsible for process manufacturing in the German location.

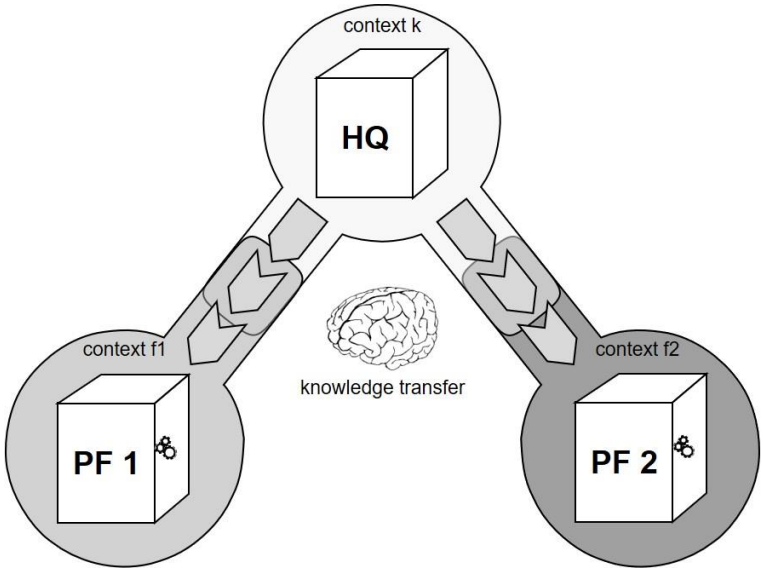
The investigated MBE uses a matrix organization, including plant managers and central functional heads. Plant managers were operationally and financially responsible for their subsidiary. Functional heads for standard processes, lessons learned, best practice sharing, innovations, and systems. Consequently, central functions were also responsible for setting-up their standard processes at the new subsidiaries.

2.2. Research Justification

During the set-up process of a new international subsidiary, knowledge is transferred from the parent company to the subsidiary. However, it is necessary to manage the KTP carefully and accurately in order to achieve the desired performance outcome (Renner, 2012). The KTP takes place within the specific local context in which the subsidiary is established (Meyer, Mudambi, & Narula, 2011) in order to manage the process. Consequently, the context factors in which this process takes place need to be considered.

Extant research has focused on the set-up process (see for example Fjällström, Säfsten, Harlin, & Stahre, 2009; Scholz-Reiter, Krohne, Leng, & Höhns, 2007; Terwiesch & Bohn, 2001), the KTP (e.g. Gupta & Govindarajan, 1991a, 1991b, 2000a; Javidan, Stahl, Brodbeck, & Wilderom, 2005; Riis, Waehrens, & Madsen, 2010; Schlegelmilch & Chini, 2003), and the context factors (e.g. Kirca, Roth, Hult, & Cavusgil, 2012; Minbaeva, 2007). Nonetheless, no one has integrated all three aspects, i.e. the KTP, the set-up process and the context factors in one interrelated perspective. Therefore, this research begins to address the identified gap, exploring the relationship between the process of knowledge transfer and the impact of the contextual factors in the set-up process (see Figure 2).

Figure 2 Conceptual framework of this doctoral thesis.



Note: HQ = headquarters, PF = subsidiary in set-up, k = known, f = foreign.

2.3. Research Aim

Based on the above, the aim of this research is to understand how contextual factors impact an IKT process at the shop floor level during the subsidiary establishment process. Thus, the focus is on the impact of local context factors on the IKT and how this can be managed.

2.4. Research Questions and Objectives

From this aim, three research questions with corresponding objectives have been identified in the following Table 1:

Table 1 Research questions and objectives.

#	Research question	Research objective
1	What is the nature of 'International Knowledge Transfer' at the shop floor level to the subsidiaries in the set-up process of an MBE?	Discern the characteristics of a cross border KTP at the shop floor level. Identification of general principles, methods, models, frameworks and tools available. Analyse if different principles, methods, models, frameworks, and tools. for the countries of interest are published.

Table 1 continued

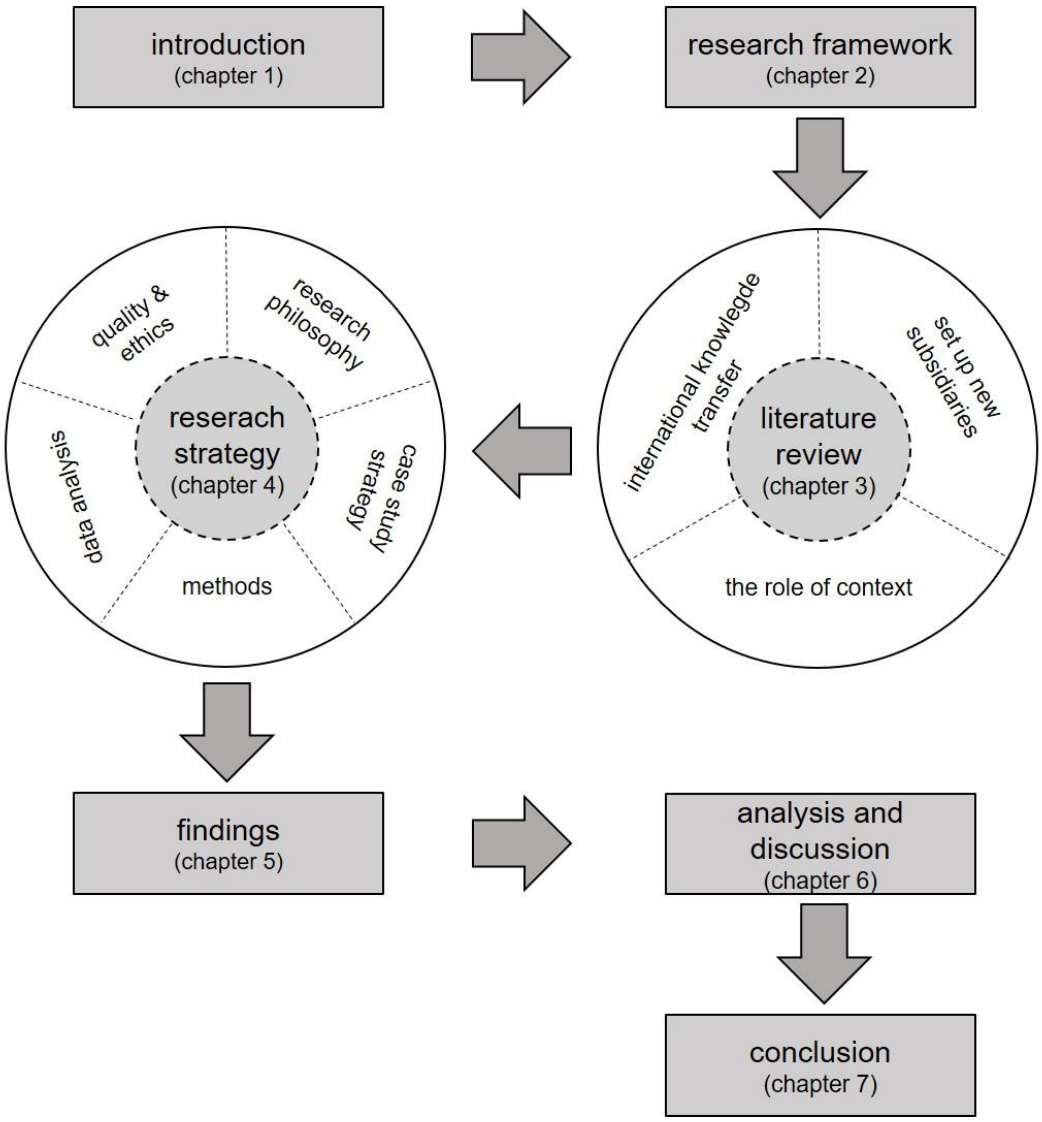
2	How do local context factors during the subsidiary set-up impact the 'International Knowledge Transfer' process, in terms of process, actors and critical events?	Identification of the local context factors during subsidiary set-up that impact the 'International Knowledge Transfer' process at the shop floor level, the related actors and the critical events. Focus on the similarities and the differences between the countries of interest.
3	How can an MBE manage the impact of the local context factors on an 'International Knowledge Transfer' during subsidiary set-up to ensure operational performance efficiencies?	Definition of measures that make the impact of local context factors on the 'International Knowledge Transfer' process in subsidiary set-up across borders more manageable.

2.5. Flow and Structure of the Thesis

The following chapter "Literature Review" starts by offering methodological considerations the task. Relevant literature in conjunction with issues around 'International Knowledge Transfer', 'new subsidiaries in set-up', and 'the role of context' is reviewed. This enables fundamental concepts to be derived, reviewed, and defined.

Chapter 4 "Research Strategy" starts with a discussion of research philosophical and the approach to theory. The third section argues from the philosophical discussion for the predominately qualitative, constructivist research design. As case studies are showed to be of manifold nature, a case study blueprint is developed in section four. The following sections focus on method selection and application then data analysis. Axiology and research quality are discussed in the last two sections.

Figure 3 Flow and structure of this thesis.



The expert interviews, and the shop floor employee interviews are summarized in chapter 5 “Findings”. A quantitative as well as qualitative review of the identified main points is conducted.

Chapter 6 “Analysis and Discussion” integrates findings from all three sources and all cases. From this, answers to the first and second research questions are derived.

Finally, chapter 7 “Conclusion” concludes the thesis by discussing managerial implications, answering the research questions, identifying the contribution to theory and practice, recognizes limitations, and gives recommendations.

3. Literature Review

This research covers three concepts: ‘International Knowledge Transfer’, set-up of greenfield Foreign Direct Investment (FDI), and the role of context. The literature review showed that each concept had attracted different levels of research attention. Although this builds a basis to build upon, no integrative approach of all three concept had been found. In order to achieve this as an outcome from the literature review, certain preliminary ground work had to be done.

It emerged that for each of the concepts, a non-unified field of definitions was found. Hence, it was necessary to create a solid understanding of each conceptual definition and review their peculiarities. Although set-up models showed to be available only on a superficial level, a solid basis for a conceptual and processual discussion later on was identified. For context and knowledge transfer prevailing concepts and models were critically reviewed, adjusted, neglected, or integrated and resulted in the ‘Integrated Knowledge Creation Transfer’ model (IKCT).

Having delimited the conceptual definitions, the further argument enriches the derived IKCT. By adding available characteristics, the different influences of local context factors would be distinguishable on a more detailed level afterwards.

The subsequent section identifies the different levels that knowledge transfer could be thought of. An argument is made why the nodal level is the appropriate level of research for this thesis. Subsequently, different knowledge flow paths based on the nodal understanding of knowledge transfer are reviewed, because depending on the possible knowledge flow paths local context factors could have an influence on different persons involved in the ‘International Knowledge Transfer’ process. Finally, the chapter identifies the research gap of the missing understanding for the influence of local context factors on the IKT.

3.1. Methodological Considerations on this Literature Review

The literature review gives the researcher the possibility to identify the current research boundaries of the intended research topic. It determines what research had been accomplished in the past, how these researches were done, and what further fields for research was identified by other researchers (Hart, 2018). Randolph (2009) proposed to cluster available methodological approaches to the literature review as quantitative and qualitative. Quantitative literature reviews included narrative and meta-analytic approaches. However, a quantitative literature review approach would not had supported the qualitative philosophical approach of this doctoral thesis appropriately. (See chapter “Research Strategy” for details.) Narrative reviews could be influenced by the subjectivity of the researcher and could result in different findings by different researchers although using the same literature basis. Meta-analytic reviews could be influenced by publication bias of

quantitative research being more likely published than qualitative and being too structured missing perhaps relevant arguments of the literature reviewed (Ferrari, 2015; Randolph, 2009; Rumrill Jr & Fitzgerald, 2001).

For this literature review a qualitative approach, using the phenomenological research method adapted to literature review purposes as suggested by Randolph (2009), was decided to be applied. Determining factors for this decision were to gather the current state of the overall discussion, the evaluation of available findings, and the current knowledge gaps in order to answer the research questions of this research (Ferrari, 2015; Hart, 2018; Randolph, 2009; Rumrill Jr & Fitzgerald, 2001). Steps considered and applied were:

- bracketing
  definition of the research questions, as stated in Table 1, on page 6, and identification of a conceptual framework, as displayed in Figure 2, on page 6
- data collection
  identification and review of available literature following a defined systematic
- identification of meaningful statements
  highlight relevant parts to answer the research questions in the identified literature
- give meaning
  clustering, rewording, and interpretation of highlighted parts
- come up with thick and rich descriptions
  description of the findings in the actual literature review (Randolph, 2009)

Bracketing was already dealt with in Table 1 and Figure 2, as indicated before. Data collection was approached by using initial search terms for each identified concept: ‘International Knowledge Transfer’, ‘set-up of manufacturing locations’, and ‘context’. For each field, the main contributors were identified with the narrative and as much of their literature contributions as possible was considered in the review. Narrative literature reviews enable a broad perspective, support comprehensive research endeavours, tackle complex and abstract research questions, and better integrate methodological diversity (Booth, Papaioannou, & Sutton, 2012; Demiris, Oliver, & Washington, 2019; Denzin & Lincoln, 2017; Green, Johnson, & Adams, 2006; Machi & McEvoy, 2016). These were evaluated as advantageous characteristics which would provide optimum support of this research. In addition to the key contributors’ literature which was reviewed, further literature with related content was also discussed. It was possible to determine whether or not any potential literature should be considered for the literature review of this research by evaluating the *Abstracts* in advance.

Each of the identified literature was then worked through highlighting relevant parts and identification of meaningful statements. Subsequently, these relevant parts were uploaded into the literature review organization tool called Docear. “Docear is a unique solution to academic literature management, i.e. it helps you organizing, creating, and discovering academic literature.” (docear, 2019) Docear includes pdf-management; uploading, sorting, and organizing of highlights and comments from pdf files; literature reference management; and mind mapping in one suite (docear, 2019). This, together with the direct reference connection to Word, made it the overall software of choice integrating all necessary features looked for by me. Through the mind map application, the organization of meaningful statements supported an easy clustering, rewording, and interpretation and opened the possibility to transfer the manifold of literature findings structured and concise into this thesis.

3.2. Organizational Theory and Theory on Internationalisation

3.2.1. The ‘Knowledge Based View’ (KBV) and strategy of the MBE.

Nonaka & Takeuchi found that “The realization that knowledge is the new competitive resource has hit the West like lightning.” (Nonaka & Takeuchi, 1995, p. 7). Nonaka & Takeuchi refer to the development of the ‘Knowledge Based View’ (KBV), that evolved with the work of e.g. Toffler (1990) believing that knowledge is the ultimate replacement of other resources; Reich (1991) arguing that competitive advantage resides with individuals who are able to identify, solve, and distribute new problems; Quinn (1992) seeing that not hard assets, but rather ‘Knowledge Based Intangibles’ can be developed; and Drucker (1993) proclaiming the knowledge society and knowledge worker.

However, over 20 years later it could be argued that all of them were partially right with their statements, because discussing ‘Knowledge-Based view of Strategy’ (KBS) visionaries like Steve Jobs showed that knowledge is a central part of today’s competitive advantage. Knowledge is created through the interaction of different individuals (Aidemark, 2009; Polanyi, 2009; Riis et al., 2010; Williams & Baláž, 2008; Williams, 2007). Through the synthesis of the input of different points of view individuals are triggered to create new knowledge (Nonaka & Takeuchi, 1995). KBS is a dynamic process, which actively supports creation of new knowledge. Through this, it is possible not to predict the future, but to make it. Although, this approach is going to support a competitive advantage “… discontinuity is the only constant awaiting us in the future …”. (Takeuchi, 2013, p. 78).

The KBV of the organization after 20 years of research is still the focus to many current research projects – Google Scholar (2018) indicates to have found roughly 16,200 results of scholarly work including the word ‘knowledge-based’ with the publication date 2017 and younger, Springer Link (2018) has found 12,392 results using the word

'Knowledge Based' in their title with publication date 2017 and younger. Within a volatile, uncertain, complex, and ambiguous world it could be followed that knowledge could still be seen as the central point to an organization. It enables organizations, if knowledge is constantly renewed and shared through-out the organization, to have a potential constant competitive advantage.

Social networks (Ismail Al-Alawi, Yousif Al-Marzooqi, & Fraidoon Mohammed, 2007), communication networks (Alibeyki & Khosravi, 2014; Ismail Al-Alawi et al., 2007), and knowledge networks (Alibeyki & Khosravi, 2014; Back, 2002; Hansen, 1999) have the goal to enhance knowledge transfer (Hansen, 1999). Spanning networks outside organizational boundaries enables individuals to acquire new knowledge (Swan, Newell, Scarbrough, & Hislop, 1999). Under the KBV of the organization, the unique selling and value-creating proposition is the knowledge the organization holds and creates. Based on this it could be argued that networks should be key to an organization considering the KBV.

A MNE is "… a firm that *owns* and controls activities in two or more different counties (our italics)." (Vahlne & Johanson, 2013, p. 191) With the introduction of the network-based view of the organization, Vahlne & Johanson offered another definition: "According to our view the MNE, or rather the multinational business enterprise (MBE), is a firm building and developing value-creating business networks in and between foreign countries both inside and outside the boundaries of the firm." (2013, p. 194)

This leads to the conclusion that under the KBV it should be the intent of an organization to establish networks to enhance knowledge transfer and knowledge creation. As will be shown: a new foreign subsidiary in set-up requires a high degree of knowledge transfer. Consequently, networks need to be established, which is why the term MBE rather than MNE as definition of an international organization is used henceforth.

3.2.2. The set-up process in greenfield manufacturing FDIs and its challenges.

The literature review showed very limited results concerning a set-up process model of new FDIs. Böning & Sejdic (2015) offer the set-up typology matrix displayed in Table 2. This matrix offers a basis to get an idea of the complexity of a set-up process on a very high level.

From the categorization Böning & Sejdic (2015) and a described initial situation they derive specific assumptions or challenges for five generic set-up scenarios they are discussing in their paper. The cases that were considered for this research are considered to be copy-plants. (See details on the organizational situation as described in the section "Setting the Scene" starting page 4.) Applying the typology matrix of Böning & Sejdic (2015) from Table 2 would result in the evaluation as shown in Table 3. For this kind of typology, it is important to reach a high productivity and 'Overall Equipment Effectiveness' (OEE) fast, that local foreign jurisdictional requirements are necessary to consider, and that employee

qualification is of specific essence. Due to an unchanged product and production process the development phase can be neglected in this kind of set-up type. (Böning & Sejdic, 2015)

Table 2 Characteristics for the typology of set-up processes.

characteristic	value	characteristic	value
type of production	complete production	location	local
	partial production		foreign
organization type	line production	product	same product
	job-shop production		adjusted/new product
degree of automatization	high	process	same process
	low		adjusted/new process

Source: Adapted from "Reifegradplanung und -überwachung für den Anlauf zusätzlicher Produktionskapazitäten an neuen Standorten als Entscheidungsbasis für Optimierungsschritte (Ramp-up Maturity)" by Böning & Sejdic, 2015, p.16. Copyright n.a.

Ammer (n.d.) shows in his white paper, which tasks are required during the planning phase for a set-up process and what is later on required in serial production. Ammer wrote the paper for the German telecommunication organization Telekom. Hence, it could be the case that the results presented are biased to fit the product portfolio or any other organizationnal goal of the Telekom company. Although the likelihood for organizational bias is eminent, Figure 4 offers a thematic basis for a set-up process model. However, requires critical evaluation.

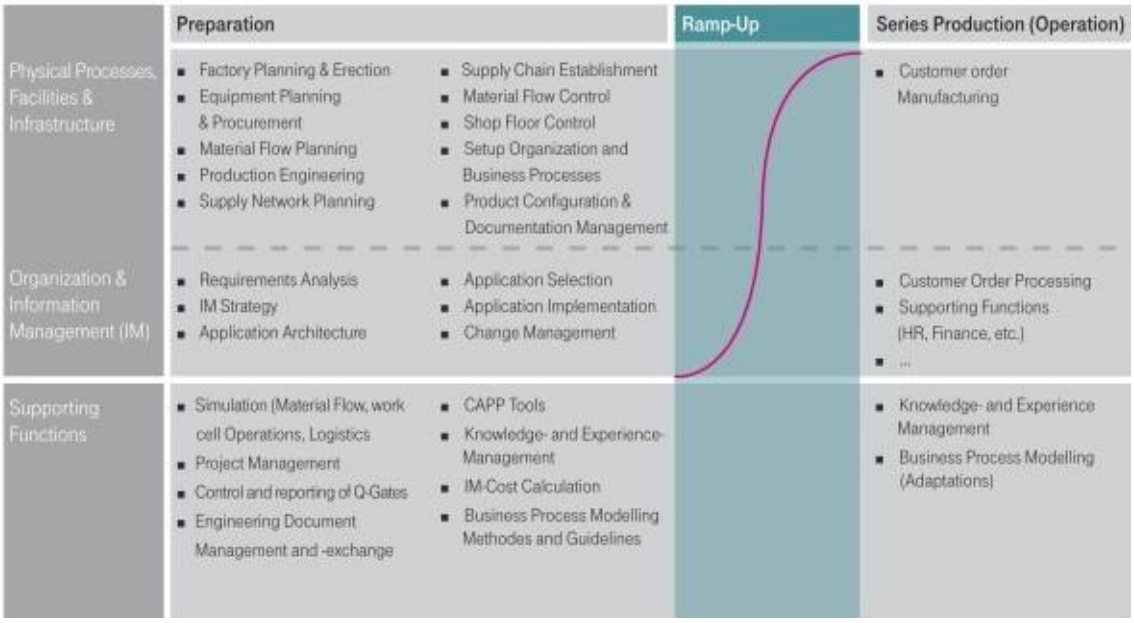
Table 3 Typology of the underlying cases of this research.

characteristic	value	characteristic	value
type of production	**complete production**	location	local
	partial production		**foreign**
organization type	**line production**	product	**same product**
	job-shop production		adjusted/new product
degree of automatization	**high**	process	**same process**
	low		adjusted/new process

Source: Adapted from "Reifegradplanung und -überwachung für den Anlauf zusätzlicher Produktionskapazitäten an neuen Standorten als Entscheidungsbasis für Optimierungsschritte (Ramp-up Maturity)" by Böning & Sejdic, 2015, p.16. Copyright n.a.
Note: Characteristics highlighted in bold are applicable to all three underlying cases of this research.

As can be seen in Figure 4, Ammer (n.d.) suggests that the set-up process consists of three stages: preparation, ramp-up and ‘Series Production’. However, the set-up process does not start with just the preparation phase. There has to be a strategic decision or a project approval by an organization to internationalize and setting-up a new facility (Böning & Sejdic, 2015; Hill, 2007). This stage is currently missing and needs to be added, as it represents the initial starting point of the set-up process.

Figure 4 Activities and tasks during the various phases of a set-up.



Source: Adapted from “White Paper Ramp-Up Management” by Ammer, n.d., p. 6. Copyright n.d. by T-Systems Enterprise Services GmbH.

Subsequently to the strategic decision on internationalizing and set-up of a new subsidiary certain preparation tasks have to take place (Ammer, n.d.; Böning & Sejdic, 2015). Böning & Sejdic (2015) offer with their Reference Model for a Set-up Process (RMSP) in Appendix 1 a processual and organizational view on relevant tasks. These tasks are not completely congruent to Ammer (n.d.), which suggests an alignment and integration of both work-break-down structures in one model. The given task categorization in Figure 4 could, however, be interpreted as optimized towards the available product portfolio of the Telekom. Tasks adjacent to ‘Organization & Information Management’ and ‘Supporting Functions’ are described in greater detail than the tasks presented under the category ‘Physical Processes, Facilities & Infrastructure’. ‘Organization & Information Management (IM)’ and ‘Supporting Functions’, both categories are part of Telekom’s business portfolio, which explains the weighting of the task presentation. Nonetheless, the detailed topics should be considered during a set-up process of a new location. Hence, the tasks described under the category ‘Organization & Information Management (IM)’ should be integrated as separate working

streams in the RMSP by Böning & Sejdic (2015). This has been realized to serve as a basis for set-up of this research in the Integrated Reference Model of the Set-up Process (IRMSP) as displayed in Figure 5 and Appendix 2.

Subsequently to a preparation phase the set-up is commencing with a ramp-up followed by the serial or normal production (Ammer, n.d.; Böning & Sejdic, 2015; Renner, 2012). This however offers only a very vague definition of ramp-up. As can be seen in Table 4 ramp-up has been subject to a bigger extent of research (Abele, Elzenheimer, & Rüstig, 2003; Bungard & Hofmann, 2003; Fjällström et al., 2009; A. Kuhn, Wiendahl, Eversheim, & Schuh, 2002; Laick, 2003; Pfohl & Gareis, 2000; Risse, 2004; Scholz-Reiter et al., 2007; Terwiesch & Bohn, 2001), however there is no agreed general definition available (Böning & Sejdic, 2015). A reason for this might be that each of the references above look at ramp-up from a different point of view: product development view, processual view, market/customer view, production volume view. Ramp-ups can be of different types as displayed in Appendix 3 and multiple factors can influence the ramp-up process as display in Appendix 4. This probably leads to the vast number of available definitions.

Table 4 Definitions of ramp-up.

Author	Definition of ramp-up
Terwiesch & Bohn (2001)	"The period between the end of product development and full capacity production is known as *production ramp-up* (italics original)." p. 1 and "Ramp-ups also occur when a new process or a new plant start up." p. 3
Scholz-Reiter et al. (2007)	"… the ramp-up phase … is a transition phase of the early product lifecycle, which is neither an accepted part of the product development nor a part of the production phase." p. 1631
Fjällström et al. (2009)	"The phase of production ramp-up begins at 'Start of Production' (SOP), when new products are delivered to customers. It is concluded when the initial targets for, e.g. quality, volume, yield, and cost are reached…" p. 179
Deflorin, Dietl, Lang, & Scherrer-Rathje (2012)	The period from the implementation of a new process into a facility until the production of large volumes.

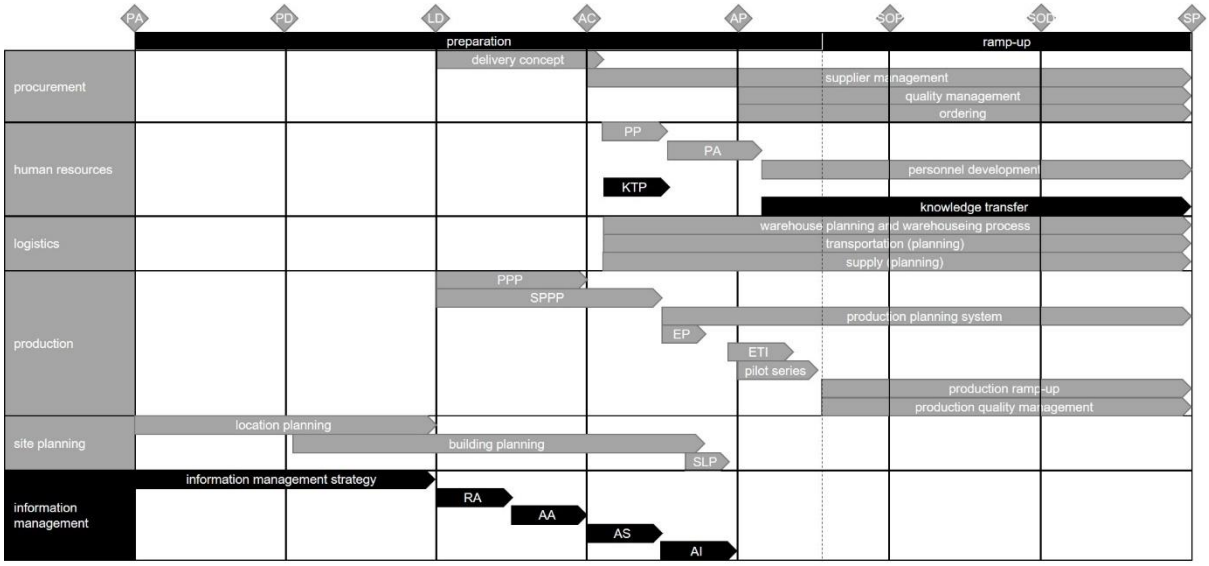
In order to manufacture parts, production equipment needs to be installed and industrialized (Böning & Sejdic, 2015; Deflorin et al., 2012). This is however not congruent with the start of delivering products to the customer as suggested by Fjällström et al. (2009) or market entry as titled by Renner (2012) – please refer to ramp-up model by Renner (2012) in Appendix 5. The start of delivering products to the customer is nonetheless a main step of any set-up process, which requires appropriate consideration in the set-up process plan and was for this integrated in Figure 5 and Appendix 2.

Before delivering parts to the customer Böning & Sejdic (2015) show a pilot production series. After accomplishing this process step machines have proven to be industrialized and ready for bigger production batches (Böning & Sejdic, 2015; Renner, 2012). Commencing Böning & Sejdic (2015) and Renner (2012) identify the production ramp-up. This definition will be also used for this thesis, as all machines are set-up and have proven in a pilot series to be able to produce on a bigger scale. However, the actual ‘Start of Production’ has not yet taken place and high volumes are not yet reached. This definition was accordingly integrated in the process model, as displayed in Figure 5 and Appendix 2.

As can be seen from the definitions in Table 4 besides the starting point of a ramp-up also the end point of a ramp-up is not commonly agreed on. However, compared to the starting point, each definition contains in different wording that a ramp-up phase closes with the achievement of higher, planned volumes (Böning & Sejdic, 2015; Deflorin et al., 2012; Fjällström et al., 2009; Renner, 2012; Scholz-Reiter et al., 2007; Terwiesch & Bohn, 2001). Böning & Sejdic (2015) refer to this main gate as ‘Normal Production’ and Ammer (n.d.) as ‘Series Production’. So, for this thesis the ramp-up and with it the set-up process will end with achieving high, planned volumes as discussed above. This is accordingly considered in the set-up process definition used for this research as displayed in Figure 5 and Appendix 2.

The RMSP offered by Böning & Sejdic (2015) in Appendix 1 displays different widths between the main process steps. The main process gates are indicated by the twisted rectangles on the very top. This could lead to the assumption that besides processual steps Böning & Sejdic (2015) indicate a timing that is required for each of the process steps. However, throughout their research no timings can be found. Hence, their display of the set-up process using different widths between the main process gates could bring a reader to the wrong assumption of a suggested required time frame for each process step. This impression could be eliminated by using the same width between each main process gate as suggested for this thesis in the IRMSP in Figure 5 and Appendix 2.

Figure 5 Integrated Reference Model for the Set-up Process (IRMSP).



Note: PA = Production Approval, PD = Product Decision, LD = Location Decision, AC = Approval Construction Drawing, AP = Approval Pilot Series, SOP = Start of Production, SOD = Start of Delivery, SP = Series Production, PP = Personnel Planning, PA = Personnel Acquisition, KTP = Knowledge Transfer Process, PPP = Production Process Planning; SPPP = Strategic Production Program Planning, EP = Equipment Planning, ETI = Equipment Testing and Industrialization, SLP = Space and Layout Planning, RA = Requirements Analysis, AA = Application Architecture, AS = Application Selection, AI = Application Implementation. Grey areas indicate processes as stated by Böning & Sejdic (2015). Black areas indicate processes as stated by Ammer (n.d.).
Source: Adapted from “Reifegradplanung und -überwachung für den Anlauf zusätzlicher Produktionskapazitäten an neuen Standorten als Entscheidungsbasis für Optimierungsschritte (Ramp-up Maturity)“ by Böning & Sejdic, 2015, p.16. Copyright n.d. by n.a. & Adapted from “White Paper Ramp-Up Management” by Ammer, n.d., p. 6. Copyright n.d. by T-Systems Enterprise Services GmbH.

Ammer (n.d.) displays in his set-up model as a task for the Supporting Functions the topic knowledge management. However, it is not indicated when this should take place. Böning & Sejdic (2015) do not explicitly outline knowledge management or knowledge transfer as a separate process step, but mention ‘Personnel Planning’ and personnel development. However, in their writing they mention the requirement to plan for how new employees receive initial training to build up required operational knowledge. As will be seen throughout this research, knowledge transfer is much more than ‘Personnel Planning’ and personnel development and needs to be considered as a separate working item as it shows to have own requirements that during a set-up process an organization has to deal with. Hence, knowledge transfer planning and knowledge transfer were included as separate working items in the IRMSP by Böning & Sejdic (2015), as displayed in Figure 5 and Appendix 2. It has not been possible to identify any suggested timing for planning or execution of knowledge transfer within a set-up process in the literature, the IRMSP was updated putting knowledge transfer planning in parallel to ‘Personnel Planning’ and the execution of knowledge transfer in parallel to personnel development. From the available

literature it indicated that they are related to each other, which concluded in this logical choice (Böning & Sejdic, 2015).

So far, the concept of set-up was only reviewed from a processual point of view. However, it is besides the process understanding also the understanding of the adjacent challenges during a set-up process that need to be considered when analysing the influencing factors on a KTP taking place during a set-up. As there was only very little on set-up processes identified in literature itself, there was even less identified for challenges during the set-up process. Contrasting, ramp-up, as said before, was subject to a bigger extent of research. As had been research the challenges of a ramp-up process. As ramp-up is an integral part of a set-up process, as identified above, it could be argued that the challenges that apply to a ramp-up process apply to a set-up process as well. Challenges found in literature applicable to a ramp-up process are: ubiquity (Terwiesch & Bohn, 2001), ambiguousness (Scholz-Reiter et al., 2007), diversity / uniqueness (Scholz-Reiter et al., 2007), uncertainty (Fjällström et al., 2009; Renner, 2012; Scholz-Reiter et al., 2007; Terwiesch & Bohn, 2001), and fuzzy situations (Scholz-Reiter et al., 2007). These factors need to be considered as prevailing challenges throughout the set-up process, when planning and executing an 'International Knowledge Transfer' process. Otherwise it could lead to a negative learning experiences of the new employees, resulting in a not as planned ramp- and set-up process.

3.3. Context

3.3.1. A theoretical discussion on context.

Although organizations under the KBV are not seen to own and control activities, they do want to manage factors influencing their business. All existing influencing factors could be aggregated under the term context. There has been substantive research that focuses on context. However, context is of complex nature (Needle, 2015), which might be the reason for the manifold of existing literature and research. Schumpeter (2017) further concluded that the creation of new knowledge requires disturbing the current static equilibrium (Schumpeter, 2017). In the KBV knowledge and especially the creation of new knowledge is the current and future competitive advantage of organizations. Hence, there is no static equilibrium at any time Takeuchi (2013). This means that context is constantly changing and thus should be considered more actively and vividly in research (Johns, 2006, 2017).

For quite some time, research has been aware of the influence of context (Dunning & Lundan, 2008; Johns, 2006, 2017; Vahlne & Johanson, 2013; Weick, 1979). However, research is aware of the influence of context, its complexity, its constant means to change, and its influence on organizational processes are often not accounted for appropriately (Dunning & Lundan, 2008; Gupta & Govindarajan, 2000c; Johns, 2006, 2017; Vahlne &

Johanson, 2013; Vahlne, Schweizer, & Johanson, 2012; Van Dijk, 2008; Weick, 1979). Context has been addressed in different cases: e.g. on health care systems (Di Blasi, Harkness, Ernst, Georgiou, & Kleijnen, 2001; Estabrooks, Squires, Hayduk, Morgan, Cummings, Ginsburg, & Norton, 2015; Estabrooks, Squires, Hayduk, Morgan, Cummings, Ginsburg, Stewart, et al., 2015), on human emotion recognition (Hess & Hareli, 2015), on software in logistics (Rabenhorst & Steffens, 2016), on communication (Van Dijk, 2008), on organizational behaviour (Johns, 2006), etc.

Van Dijk (2008) criticises that "… the vast majority of ... studies [on context] use the word "context" informally, as social, political, geographical, or economic "environment," "situation," "conditions" or "background," …" (p. viii). Within his exploratory book he attempts to develop from a constructivist approach an explicit theory on context related to discourse and communication. He argues that not everything contextual can be accounted for as background. Otherwise research would get lost in the endlessness of context. (Van Dijk, 2008). In order to get a conceptual approach concerning dimensions of context Johns (2006) offers to think about context on an omnibus and at a discrete level. The omnibus is being seen as the lifted point of view, thinking journalistically about: occupation – who?, location – where?, time – when?, rationale – why? and discrete as the classical understanding of context as: task, social, and physical factors (Johns, 2006). Although this gives a guidance on how to approach context within a research, it helps only little for defining context.

Hence, Johns (2006) suggests to think about context as: 1) salient situational features, 2) situational strength, 3) cross-level effects, 4) configurations of stimuli, 5) environmental events, 6) situational shapers of meaning, 7) and fairly constant ambient background factors. These seven categories of context could however relate to what Van Dijk (2008) sees as endlessness of context. Johns (2017) clarifies that the suggested seven categories were not an approach to define or shape context, however an approach to urge to "… incorporate [context] more mindfully and systematically into our research." (p. 577). Furthermore, Johns (2017) states that it is necessary to reflect on the sensitivity of specific contextual factors on the research object. Hence, it is necessary to identify what is systematically relevant to the object of research (Terwiesch & Bohn, 2001; Van Dijk, 2008).

Van Dijk (2008) further argues that contexts should not be seen as objective conditions. From his point of view contexts are (inter)subjective constructs by the participants. If this would not be the case, all participants with the same background would behave the same way (Van Dijk, 2008). For analysing context and communication, Van Dijk's argumentation seems to be logical. However, when discussing the influence on context factors on organizational processes, similar conditions could apply. Hence, the influence of different contexts could be the same in the same process. Nonetheless, the prevailing conditions are probably subjectively constructed by the participants of the process.

Through an exploratory research it could be possible to determine the relevant context factors (Terwiesch & Bohn, 2001). Based on this a suitable theory could be build or at least the sensitivity for context factors with higher impact on the 'International Knowledge Transfer' process to subsidiaries in set-up could be identified (Johns, 2017). Hence, context is seen as: a subjective construct of prevailing factors of a group of participants in a certain place at a certain point in time that have an influence on the KTP of a new subsidiary in set-up. This definition does not restrict an exploratory research of relevant context factors. However, it might potentially limit the discussion to the constructivist view. (For further details on research philosophy, see the section "Research Strategy", on page 74.)

3.3.2. Organizational context.

Context, as already displayed in the prior part of this thesis, has been often subject to research. Knowledge transfer as research matter in business research distinguishes two types of context: local/foreign (Abele et al., 2003; Gupta & Govindarajan, 2000c; Meyer et al., 2011; Rüstig, 2007; Sjöholm, 1996; Vahlne et al., 2012) and organizational (Axelson, 2005; Gupta, Govindarajan, & Malhotra, 1999; Gupta & Govindarajan, 1991a, 1991b, 2000a, 2000b; Hansen, 1999; Kirca et al., 2012; Rabenhorst & Steffens, 2016; Schlegelmilch & Chini, 2003; Szulanski et al., 2004; Szulanski & Jensen, 2004; Szulanski, 1996, 2000). Organizational context is the environment created throughout an MBE (Tannenbaum & Schmidt, 2009). According to the previous discussion on MBEs, this could include not only the internal factors that shape the organizational context, however also the influencing factors deriving from network connections of the organization with outside stakeholders (Tannenbaum & Schmidt, 2009; Vahlne & Johanson, 2013). In contrast, business context – depending if business is defined as a single entity of an enterprise (Bankvall, Dubois, & Lind, 2017) or as a whole business area (Hill, 2007) – could on the one hand be the local context of a MBE subsidiary or on the other hand the bigger context of a whole business branch, e.g. the automotive business. In order to not let any confusion concerning the understanding of the term 'business' come up throughout this thesis, single entities of an organization are addressed as 'subsidiary'. The term 'business' is going to be used when talking about a whole branch, e.g. the pharmaceutical business.

Organizational context is not solely different between distinct organizations, but also different between subsidiaries of the same MBE (Gupta & Govindarajan, 1991b). Small-medium-enterprise subsidiary characteristics influence the KTP of production methods (Axelson, 2005). Furthermore, organizational characteristics influence the effectiveness of the knowledge transfer (Schlegelmilch & Chini, 2003). Nonetheless, organizational context is not considered henceforth, because the focus is set on the local context and its influence on the IKT process.

It could be argued that organizational context is of minor relevance for new subsidiaries in set-up, because pre-existing organizational standards, rules, processes, values, beliefs, goals, targets, etc. are not yet implemented. However, the organizational context is locally shaped with each new employee hired, knowledge transferred, processes implemented, etc. This may result in a locally unique organizational context (Gupta & Govindarajan, 1991b) with a MBE wide shared framework. However, local context factors might have a higher relevance on the influence of knowledge transfer for new subsidiaries in set-up, because they are constantly influencing the new subsidiary. Whereas organizational context factors would influence the new subsidiary, when somebody e.g. from corporate headquarters is on-site or the new local subsidiary management is closely linked to organizational context, because they have spent several years working for the same organization in another location.

3.3.3. Local is foreign and foreign is local.

“No two countries, even close neighbours … are completely alike.” (Gupta & Govindarajan, 2000c, p. 45). These neighbours would distinguish their members, due to their collective programming. Hofstede (2011) uses this definition for the word culture. Many different definitions and conceptual dimensions have been used throughout the research on culture (Hofstede, 2011; Spencer-Oatey, 2012). Different to Hofstede (2011) Spencer-Oatey (2012) defined meta level key characteristics of culture:

1) Culture is manifested at different layers of depth (p. 3)
2) Culture affects behaviour and interpretations of behaviour (p. 4)
3) Culture can be differentiated from both universal human nature and unique individual personality (p. 5)
4) Culture influences biological processes (p. 7)
5) Culture is associated with social groups (p. 7)
6) Culture is both an individual construct and a social construct (p. 8)
7) Culture is always both socially and psychologically distributed in a group, and so the delineation of culture’s features will always be fuzzy (p. 9)
8) Culture has both universal (etic) and distinctive (emic) elements (p. 10)
9) Culture is learned (p. 12)
10) Culture is subject to gradual change (p. 12)
11) The various parts of a culture are all, to some degree, interrelated (p. 14)

These 11 key characteristics give a very good idea about the complexity of culture (Spencer-Oatey, 2012) and integrate different definitions and research approaches/findings from other research projects (see Needle, 2015 on culture and the review on Hall, Hofstede,

Fons Trompenaars, and the GLOBE project). Being a social construct that is shared with a group and is thus relevant for a certain place and for a certain time, culture could be considered as one part of the local context. (See the definition of context for this thesis starting on page 18.) To become locally (in the entered foreign country) an organization has to respect, understand, integrate, and use these differences (Caganova, Cambal, & Weidlichová Luptáková, 2010; Needle, 2015). This topic is thematically integrated in research on intercultural management (Caganova et al., 2010).

As it is the goal of this research to identify local context factors that have an influence on the IKT process the theoretical concept of culture and aspects of intercultural management have to be considered as influencing factors, because they provide a range of different characteristics that could have an influence on the IKT process. However, no theoretical discussion on national culture is considered, because the concept of 'culture' aggregates various different local context factors, e.g. values, beliefs, customs and morals (e.g. Hofstede, 2011; Spencer-Oatey, 2012). It is the interest of this research to understand, as much as possible, how local cultural characteristics influence the IKT process. These cultural characteristics are considered to be separate local context factors in their own right. It is therefore deemed that a discussion on the definition and understanding of national culture is not required.

Even within the same location different contexts could occur (Caganova et al., 2010). In order to internationalize, an organization has the option to access foreign markets by establishing a new subsidiary locally. (Please refer to the section "Organizational Theory and Theory on Internationalisation", on page 11, for internationalization theory basics of this research.) However, it could be argued that the context of the new location is only foreign to the organization trying to enter it. For organizations already locally represented, the context of this location is known. As in many cases, the concept of being local or foreign depends on the point of view. What is foreign to the one is local or known to another. For this research, local context factors are understood as the prevailing environment in the target country of the new greenfield FDI. This term is going to be used in this manner throughout this thesis.

For organizations that want to enter into a foreign market it is necessary to get acquainted with the local conditions (Vahlne & Johanson, 2013; Vahlne et al., 2012). However, foreigners face higher barriers, because there is no pre-existing market knowledge available within the organization (Vahlne et al., 2012). Vahlne et al. (2012) call this the liability of foreignness and outsidership. Both concepts are part of the bigger concept of local embeddedness. Although, local embeddedness showed potential to overcome local barriers, it could be argued that a subsidiary in set-up might not achieve local embeddedness, before having started serial production. Hence, the concept of local embeddedness is not further considered in this thesis. However, in order to diminish the influences of the local context, at

least in the decision face of an FDI approach, certain models have been developed: e.g. PESTEL analysis.

Although this model could support an organization to make a better decision concerning where to realize an FDI, there is no model available that supports management in how to handle the influence of local context factors on the 'International Knowledge Transfer' process during the set-up. Literature shows that local context factors do have an influence on the set-up and its related process and call for further case studies to identify local context factors (Terwiesch & Bohn, 2001). As identified in the section "Organizational Theory and Theory on Internationalisation", starting on page 11: knowledge transfer is an integral part to an organization establishing a greenfield FDI. Although this is known and there has been the call for further research on local context factors and their influence on the set-up process, no attempt has been found that tries to identify local context factors and their influence on the 'International Knowledge Transfer' process during the set-up phase of a new foreign subsidiary. This research attempts to close this gap.

3.4. Knowledge, Knowledge Creation, and Knowledge Transfer

3.4.1. The definition of knowledge over time and in contrast to information.

Throughout the history of mankind transferring knowledge was always an important part of each civilization. In very early times, people e.g. preserved knowledge as information in paintings. With the invention of printing, knowledge transfer through information was possible on a broader scale. Lastly, in the age of digitalization the availability of digitalized knowledge as information is at times overwhelming. As could already be seen, knowledge and information are closely related. However, there is a small line of differentiation between the two of them.

Knowledge and the concept of knowledge transfer belong to the bigger research field of KM. "Knowledge management = a systematic and structured way of planning, acquiring, transfer and development of knowledge within an organisation." (Axelson, 2005, p. Six). This seems to be an easy to use definition. However, a lot of research in the field of knowledge management loses credibility, by using the terms knowledge and information interchangeably (T. D. Wilson, 2002). Hedlund (1994) works as an example. Although he states not to use knowledge and information interchangeably, he mixes both terms in the later part of his work. It is a thin line to distinguish. Nonetheless, it is important to draw it, because it impacts the argumentation and findings of a research paper and consequently the relevance to theory and practice. Hence, the subsequent discussion develops a definition of knowledge to be used in this research and in contrast a definition of information. This should support a clear differentiation of both terms.

Knowledge is subject to a variety of different research fields, e.g.: education (Barnett, 1994; P. H. Hirst, 1993; Onyura et al., 2015), sociology (Mannheim & Wirth, 2015; Mulkay, 2014), psychology (Hofer & Pintrich, 2004; Koch, 1964; Shrout & Rodgers, 2018), philosophy (T. Kuhn, 1970; Polanyi, 2009; Popper, 1963), biology (Duplessis, Bakkeren, & Hamelin, 2014; Kuznetsov et al., 2015), information technology (Shannon, 2001), and management (Gupta & Govindarajan, 2000c; Jennex, 2007; Lloria, 2008; Minbaeva, 2007; Nonaka & Konno, 2005; Nonaka, 1991; North, 2010; Probst, Raub, & Romhardt, 1999; Probst & Romhardt, 1997; Pustelnikovaite & Chillas, 2016; Riis et al., 2010; Schlegelmilch & Chini, 2003; Szulanski, 1996). Although being subject to this many fields of research, a clear definition of knowledge is not available (Aidemark, 2009; Pustelnikovaite & Chillas, 2016). Missing a clear theoretical basis, research in the field is not advancing as quickly as it could (Aidemark, 2009). So, what is knowledge? Or at least: what is knowledge for this research?

First, knowledge can be distinguished as coded and non-coded. Coded knowledge is available as e.g. manuals, reports, data bases, etc. It is available in a highly structured way and thus can easily be transferred to receivers (Gupta & Govindarajan, 2000a). Gupta & Govindarajan (2000b) refer to coded knowledge also as operational information. Due to the given characteristics, coded knowledge concurs with the definition of information of this thesis and for this is not considered to define knowledge. Non-coded knowledge is difficult to transfer (Hansen, 1999; Teece, 1976; Zander & Kogut, 1995) and resides with the individual (Williams, 2007). Hence, it can be seen as everything that someone knows (Axelson, 2005). This notion is too broad to give a clear understanding and leaves many aspects unsolved. It raises the question about what can be known by someone and how this knowledge can be obtained.

In order to get closer to answering these questions it is necessary to dig a level deeper. Non-codified knowledge can be divided into tacit and explicit knowledge (Aidemark, 2009; Gummesson, 2017; Gupta & Govindarajan, 2000a, 2000b, 2000c; Minbaeva, 2007; Nonaka, 1991; Polanyi, 2009; Riis et al., 2010). In the beginning of his book Polanyi states: “I shall reconsider human knowledge by starting from the fact that *we can know more than we can tell.*” (2009, p. 4) This is easily understood. Although, in the very next sentence Polanyi relativizes that this sounds obvious “…, but it is not easy to say exactly what it means.” (2009, p. 4) And this is true, because in both cases the knowledge stays with the individual (Aidemark, 2009; Polanyi, 2009; Riis et al., 2010; Williams, 2007).

Explicit knowledge is knowledge that an individual is aware that he or she has. Tacit knowledge he or she is not aware of, but has it (Gummesson, 2017; Polanyi, 2009). For example, someone plays the piano. Reading the notes, chords, tempi, dynamics, etc. belongs to explicit knowledge. The player learned how to read what is written on the piece of paper and is aware of it. The tacit part is how to move his / her fingers. A musician does not

actively think about which muscle to activate in order to lower a finger. Nonetheless, the brain triggers the impulses necessary to perform the task when required. Polanyi initially published his work in 1966. Chronologically, this source could be seen as outdated, specifically compared to the sheer number of recent researches accomplished in the field of knowledge management. However, it is necessary to review the very basics that triggered an excess amount of research to clearly understand the concept behind the basic terms used. Previously, it was argued that explicit knowledge is mistakenly seen as a synonym for information, but this never was Polanyi's argument .

Lastly, non-coded knowledge can be further specified as (Blackler, 1995):

- embrained knowledge
  depends on conceptual skills and cognitive abilities (Blackler, 1995; Williams & Baláž, 2008) of an individual. These persons are able to abstract topics and discuss those on a higher meta level. Abstract knowledge is recognized in Western culture as a higher status knowledge. The importance of this topic has been emphasized by different researchers in the field of organizational learning (Blackler, 1995). It can be assumed that persons having these skills are not aware of them. Therefore, it is highly likely that most of the conceptual skills and cognitive abilities are of purely tacit nature.
- embodied knowledge
  had been studied by different researchers in the 1980s (Scribner, 1986; Suchman, 1987; Zuboff, 1988). It depends on the physical presence of people, by their interaction, is acquired by doing, is rooted in specific contexts, is of practical relevance, and spontaneous interpretation of e.g. machines (Blackler, 1995; Williams & Baláž, 2008). Embodied knowledge can be learned mainly through observation of e.g. a master craftsman (Williams & Baláž, 2008). Due to being possibly physically communicated, embodied knowledge was seen as partially explicit (Blackler, 1995). However, it is likely that the researcher did not clearly distinguish between Polanyi's' definition of tacit and explicit knowledge, as discussed above. Nonetheless, the author could be also right, because masters are usually to some extent aware of what they are doing and why they are doing it. Therefore, the statement of Blackler (1995), that embodied knowledge is seen as partially explicit cannot be proven correct or incorrect in this argument.
- encultured knowledge
  is a process of achieving shared understanding within a group (Blackler, 1995; Williams & Baláž, 2008). To achieve this shared understanding it is necessary to create new values if the group meets the first time, or to learn values of

existing groups when entering (Williams & Baláž, 2008). Blackler argues that this process is "… likely to depend heavily on language, and hence be socially constructed and open to negotiation." (1995, p. 1024) Shared understandings may change over time (Blackler, 1995) within a group. New persons entering the group might bring in new perspectives and shift the shared understanding of current values. On the other hand, people leaving the group might also shift the shared understanding. It becomes clear that persons who interact with each other socially construct encultured knowledge. Probably, these persons are not aware of this knowledge, that is why it is highly likely that this knowledge is completely tacit. Every group member understands and respects the shared understanding; however, they are not necessarily aware why they have this shared understanding.

- embedded knowledge
  is integrated in systemic routines and systematically analysable. Relationships and material resources are the core items investigated when dealing with embedded knowledge (Blackler, 1995). These systematic routines are, as Williams & Baláž (2008) argue, occurring in a specific context.
- encoded knowledge
  to the understanding of this research Blackler (1995) is right to label encoded knowledge as information and vice versa. However, he does not investigate the definition of the term information deep enough, as will be contrasted later on in this subsection. Hence, encoded knowledge will not be discussed here further.

From this theoretical basis, the tacit, explicit dimension of non-codified knowledge by Polanyi (2009) can be integrated with the four non-coded dimensions suggested by Blackler (1995) to come up with Table 5. Encoded knowledge is not considered, because the definition of knowledge in this research considers both tacit and explicit knowledge as non-codified knowledge. Codified knowledge is per definition of this work information, which is not the focus of this subsection.

From the discussion above the following definition for knowledge can be derived: Knowledge is everything that an individual knows tacitly or explicitly, which is embrained, embodied, encultured, and embedded in the individual and which is created by the individual. This definition, structurally visualized in Figure 6, offers a firm understanding of what knowledge is seen to be for this research. It considers many different aspects and integrates them into one single concept.

Table 5 Integrating Polanyi's and Blackler's dimensions of non-codified knowledge.

embrained	embodied	encultured	embedded
		tacit	
putting together the bigger picture from details without any prior knowledge	movements of the body that do not require the person to think about them	behaviour of a group in a certain context without having a certain guide or rule book	daily systematic routines that are performed on a regular basis and work only in a specific context
example: recognition of people due to their facial features	example: muscle movement of how to lift your left index finger	example: it is a shared understand-ding in a volleyball team to win a match	example: getting up and getting ready for work

Table 5 continued

		explicit	
using certain search patterns to identify underlying structures	learned movements that are taught	a certain formal procedure that is followed and is in this order accepted by the group	systematic routines that underlie certain rules
example: recognising certain writing style patterns in poetry to identify the intended rhyme scheme	example: how to hit a nail with a hammer to hammer it into a wall	example: the rules of playing volleyball or soccer	example: process of exporting an item to another country using a specific carrier

Similar to knowledge, information is of manifold nature (Floridi, 2010). "The father of information theory, Claude Shannon (1916-2001) … was very cautious: '… *It is hardly to be expected that a single concept of information would satisfactorily account for the numerous possible applications of its general field.'* (italics added)" (Floridi, 2010, p. 1) The General Definition of Information (GDI) defines information as:

"GDI) σ is an instance of information, understood as semantic content, if and only if:

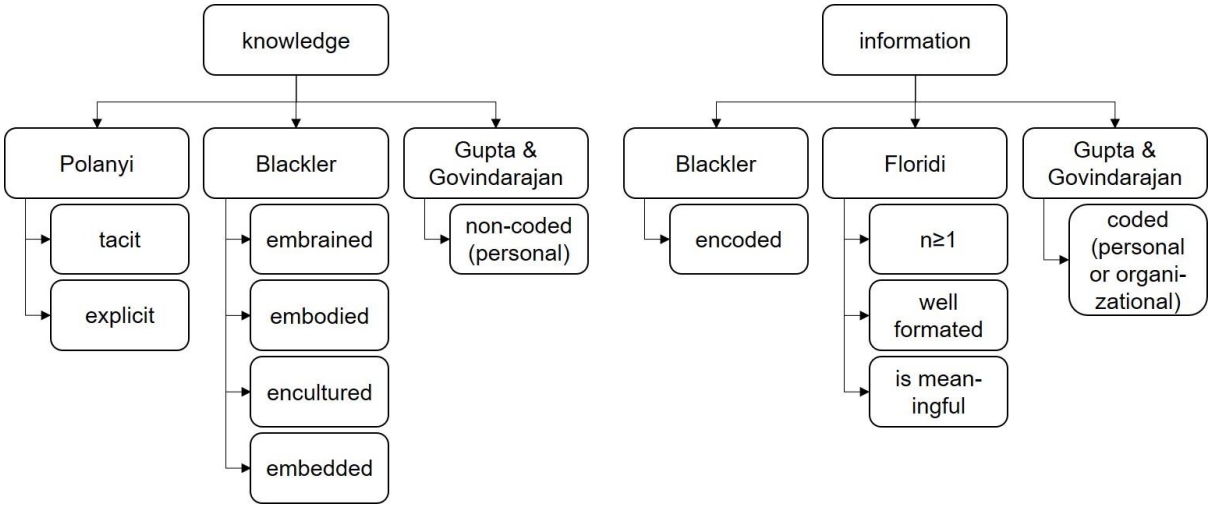
GDI.1) σ consists of *n data*, for $n \geq 1$;

GDI.2) the data are *well formed*;

GDI.3) the well-formed data are *meaningful*." (Floridi, 2010, p. 21)

According to GDI.1 information consists of data. Research for instance uses different types of data: primary or secondary data (Arbnor & Bjerke, 2008; Bryman & Bell, 2015; Saunders, Lewis, & Thornhill, 2016). Well-formed data, as stated in GDI.2, has to be understood as a syntax of a chosen system. This means that the data does not have to be formed to the understanding of everyone, but to the understanding of the designated receiver. GDI.3 needs data to be meaningful. This is again to be understood in the broader sense of being understood by the intended receiver (Floridi, 2010).

Figure 6 Dimensions of knowledge and information.



Information is not necessarily written on a piece of paper or entered into a data base, it could just be a hand movement (Nonaka, 1991). The hand movement may be tacitly or explicitly known by the person performing it. By performing it, it becomes accessible to the outside world. It becomes data. Data that is well-formed and meaningful to the system becomes information (Floridi, 2010). This definition builds the basis for how the word information is to be understood through-out the subsequent argumentation and is pictured in Figure 6.

3.4.2. The 'Integrated Knowledge Creation Transfer' (IKCT) model in context.

3.4.2.1. 'Knowledge Transfer Process' (KTP) and context.

Firstly, the goals of knowledge transfer are to increase profits (Sjöholm, 1996), to be aligned with organizational strategy (Hansen, Nohria, & Tierney, 1999; Schlegelmilch & Chini, 2003) and "… [to] be able to transfer knowledge within organizational networks characterized by separation through time, space, culture and language." (Schlegelmilch & Chini, 2003, p. 215). Through the transfer of knowledge, e.g. in the form of best practices, an organization aims to increase their operational process effectiveness and efficiency. Ultimately, this could lead to increases in profits.

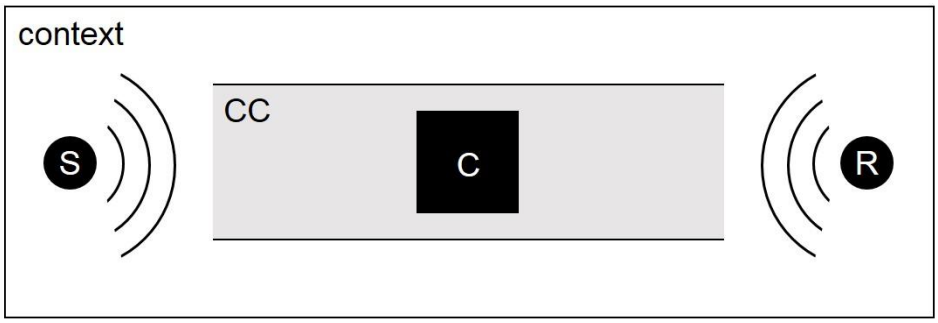
Although sometimes this basic idea is not visibly in the forefront it still remains the main goal. When considering an Internal Technology Day organized by the Research & Development R&D department, where invited employees are informed about the current developments and achievements. There is no clear direct benefit in this action. However, the invited international persons are e.g. linked to the customer. They take the information, match it with their customer knowledge and may come up with new ways of how to argue with potential clients and to sell additional products and/or services to their customer base. With new contracts, profit usually rises. Assuming that the strategic goal of the organization is to introduce newly developed products and/or services into the market over the next years. One action is to update sales employees with the latest R&D activities. Only with this information, combined with their market and customer knowledge, a sales employee could introduce the newly developed products and/or services into the market.

As a second goal Gupta & Govindarajan (1991b) identified that knowledge transfer is about transferring expertise knowledge of global relevance and not administrative information, e.g. daily, weekly, or monthly financial reports. This relates to the knowledge definition of this thesis. However, it is questionable as to who should define what knowledge is of global relevance. Knowledge that might be of global relevance for person A might not be of global relevance for person B. For this it could be concluded that the second goal of knowledge transfer identified by Gupta & Govindarajan (1991b) can be understood as logically true, however no scientific proof has been provided. Furthermore, no clear definition of globally-relevant knowledge has been given. The provided examples rather hint about what, in their opinion, would be considered not globally relevant. To clarify this topic a discussion on the characteristics of the knowledge to be transferred is given within the subsection "Specifics about content.", starting on page 49.

Thirdly and lastly, it is the goal of each KTP to provide a higher knowledge level on the receiver's side than there was before. This leads to the assumption that knowledge transfers' basic intent is to create knowledge on the receiver's side. A detailed discussion on the

similarities of knowledge transfer and knowledge creation can be found in the following two subsubsections.

Figure 7 Knowledge transfer basics with overarching context.

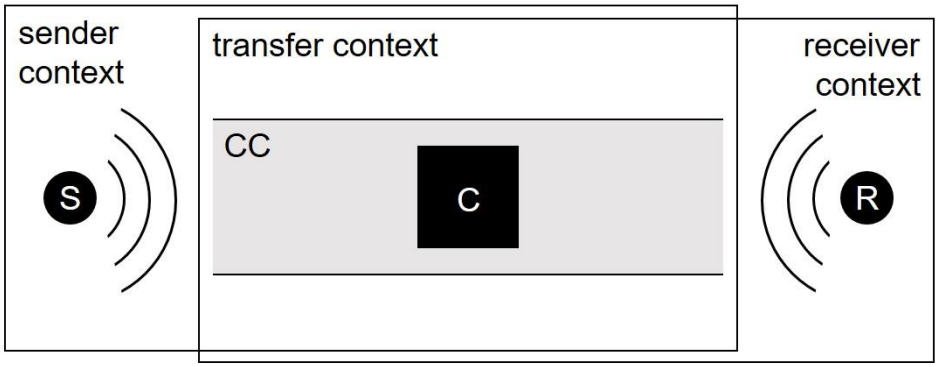


Note: S = sender, CC = communication channel, C = content, R = receiver.
Source: Adapted from "Knowledge transfer in multinational corporations" by Minbaeva, 2007, p. 569. Copyright 2007 by the Gabler Verlag.

In relevant literature, it is widely accepted that the basic elements of a KTP are: sender, receiver, content, and communication channel, as displayed in Figure 7 and Figure 8 (Axelson, 2005; Gupta & Govindarajan, 2000b; Minbaeva, 2007; Sjöholm, 1996). The sender is the knowledge holder who provides the knowledge in the process. The receiver is the intended target who receives the knowledge. Content stands as a synonym for the knowledge that is intended to be transferred. Lastly, the communication channel that is used to transfer the knowledge from the sender to the receiver is required, e.g. face-to-face meetings, video conferences, manuals, work-instructions, etc. However, although all the components are provided by an organization knowledge transfer does not necessarily occur. This means that another factor has an impact on the KTP.

Szulanski (1996, 2000) raises a valid point to also include the context into the definition of knowledge transfer (e.g. Minbaeva, 2007). From the Minbaeva and Szulanski arguments it can be concluded that context is considered to be overarching the whole KTP, as displayed in Figure 7. However, based on the definition of context for this research, context is constructed by its participants in a certain place at a certain time. It could be noted that each participant adds to the prevailing context its individual context. This perception could lead to the argument that not an overarching context, but rather an individual context approach has to be considered for the KTP. Therefore, it could be concluded that the sender and the receiver come from their individual contexts and create a unique new context during the KTP as an intersection, as pictured in Figure 8.

Figure 8 KTP considering sender and receiver contexts.



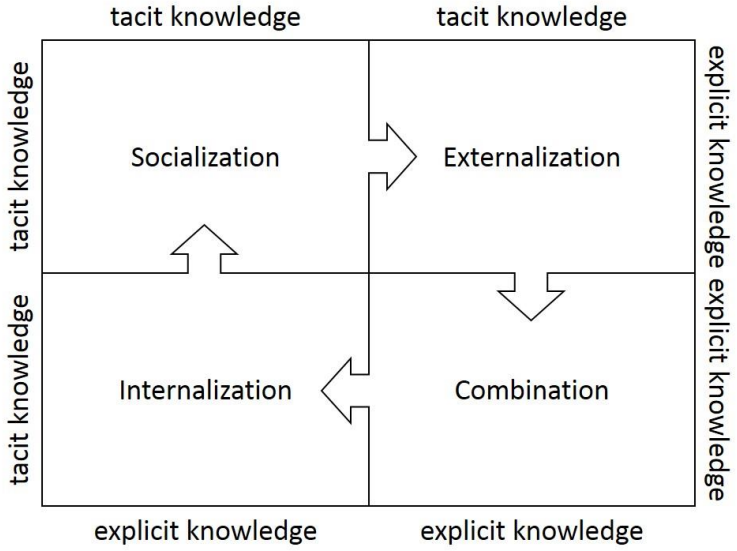
Note: S = sender, CC = communication channel, C = content, R = receiver.
Source: Adapted from "Knowledge transfer in multinational corporations" by Minbaeva, 2007, p. 569. Copyright 2007 by the Gabler Verlag.

The sender and receiver could, during that process, be influenced by their values, beliefs, education, etc. Depending on these factors they are either willing or not willing to engage in a KTP. Hence, it could be argued that the local context factors have a direct influence on the KTP as they have an influence on the sender and on the receiver. This has to be appropriately addressed and managed prior, during and after the performance of the KTP. If this cannot be achieved neither will the goals of a KTP.

3.4.2.2. Criticism of the knowledge creation cycle.

T. D. Wilson (2002) reflects unilaterally in his paper "The nonsense of 'knowledge management'" that knowledge management is only a fad or fashion comparable to downsizing, zero-based budgeting, or the matrix organization. He demonstrates that many published works actually deal with information management, but are titled as knowledge management. Through outlining knowledge as "… the mental processes of comprehension, understanding and learning…" (T. D. Wilson, 2002, p. 3), he wants to show that it is not possible to manage knowledge, because it involves the necessity to interact with the world outside to create knowledge. This interaction is, as T. D. Wilson (2002) correctly argues, an interchange of information, but not of knowledge. By stopping his argumentation on this step, he however misses to identify that it is information, which triggers knowledge creation and enables knowledge transfer (Islam, Jasimuddin, & Hasan, 2017).

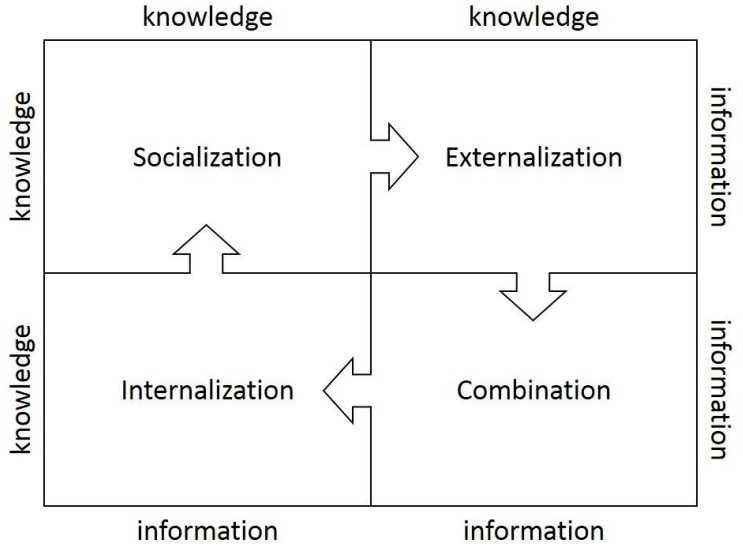
Figure 9 The SECI model by Nonaka & Takeuchi.



Source: Adapted from "The knowledge-creating company: How Japanese companies create the dynamics of innovation" by Nonaka & Takeuchi, 1995, p. 62. Copyright 1995 by the Oxford University Press, Inc.

The concept of knowledge creation was researched and developed by Nonaka (1991) and further researched and developed by Nonaka & Takeuchi (1995). Their research concluded in the 'Socialization', 'Externalization', 'Combination', and 'Internalization' model (SECI model), as displayed in Figure 9. In his work Nonaka describes explicit knowledge as something: "… formal and systematic … [that can] be easily communicated and shared …" (Nonaka, 1991, p. 96). Polanyi (2009) however, does not talk about explicit knowledge in the sense of information. Rather that someone is aware that he or she owns certain knowledge. In the version developed by Nonaka (1991) and further developed by Nonaka & Takeuchi (1995), knowledge could be seen as labelled as tacit knowledge and information could be seen as labelled as explicit knowledge, which is not in line with the definition of knowledge and information of this research. For this reason, the SECI model was adjusted to fit the definitions of this thesis as displayed in Figure 10. Adjusting the basic understanding of the framework conditions leads necessarily to the reflection of the four quadrants: *knowledge to knowledge* ('Socialization'), *knowledge to information* ('Externalization'), *information to information* ('Combination'), and *information to knowledge* ('Internalization').

Figure 10 Knowledge and information are cyclic interdependent.



Source: Adapted from "The knowledge-creating company: How Japanese companies create the dynamics of innovation" by Nonaka & Takeuchi, 1995, p. 62.

As soon as knowledge is communicated in any way, information is created (T. D. Wilson, 2002). It could be followed that in order to create knowledge, information has to be involved. Reviewing the four quadrants, this is only true for Externalization and Internalization. Concerning Combination, it could be argued that different sources of information, e.g. two different papers on the same subject could be read by a person. By this, both sources of information would resemble in a combined input. Both sources of information would be internalized, which would lead to the creation of new knowledge. Due to losses in communication the *original knowledge*, held and externalized by the sender, is not necessarily the *internalized knowledge* (Forza & Salvador, 2001; Sjöholm, 1996). Short communication channels and direct contact between the sender and receiver support that externalized knowledge equals internalized knowledge as much as possible (Forza & Salvador, 2001; Sjöholm, 1996) and context is appropriately considered (Johns, 2006, 2017). Hence, the appropriate context factors have to be known, which this thesis attempts to explore.

However, the direct creation of knowledge by knowledge is not possible according to Wilson's (2002) understanding. As knowledge can only be shared through expressing it, which to the understanding of this paper involves information (Fjällström et al., 2009). (See the definition of knowledge on page 26 and of information on page 28.) The direct exchange of knowledge could only be possible through telepathy (Barušs & Mossbridge, 2017). There is, however, an argument about whether or not telepathy exists (Dossey, 2000). A search through available academic literature showed that no clear and resilient evidence for telepathy exists. Based on this it could be argued that the quadrant 'Socialization' has to be

neglected in the adjusted model based on the SECI model by Nonaka & Takeuchi (1995). However, 'Socialization' should not be left aside completely. 'Socialization' could be considered as a possible context factor influencing the KTP. As a result, the 'Externalization', 'Combination', and 'Internalization' model (ECI model), as displayed in Figure 11, emerged.

Figure 11 The ECI model.

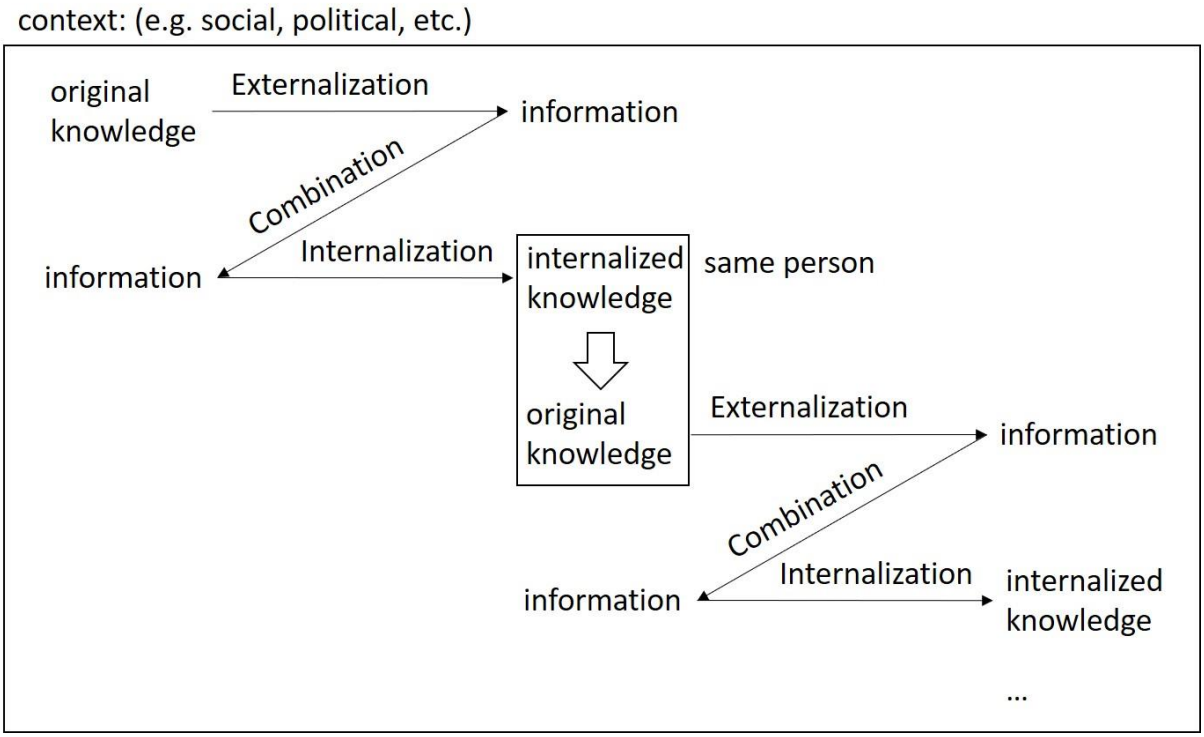


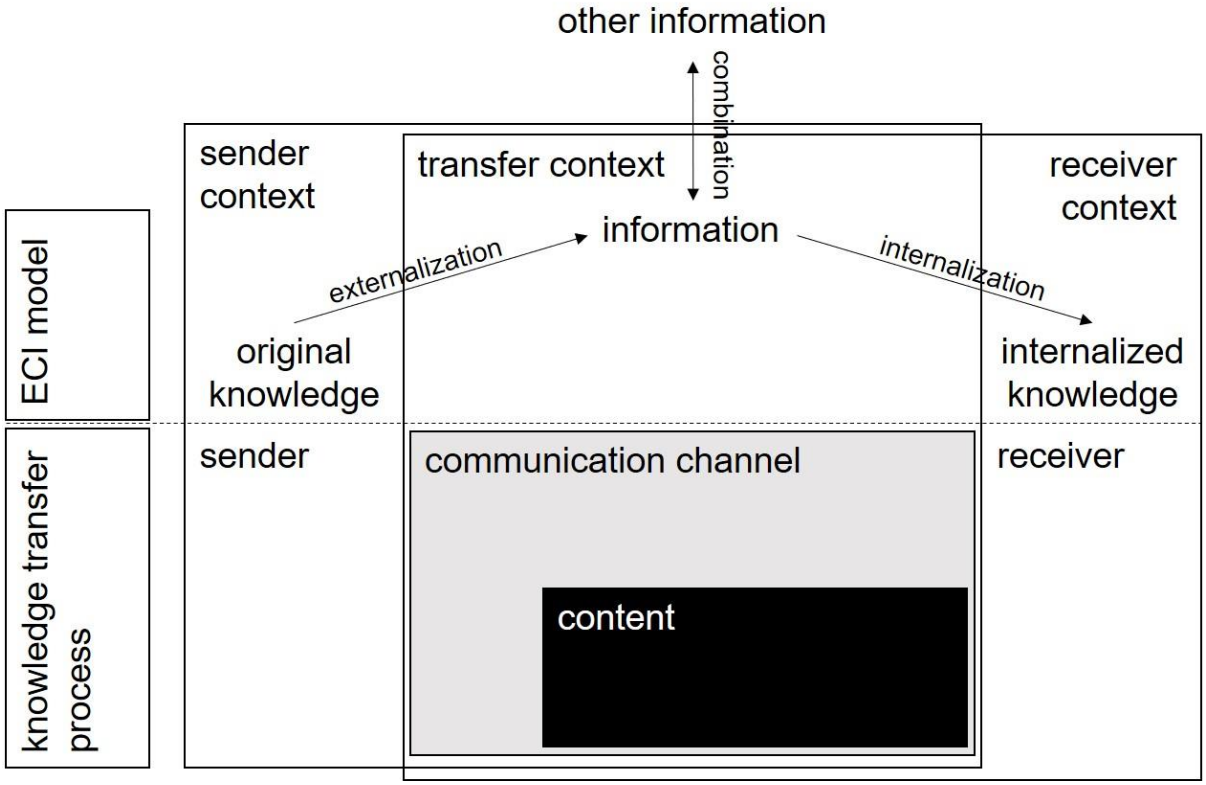
Figure 11 shows that in order to create new knowledge it is necessary to externalize the original knowledge into information. This information can then be internalized by the receiver. This knowledge could then be externalized again and be internalized by a different person. It is important to understand that knowledge creation only works by internalizing information. On the other side, information can only be created through knowledge externalization. Hence, it could be argued that in business research with the focus on knowledge transfer and creation always both, knowledge and information have to be considered.

3.4.2.3. Developing the IKCT model.

Having come this far, there is however only little new input to the state-of-the-art of current research. The two prior subsubsections discussed the knowledge transfer and knowledge creation process. It was identified that both processes have the goal to create new knowledge at the receiver side. Hence, it could be interesting to integrate both concepts

in a single model. This could lead to a completely new understanding of the KTP, which could bring additional and better results from this and future research projects.

Figure 12 The ‘Integrated Knowledge Creation Transfer’ (IKCT) model.



Note: ECI = ‘Externalization’, ‘Combination’, and ‘Internalization’.
Source: Lower part based on “Knowledge transfer in multinational corporations” by Minbaeva, 2007, p. 569. Copyright 2007 by the Gabler Verlag.

The KTP gives a processual view of knowledge creation. The ECI model offers a conceptual understanding of knowledge creation. Integrating both, as shown in Figure 12, offers a comprehensive understanding of process and its associated conceptual stages. Figure 12 also considers, as defined before in this thesis that knowledge can only be shared between individuals. As soon as knowledge is externalized it is considered to be information. With the combination of other information, the receiver internalizes the provided information. Through this, the receiver finally creates new knowledge for him or her individually. The context finally provides the framework under which the knowledge transfer takes place. The integration offers the researcher a completely new understanding of the requirements and characteristics to be considered for the KTP. For this research the model shown in Figure 12 builds the underlying conceptual understanding of the KTP and the influence of context on it.

3.5. Theory and Characteristics of the 'International Knowledge Transfer' (IKT)

3.5.1. The sender as knowledge provider.

Research on education has a longstanding history focusing on different aspects of the process of teaching (Westwood, 2008). As one process part of the KTP includes providing knowledge to another person that is commonly understood as teaching, findings of this research field could bring value to this discussion. Hence, the first part of this subsection focuses on state-of-the-art teaching theory and concepts adjacent to this thesis. Furthermore, the sender possesses certain knowledge, which offers a unique selling proposition (Szulanski & Jensen, 2004; Szulanski, 1996, 2000). Due to this it could be argued that only under certain circumstances would the sender encounter a KTP. To enter a KTP the sender on the one hand needs to be able and on the other willing. The following argument focuses on the determinants of ability and willingness of the sender to enter a knowledge transfer, as displayed in Figure 13.

Compared to learning theory, teaching theory has rather limited theoretical suggestions (Matthews & Callaway, 2015; Vries, Grift, & Jansen, 2013; Westwood, 2008). However, it should be considered that teaching theory is strongly based on learning theory and derives its directives and objectives mainly from it (Westwood, 2008; S. M. Wilson & Peterson, 2006). Nonetheless, there are certain specific conceptualizations available for the understanding and approach of teaching, e.g. constructivism, active learning (requires active teaching), direct teaching, direct instruction, interactive whole-class teaching (Westwood, 2008). Although a long standing history of research in the field of teaching is at hand, S. M. Wilson & Peterson state that: "A teacher may valiantly try to teach … but whether the student learns something depends on many factors within and outside the teacher's control …" (2006, p. 9). S. M. Wilson & Peterson (2006) understand the concept of teaching as a complex situation, where internal as well as external factors have to be considered. Internal factors are referred to as personal characteristics of the teacher. Certain characteristics have been identified by research in the field of knowledge management, which is discussed in the subsequent part of this subsection.

Besides personal characteristics, external factors are mentioned to have an influence on the teaching process. Although external factors are identified to have an influence on the teaching process no interrogation concerning specific factors and their influence on the teaching process have so far been found in available teaching literature. The lack of exploration of these factors and their influence could hardly be linked to the predominant research philosophies in teaching research (Ary, Jacobs, Irvine, & Walker, 2018; Chaudron, 1988; Gage, 1989).

Although research approaches have changed over time towards qualitative and explorative research methodologies (Cahnmann-Taylor & Siegesmund, 2017; Erickson,

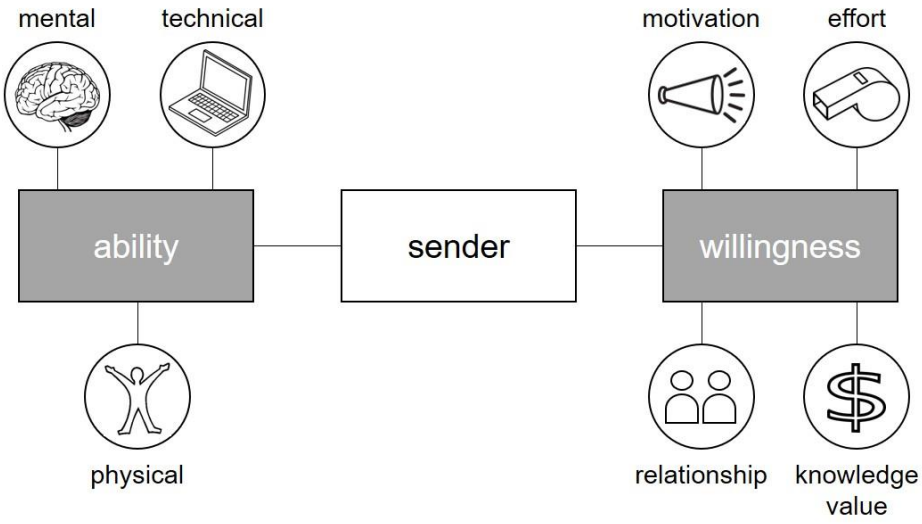
1985; Kozleski, 2017; Moll, Amanti, Neff, & Gonzalez, 1992; Scruggs, Mastropieri, & McDuffie, 2007) no research on contextual factors that influence the IKT process has been found. One reason for not focusing on the exploration of the influencing context factors could be that context is an ubique topic, as displayed in the section “Context”, starting on page 18. Another could be that the field of teaching is currently changing due to the increased influences of technology, which might lead to a higher interest in integrating new technologies in the daily teaching process (Al-Eidan, 2017; Banerjee & Waxman, 2017; Elstad & Christophersen, 2017; McQuirter Scott & Meeussen, 2017; Player-Koro & Tallvid, 2017). However, changing technology could be considered a change in context factors, which should raise the interest to explore the influence of context factors on the teaching process. (See the discussion on learning concepts in the subsection “The receiver as knowledge gainer.”.) As this has not yet happened, this research could build a basis for the explorative inquiry of context factors that have an influence on the teaching process and by this also on the sender’s part of the KTP.

To make a knowledge transfer happen the sender first needs to have the ability to share knowledge (Hansen, 1999; Minbaeva, 2007; Szulanski & Jensen, 2004; Szulanski, 1996, 2000). Ability here means physically, mentally, and technically, as displayed in Figure 13. Physically refers to, for example, being able to speak or perform certain actions. For example, a master might have gained extensive knowledge or experience as a craftsman. Due to a sudden physical incident the master turns deaf. This hinders the master to passing on knowledge orally. However, the master might still be capable of performing their job. This leaves the master the chance to transfer knowledge by being observed by the apprentice. Although missing explanations probably increases the time that is required to transfer the masters’ knowledge to the apprentice. Nevertheless, a chance for a KTP is still given.

However, this depends on the learning preferences of the receiver. Depending on their preferences people learn easier by seeing, hearing, listening, reading, experiencing or by using them in combination (Gilakjani, Ismail, & Ahmadi, 2011; Jewitt, Kress, Ogborn, & Tsatsarelis, 2001; Kress, 2001; Lujan & DiCarlo, 2006). Lujan & DiCarlo (2006) showed that 64% of their participants liked to use multiple senses to learn. The study was done on first-year medical students and for this cannot be considered as representative for other branches, e.g. manufacturing. There was, however, no study found addressing a multimodal approach to learning for manufacturing settings. Hence, the findings and argumentation of the literature found all indicated that a multimodal approach increases the ability to learn (Gilakjani et al., 2011; Jewitt et al., 2001; Kress, 2001; Lujan & DiCarlo, 2006). Additionally, learning theory names repetition as another factor that increases the chances for a positive learning process (Gilakjani et al., 2011). These factors have to be accounted for by the

teacher, when planning for a KTP. (Find more details on learning concepts in the subsection “The receiver as knowledge gainer.”.)

Figure 13 Sender characteristics in the KTP.



However, issues in e.g. formulating whole sentences and/or making sense of what he or she is saying could establish hindrances for a KTP. Being, for example, a language expert for an ancient language requires physical and mental health to transfer knowledge. Without being able to articulate correctly and in a sense making way, a KTP could be non-executable. If the knowledge, however, is stored as information by any means, the chance for the apprentice to acquire the master’s knowledge could still be possible. In today’s globalized world it is further necessary to be technically able to use state-of-the-art information management systems. Being technically capable in this sense means using existing information technology tools to externalize his or her knowledge into information; store, transform, and transfer it (Floridi, 2010; Shannon, 2001) so that another person can internalize it and complete the knowledge transfer. As will be seen in the following subsection the above discussed technical process of information exchange is only one variable to the complex algorithm of communication (Craig, 1999; Dainton & Zelley, 2005).

Although ability is a basic condition that needs to be given, the willingness of the sender to share his or her knowledge is of a more complex nature, which must be considered as well (Hansen, 1999; Schlegelmilch & Chini, 2003). Willingness has been researched in terms of value of the knowledge held (Gupta & Govindarajan, 2000b; Minbaeva, 2007; Szulanski, 1996), motivation to share knowledge (Szulanski, 1996), effort to transfer (Hansen, 1999), and relationship to the receiver (Gupta & Govindarajan, 2000b; Schlegelmilch & Chini, 2003; Szulanski, 1996, 2000). Depending on the characteristics of

these determinants, the sender may be willing to enter into a KTP. See Figure 14 for the characteristic's evaluation continuum.

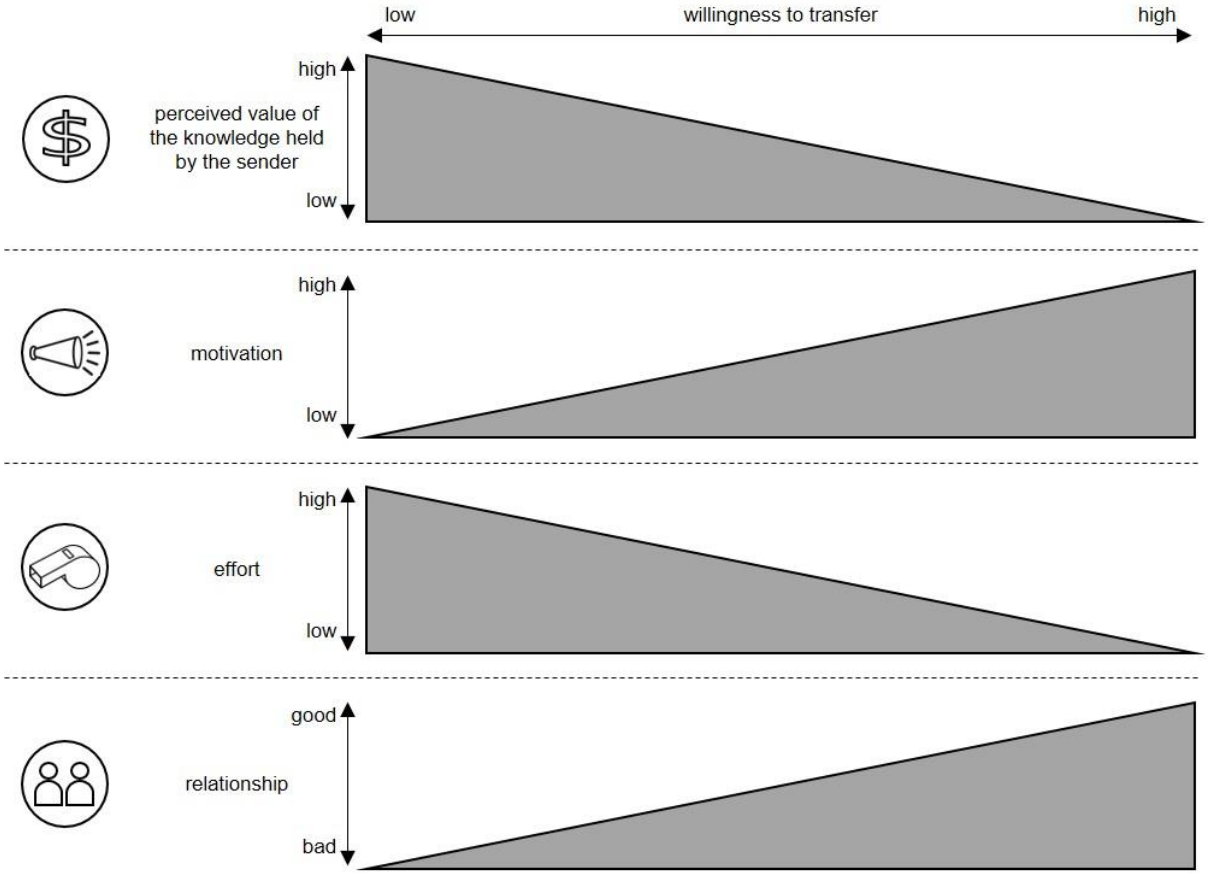
According to Gupta & Govindarajan (2000b), the value of the sender's knowledge depends on its non-duplicability and on the level of relevance for the receiver. Although their research focuses on the organizational level, these findings could be argued as valid for the nodal view as well. It could be argued that the value of an individual's knowledge increases the less it is duplicable. This follows that only the individual possessing the knowledge can function as a sender. Another person could not replace him or her, because the specific knowledge is missing. However, this does not say anything about the sender's teaching ability as discussed in the beginning of this subsection.

Furthermore, the less knowledge could be imitated or acquired by another person the more valuable it becomes. In order to keep this unique selling proposition, the sender would not necessarily enter a KTP without a certain level of incentives. Hence, as displayed in Figure 14, a high value of knowledge could be followed by a low willingness to transfer without adding motivational incentives. In the reverse conclusion this would mean that the willingness to transfer less valuable knowledge would be high. However, in this case the provided knowledge could not be of relevance or value for the receiver. Although the sender would be highly willing to transfer the low value knowledge, the receiver might not be interested in it and for this would not enter a KTP. For further discussion on the characteristics of the receiver, please read the subsection "The receiver as knowledge gainer.", on page 55. Hence, the value of the knowledge possessed by an individual does not solely depend on its non-duplicability, but also on the level of relevance for the individual receiving the knowledge. (Gupta & Govindarajan, 2000b)

In order to encourage a person to transfer their valuable knowledge, a certain motivation is necessary (Szulanski, 1996). There are numerous theories and research approaches available concerning motivation. Content theories (Hierarchy of Needs (Maslow, 1943), Two-Factor Theory of Motivation (Herzberg, Mausner, & Snyderman, 2011; Herzberg, 1966, 2005)), incentives theory through intrinsic and extrinsic motivation (Deci, Koestner, & Ryan, 1999; Mayo, 1930; Ryan & Deci, 2000a, 2000b), behaviourist theories (Berridge, 2004; Gormezano, Prokasy, & Thompson, 2014), socio-cultural theories (Hopp & Stephan, 2012; Rueda & Moll, 1994), to name some. It is not the goal of this part of the subsection to discuss motivational factors and their influence on the willingness to enter into a KTP in detail. However, it should be considered that the higher the motivational factors for the sender, the higher the willingness to provide his or her knowledge to the receiver (Szulanski, 1996). Motivational factors have to suit the participant's context (Mayo, 1930) to have them enter a KTP (Szulanski & Jensen, 2004; Szulanski, 1996). As argued in the paragraph before, the higher the value of the sender's knowledge, the less willing the sender is to

transfer his or her knowledge. However, with the right motivation, it could be argued that he or she might though be willing to enter into a KTP (Szulanski, 1996). In addition, all other factors following have to be considered interdependently.

Figure 14 Sender's willingness evaluation continuum.

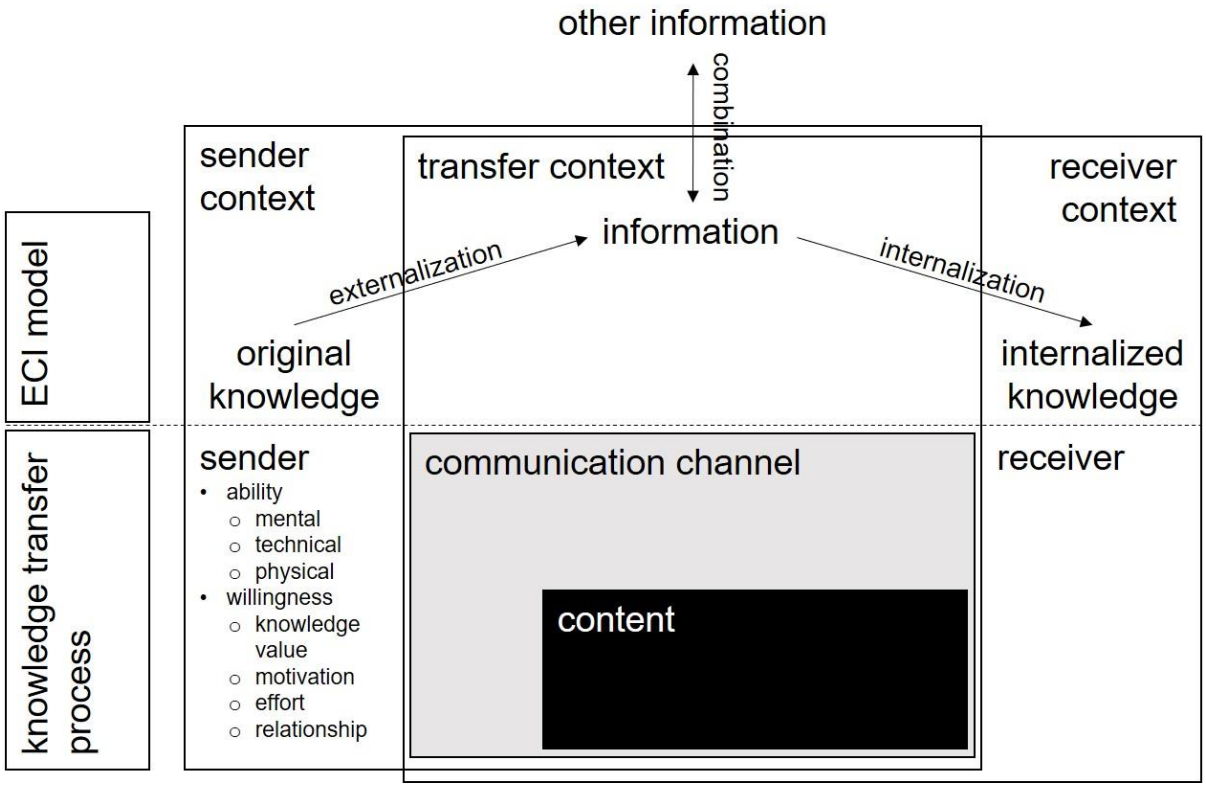


Although the willingness to transfer might be high due to a high motivation, the effort associated with the knowledge transfer for the sender could have a negative effect on the willingness to transfer knowledge (Hansen, 1999; Minbaeva, 2007). Effort in this case is related to time and cost. The higher the associated costs and time necessary to transfer knowledge, the less willing the sender would be (Hansen, 1999). However, proposing the right level of motivation, e.g. taking care of transport and accommodation costs and preparing the receiver appropriately so that knowledge transfer does not take longer than necessary could reduce the negative effect on the willingness (Szulanski, 1996).

Lastly, the personal relationship of the sender and the receiver has an influence on the willingness of the sender to perform a KTP (Gupta & Govindarajan, 2000b; Schlegelmilch & Chini, 2003; Szulanski et al., 2004; Szulanski, 1996, 2000). According to Gupta & Govindarajan (2000b) people that are more alike in their attributes, e.g. shared beliefs and values, education and social status, the better they communicate with each other. Hence,

they have a better relationship, which leads to a higher willingness to transfer knowledge (Javidan et al., 2005). However, the strength of the relationship is no guarantee for an efficient knowledge transfer (Hansen, 1999). His study shows that a positive effect resides with the transfer of complex knowledge if a strong tie exists between sender and receiver.

Figure 15 Sender characteristics added to the IKTC model.



Note: ECI = 'Externalization', 'Combination', and 'Internalization'.
Source: Lower part based on "Knowledge transfer in multinational corporations" by Minbaeva, 2007, p. 569. Copyright 2007 by the Gabler Verlag.

On the other hand, a weak tie situation increases the effect of non-complex knowledge sharing positively (Hansen, 1999). The findings of Hansen (1999) are, however, limited to the research of a single organization. Regularly informal communication between different groups of people were reported. This leaves a lot of room for additional communication, e.g. personal communication, that was not considered in the research (Hansen, 1999). Hence, the weak-strong-tie vs. 'complexity' of knowledge model has to be handled with care and further research would be necessary to include all communication channels to strengthen his findings. Effort and value of knowledge could still have a negative influence on the transfer willingness of the sender despite a good relationship. In this case, as said before, appropriate motivational actions could positively influence the sender's willingness to transfer his or her knowledge.

Deriving from the beginning of the discussion it was argued that teaching theory strongly depends or is intertwined directly with learning theory. Teaching was identified as a complex situation, which is influenced by many external and internal factors. Furthermore, multimodality and repetition have to be further considered as important factors that influence the learning and thus the KTP. In detail it was argued that there are two sets of contradictory willingness characteristics that need to be considered when planning for a KTP from the sender side. This situation is pictured in Figure 14. Following from the argument, depending on the evaluation of value of knowledge, effort to transfer, and personal relationship between the sender and the receiver, the appropriate motivational factors need to be applied. Only through designing a willing environment for the sender, he or she might be willing to perform the KTP. The findings have been integrated into the IKTC model in Figure 15 to enhance the understanding of the relationship of each characteristic.

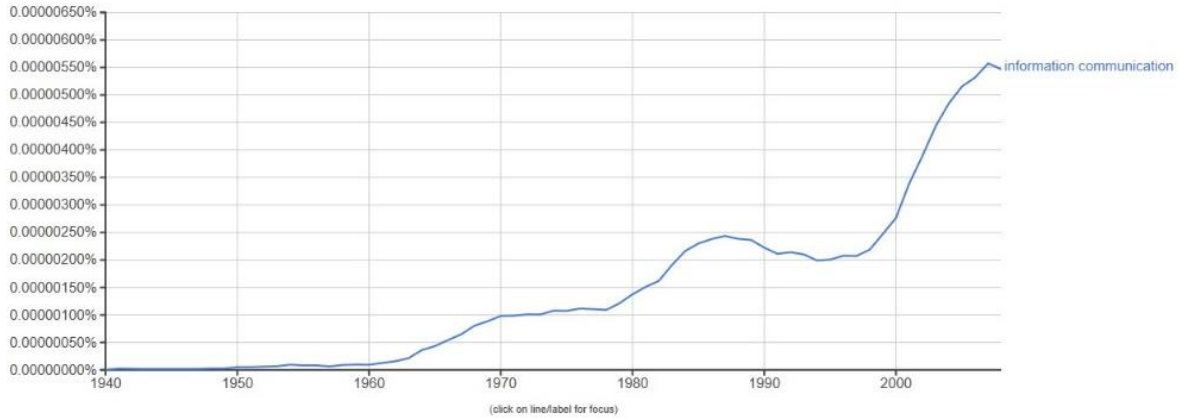
3.5.2. Communication as vehicle to transfer knowledge.

Daiton (2004) proclaims about communication: “We all do it, all of the time.” (p. 1). Communication research focuses on verbal and non-verbal communication (Beattie & Ellis, 2017; Coverdale-Jones, 2017; Miller, 1951; Scheflen, 1972; Weitz, 1974; Wood, 1976). Torn apart between different influences, communication theory has not yet found common ground (Craig 1999). This subsection does not want to try and find one. However, it attempts to identify theoretical considerations based on communication research that could be relevant to consider within an IKT process, as communication is required to pass information, which is part of the processual view of IKT. Research in the field of knowledge management found types of communication channels and participant characteristics, as displayed in Figure 17, as important to the KTP. Types of communication channels are not discussed in detailed, but are integrated to the same extent in the participant’s characteristics discussion, as extensive research has been made in different fields on their usage (Archetti, 2015; Baym, Zhang, & Lin, 2004; Crowley & Heyer, 2015; M. Hirst, Harrison, & Mazepa, 2014; Jensen, 2013; Rafaeli, 1988; Wolfson, 2014). The goal of this research is however to identify context factors that influence the IKT process, which considers types of communication channels in a broader sense, e.g. as direct communication or communication using digital supporting tools.

Concerning communication theory, different approaches, definitions, and theories are available (Craig, 1999; Dainton & Zelley, 2005; Hall, 2016; M. M. Kraidy, 2002; M. Kraidy, 2017; Shannon, 2001; Tannenbaum & Schmidt, 2009). Attempts to unify the field in one or at least only several overarching theories have been undertaken (Craig, 1999). However, the journal ‘Communication Theory’, which is the major journal in the field of communication research, currently states on their online presence to publish content from 33 different areas

of research within their paper (association, 2018). This shows that the field of communication theory still remains scattered. In the attempt to unify the field, Craig (1999) came up with 7 different traditions on communication theory: 1) rhetorical tradition as practical art of discourse, 2) semiotic tradition as intersubjective mediation by signs, 3) phenomenological tradition as experience of others, 4) cybernetic tradition as information processing, 5) sociopsychological tradition as expression, interaction, and influence, 6) sociocultural tradition as (re)production of social order, and 7) critical tradition as discursive reflection.

Figure 16 References of the term 'information communication' in scholarly publications.

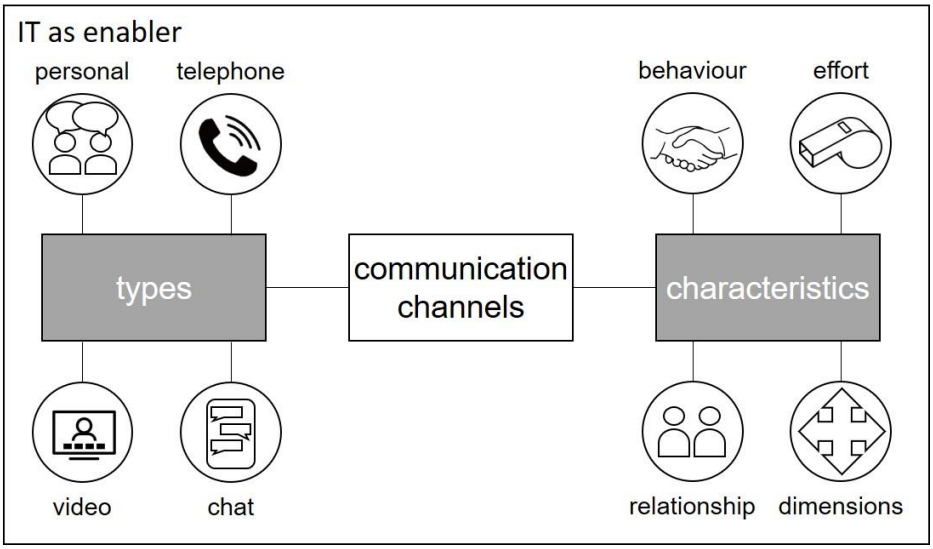


Source: Retrieved from "https://books.google.com/ngrams/graph?content=information+communication&year_start=1940&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2Cinformation%20communication%3B%2Cc0" by Google Books Ngram-Viewer, retrieved on 07.01.2018. Copyright 2013 by Google.

As could be derived from the different traditions, communication seems to be a surrounding phenomenon that on the one hand is influenced by context and on the other hand takes influence on context (Craig, 1999). Hence, the definition suggested by Dainton & Zelley (2005) that communication is not only a mere activity but "… the very means by which we produce our personal relationships and our professional experiences–it is *how* we plan, control, manage, persuade, understand, lead, love, and so on." (p. 2) could be seen as an attempt to come up with an overarching definition of communication. For the KTP this means that it is not only important to make the knowledge of the sender available, it is necessary to consider how it is made available (Craig, 1999; Dainton & Zelley, 2005). Although the definition of Dainton & Zelley (2005) seems to be a good attempt to integrate all traditions offered by Craig (1999) into a general definition, it could be argued that the cybernetic tradition of seeing communication as information processing is being neglected. Starting with the rise of digitization, information processing, e.g. of big data in social media or organizations, became a popular field of research again as can be retrieved from the amount of mentioning's in scholarly publications as displayed in Figure 16.

From the discussion on communication theory it could be derived for this thesis that not only the process of information exchange, but also how the process of communication is designed could have an influence on the knowledge exchange. Furthermore, communication within the KTP is influenced on the one hand by contextual factors and on the other influences the context similarly (Craig, 1999). It could follow that context factors should be considered when planning for communication within a KTP. Although context has been identified in communication theory as an influencing factor, so far, no research endeavour trying to identify specific context factors has been found in relevant literature. Research on knowledge transfer has however identified certain participant characteristics and types of communication channels that could be seen as an attempt of identifying influencing context factors. These are displayed in Figure 17 and are discussed in detail in the following text passages.

Figure 17 Communication channels characteristics.



First, communication channels can behave formal or informal (Forza & Salvador, 2001; Gupta & Govindarajan, 2000b). Formal communication channels are instituted by an individual or a group of individuals. For example, the general manager of a new subsidiary has weekly calls with all worldwide area managers of the whole organization. The degree of formal integration of sender and/or receivers from different subsidiaries show a high significance towards the benefit for a higher knowledge exchange (Gupta & Govindarajan, 2000b). This means, by committing people to get in touch on a formal level with each other, e.g. through defined processes, the likelihood of knowledge transfers increases. See the first graph in Figure 18 labelled "*knowledge exchange"*.

On the contrary, informal communication channels are not formally instituted by the organization. They are internal or external relationships, which probably mutually benefit the

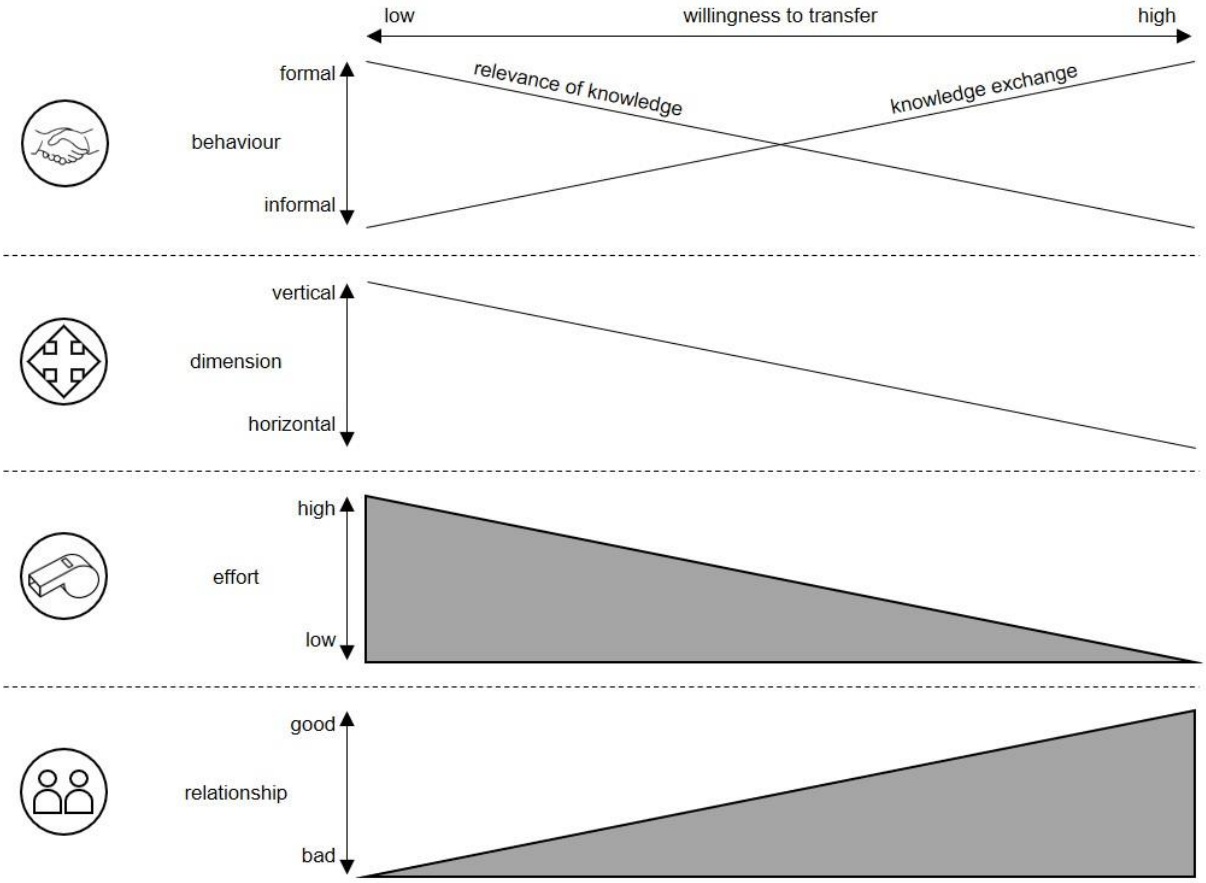
sender and the receiver (Gupta & Govindarajan, 2000b; Johanson & Vahlne, 2009; Minbaeva, 2007; Szulanski, 1996, 2000). Otherwise it would be a one-sided transfer, which is not likely to happen very often. Informal knowledge transfer is not organized on a clear schedule, does not have an agenda or the need for meeting minutes. Proposedly, informal knowledge transfer happens between partners on eye level (Vahlne & Johanson, 2013).

Although it seems logical from a managerial point of view that instituting formal communication channels, e.g. weekly business meetings with all area managers or financial update meetings, increases the rate of knowledge transfer, it can be seen, however, from the previous subsection that in informal meetings the relevance of knowledge transferred is higher than in formal meetings. In informal meetings, people are more willing to transfer relevant knowledge, because they have a better relationship with each other (Gupta & Govindarajan, 2000b; Szulanski, 1996, 2000). In the reverse argument, by forcing people through formal mechanisms to communicate and transfer knowledge with each other the willingness could be lower. Hence, it could be the case that in formally instituted communication channels knowledge of less relevance would be transferred (Gupta & Govindarajan, 2000b), as suggested in the first graph of Figure 18.

Besides behaviour, communication channels can have different dimensions. Dimensions in this case refers to employees communicating within the same or upper or lower organizational job level. The communication throughout different hierarchical levels is called vertical knowledge transfer, on the same level horizontal. Using a higher or lower hierarchy to transfer knowledge to e.g. another departments' employees involves at least a triangle communication that could lead to a loss of content along the transfer process (Forza & Salvador, 2001). (See the argument about possible knowledge flows within an organization in the subsection "Intra MBE knowledge transfer to the shop floor level of a new subsidiary.".)

The dimensions of communication further depend on the leadership style and with it the level of control on the exchange of knowledge (Forza & Salvador, 2001; Tannenbaum & Schmidt, 2009). A highly controlled environment, Tannenbaum & Schmidt (2009) call this a boss-centred leadership, allows for knowledge exchange mainly through formally instituted communication channels (Forza & Salvador, 2001). These can be controlled by management through defined guidelines, e.g. type of content to be presented, amount of time spends for the meeting, type of data, type of protocol, type of meeting minutes, etc. However, as shown shortly before and in the top graph in Figure 18, though there might be a high exchange of knowledge the content is of less relevance (Gupta & Govindarajan, 2000b). This could lead to less motivation to exchange knowledge as the communication might not focus on the relevant parts of the issues at hand (Forza & Salvador, 2001).

Figure 18 Evaluation continuum of the communication channel characteristics.



Using horizontal communication channels and with it a subordinate-centred leadership increases the motivation and willingness to transfer knowledge (Forza & Salvador, 2001; Tannenbaum & Schmidt, 2009). Employees on the same level communicate differently than with the level above or below them (Forza & Salvador, 2001; Hansen, 1999). Achieving horizontal communication throughout different subunits and/or locations worldwide can open sources of valuable knowledge without knowing it beforehand (Hansen, 1999). This shall not advocate for the sole usage of horizontal communication channels. However, management needs to be involved and has to be able to coordinate the actions and tasks of their teams otherwise teams might work according to their own agenda, which might not support the overall organizational goals (Tannenbaum & Schmidt, 2009). Furthermore, management could support their teams through their interorganizational embeddedness by opening up communication channels to other teams that might be of support in achieving their tasks (Gupta & Govindarajan, 2000b; L. Kim, 2001; Vahlne et al., 2012). Concluding, it could be said that a balance between formal and informal communication channels should be considered as a viable solution (Gammelgaard & Pedersen, 2010; Markides, 2002; Vahlne et al., 2012).

Such instances are more likely to occur, if the efforts to perform the knowledge transfer are minimal (Forza & Salvador, 2001; Sjöholm, 1996). Efforts as characteristics of communication channels have been researched as mobility of the knowledge transfer participants (Gupta & Govindarajan, 2000a; Williams & Baláž, 2008; Williams, 2007), time, and costs (Hansen, 1999). Mobility of individuals within organizations "… provide a potentially significant conduit of ... knowledge transfer." (Williams & Baláž, 2008, p. 4). Being on-site increases face-to-face communication, which increases e.g. the ability to transfer knowledge, be available to clarify questions, reduce time-to-answer (Gupta & Govindarajan, 2000a). Especially, for the transfer of specific knowledge organizations send employees abroad for a longer duration, e.g. as expatriates (Gupta & Govindarajan, 2000a; Williams, 2007). The degree of mobility necessary to transfer knowledge depends on the characteristics of the knowledge itself. The higher the knowledge characteristic requirements the higher the degree of mobility should be (Gupta & Govindarajan, 2000a). (See the following subsection "Specifics about content." starting on page 49 for characteristics of knowledge transferred.)

Although face-to-face meetings would be preferable to transfer knowledge (Forza & Salvador, 2001) they could require a certain degree of mobility in international settings. However, mobility in international settings requires time and creates costs, which could have a negative impact on the knowledge transfer (Hansen, 1999). As argued in the subsection before, efforts have to be kept at a minimum in order to increase the willingness of the sender, as shown in Figure 18.

As argued before, a good personal relationship increases the willingness to participate in a KTP (Gupta & Govindarajan, 2000b; Hansen, 1999; Javidan et al., 2005; Schlegelmilch & Chini, 2003; Szulanski et al., 2004; Szulanski, 1996, 2000). It could be argued that in any communication channel – formal, informal, horizontal, vertical – and for any type of communication channel a good personal relationship could positively influence the knowledge transfer. Concerning relationship everything argued in the former subsection could be applied for communication channels as well. Hence, there is not going to be any further discussion on relationship here.

Lastly, due to digitization a variety of cheap and easy to use communication channels (Axelson, 2005) supporting and enhancing our behaviour to transfer knowledge in different fields, e.g. schools (Kreijns, Van Acker, Vermeulen, & Van Buuren, 2013; J. B. Watson, Pape, Murin, Gemin, & Vashaw, 2014) and higher education institutions (Siemens, Gaševi, & Dawson, 2015).

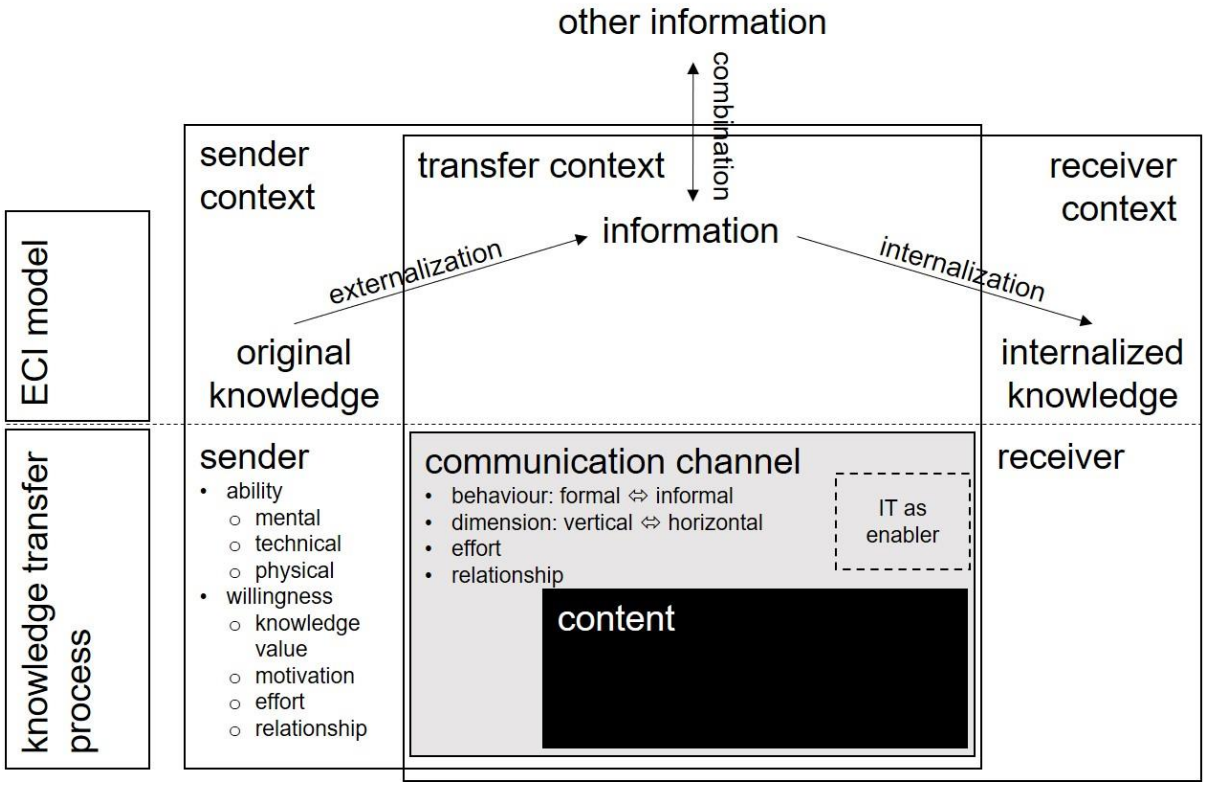
> "[Digital tools] are great tools with which to become dumber just as they are great tools with which to become smarter. It all depends on how they are used.

> And key to their good use is that they be subordinated to ways of connecting humans for rich learning and that they serve as tools human learners own and operate and do not simply serve." (Gee, 2013, p. xiii)

According to Boss & Krauss (2014) it is no use to track a list of available tools offering technical functions to support learning, because of multitude available. However, functions "… like the ability to connect and to make ideas visible, are enduring needs. Once you identify a function you want, you can find an assortment of tools to choose from (with more arriving tomorrow) that perform the function and suit your context." (Boss & Krauss, 2014, p. 74) Hence, completely new possibilities could arise in how to transfer knowledge throughout an organization. Although they have to be developed, they are not techno-deterministic oriented. The participant's characteristics, the learning experience and instructional practice build the core interest (Ifenthaler et al., 2014). Based on these sources it should be possible to potentially create or find a tool that offers formal as well as informal communication possibilities, possibilities to communicate vertically and horizontally within an organization, and by this create only little effort and support the creation of a good relationship between the participants. Meetings could be scheduled through Outlook and held by 'Skype for Business', the whole organization could be integrated, it creates very little efforts for the participants, and it could support the creation of a good relationship due to offering video chat functionality. Even live translation of meetings could be possible in the future using 'Skype for Business' (Frank, 2016). This would support an 'International Knowledge Transfer' process in terms of reducing barriers. (See subsection "Influence of the Local Context on the IKT during Subsidiary Set-Up" for barriers.)

The discussion on communication theory showed that communication is not the mere process of information exchange, it also integrates how information is exchanged. Although attempts for unification have been made communication theory landscape showed to remain scattered (Craig, 1999). This attempt resulted in seven traditions also considering that communication on the one hand is influenced by context and on the other influences context by its development. Although context was identified to be an influencing factor, no attempt has been made to identify specific factors and their rate of influence on the IKT process. However, findings from research on knowledge management showed that the type of behaviour of a communication channel has an influence on the relevance and degree of knowledge. Formal instituted communication channels foster a higher degree of knowledge transfer. Informal instituted communication channels however, are more likely to transfer knowledge of higher relevance. Besides, the knowledge transfer depends on the dimension of organizational communication. Horizontal is seen to have a higher positive influence than vertical communication.

Figure 19 Communication channel characteristics in the IKTC model.



Note: ECI = 'Externalization', 'Combination', and 'Internalization'.
Source: Lower part based on "Knowledge transfer in multinational corporations" by Minbaeva, 2007, p. 569. Copyright 2007 by the Gabler Verlag.

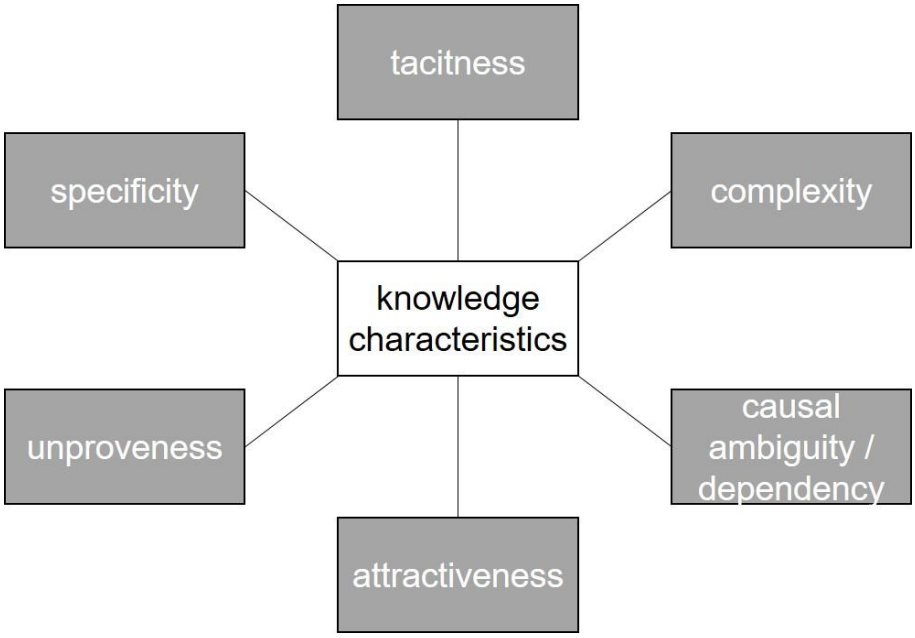
Concerning characteristics, it further showed that effort and relationship have a similar contradictory influence on the KTP. The last part of this subsection showed that digitization offered great support in reducing efforts to perform a knowledge transfer. It is argued that, due to the current development, tools should follow the knowledge transfer characteristics and not vice versa. This supports easier and better 'International Knowledge Transfer' experiences and reduces barriers. The so far proposed IKTC model was updated accordingly, as shown in Figure 19. (See Appendix 6 with an assessment of selected communication channels.)

3.5.3. Specifics about content.

Characteristics of transferred knowledge, or as well labelled content, have been the subject of numerous studies (Hansen, 1999; Minbaeva, 2007; Schlegelmilch & Chini, 2003; Szulanski, 1996, 2000). The communication channel and the knowledge to be transferred need to be aligned with each other (Gupta & Govindarajan, 2000a). It is interesting that Minbaeva (2007) finds that "... the impact of knowledge characteristics on the degree of knowledge transfer ... [has] a negative sign, but the results were not statistically significant." (p. 586) This strengthens the argument to find the right communication channel in

correspondence to the knowledge characteristics. To do so, the following six characteristics, pictured in Figure 20, are identified in the literature ‘tacitness’ (Minbaeva, 2007; Nonaka, 1991; Polanyi, 2009; Schlegelmilch & Chini, 2003), ‘complexity’ (Hansen, 1999; Schlegelmilch & Chini, 2003; Szulanski, 2000), ‘causal ambiguity’ and ‘dependency/independency’ (Hansen, 1999; Schlegelmilch & Chini, 2003; Szulanski, 2000), ‘attractiveness’ (Schlegelmilch & Chini, 2003), ‘unproveness’ (Szulanski, 1996), and ‘specificity’ (Schlegelmilch & Chini, 2003).

Figure 20 The characteristics of knowledge.



A discussion about the distinction of knowledge in tacit and explicit knowledge has already been presented. (See the first part of the subsection “The definition of knowledge over time and in contrast to information.”, starting on page 23.) Due to the limited frame of this thesis and to avoid redundancy, no further argumentation is given here concerning this matter. ‘Tacitness’ of knowledge seems to be focus to a number of research interests (George, 2014; Gupta et al., 1999; Gupta & Govindarajan, 1991a, 1991b, 2000a, 2000b, 2000c; Hansen, 1999; Javidan et al., 2005; Jennex, 2007; Minbaeva, 2007; Nonaka, 1991; Polanyi, 2009; Probst et al., 1999; Probst & Romhardt, 1997; Riis et al., 2010; Schlegelmilch & Chini, 2003; Simonin, 1999a; Sjöholm, 1996; D. E. Welch & Welch, 2008; Wiig, 1997; Williams & Baláž, 2008; Williams, 2007; Willke, 2011; Winter, 1998; Zander & Kogut, 1995). In different settings, e.g. marketing or technology, research has shown that ‘tacitness’ has a general negative impact on the KTP, as also displayed in Figure 21 (Minbaeva, 2007; Zander & Kogut, 1995).

Further, in many cases the sender is not aware to possess a certain tacit knowledge. This means, when externalizing it the sender will have to be questioned multiple times. As was argued before, the relationship has an influence on the KTP. It could be assumed that tacit knowledge would rather be transferred in a close relationship than in a distant relationship. In order to transfer tacit knowledge, probably more indirect and near communication channels (Zander & Kogut, 1995) should be used, e.g. personal conversation. This means that 'tacitness' increases the effort and the costs associated to the knowledge transfer. It might be an effort that the sender has to show the person over a longer period of time how to perform a certain task. Due to the 'tacitness', the sender further might not be able to express how and why applying the tacit knowledge works (Minbaeva, 2007). In this case the knowledge is embodied (Blackler, 1995), thus observing could be an approach for knowledge transfer as expressing or instructing orally is hardly possible (Nonaka & Takeuchi, 1995; Nonaka, 1991).

On the other hand, the receiver might have no *a priori* knowledge about the provided content. The tacit knowledge, even if appropriately expressed by the sender, could not make any sense to the receiver. Certain *a priori* required knowledge is missing, which would enable the receiver to internalize the knowledge provided. Additionally, the situation of the receiver might be different from the senders. This requires the adaptation of the knowledge transferred by the receiver to make use of it (Zander & Kogut, 1995). Hence, the receiver has to truly understand the knowledge provided when internalizing, which could require *a priori* knowledge. Only then the receiver might actually transform it and apply to the local conditions. (See "The receiver as knowledge gainer." and "Context" for details.)

Besides 'tacitness' a knowledge characteristic often discussed is 'complexity' (Hansen, 1999; Minbaeva, 2007; Szulanski, 1996, 2000). Complex knowledge: "… is the extent to which the knowledge to be transferred is independent or is an element of a set of interdependent components ...." (Hansen, 1999, p. 87) The more the knowledge is related and depending on other knowledge, the higher the degree of 'complexity' and for this the lower the degree of knowledge transfer (Blome, Schoenherr, & Eckstein, 2014; Cohen & Levinthal, 1990; S. Kim, Zhao, & Anand, 2014; McMurtry, 2006; Pérez-Luño, Bojica, Gopalakrishnan, & others, 2017; Simonin, 1999a; Szulanski et al., 2004; Szulanski & Jensen, 2004, 2006; Szulanski, 1996, 2000; Winter, 1998). This is exemplified in Figure 21.

A doctor, for example, has to not only understand one single part of the human body, but its entirety. Only then conclusions to what therapy to apply could be drawn. This knowledge is related to many different fields: biology, chemistry, physics, etc. In conclusion, the knowledge to become a doctor is not transferred easily. Knowledge that is not that interdependent can be more easily transferred. For example, how to change a tire. Either guided 'learning-by-doing', observing, or reading a manual could easily transfer this

knowledge. In order to transfer highly complex knowledge, as in the case of the doctor, a close tie between the sender and receiver is favourable (Hansen, 1999). This supports a high knowledge transfer, although the 'knowledge complexity' is very high. Regarding the tire example, no strong tie between two persons is necessary in order to make knowledge transfer happen.

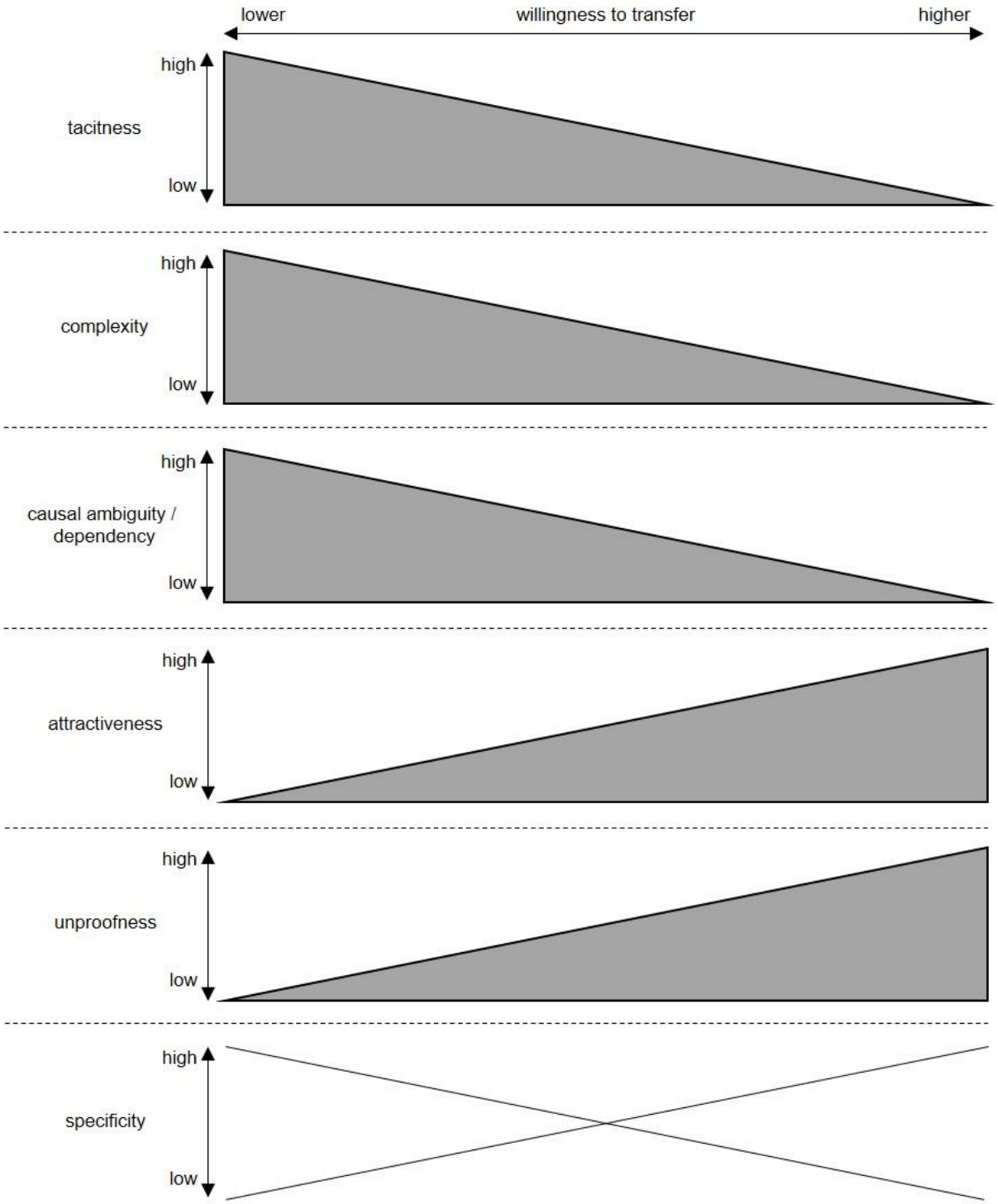
Causal ambiguity is the third characteristic to be considered. Only limited research has been done on causal ambiguity (Szulanski, 1996, 2000).

> "When the precise reasons for success or failure in replicating a capability in a new setting cannot be determined even ex post, causal ambiguity is present[.] … Causal ambiguity could also result from imperfectly understood idiosyncratic features of the new context in which knowledge is put to use (Tyre and von Hippel, forthcoming; Winter, 1995)." (Szulanski, 1996, p. 30f.)

It could be followed that a high 'causal ambiguity/dependency' could have a negative effect on the KTP, as displayed in Figure 21. Hence, it has to be a key action during the KTP to regularly compare the knowledge transferred under the new conditions and reflect its implementation (Szulanski, 2000). Causal ambiguity can be overcome by a strong and close relationship between the sender and the receiver (Szulanski, 2000). Together they can review what worked in the initial setting and can then adapt by integrating the local knowledge of the receiver. However, it remains the question, which context factors influence causal ambiguity and how this influence could be managed. This is exactly what this thesis wants to uncover.

Similar to the knowledge value held by the sender, the 'attractiveness' of knowledge is to be considered as the fourth characteristic. The higher the 'attractiveness' of the knowledge transferred, the higher the likelihood of knowledge transfer (Schlegelmilch & Chini, 2003). If a sender and a receiver see a benefit in exchanging the knowledge, they are going to do it. If one of the two partners do not see the knowledge available as attractive, there is no reason for him or her to invest in sending or receiving the knowledge. There might be solutions in which either the sender, the receiver, or both are forced to perform a knowledge transfer. However, it is unlikely that the knowledge transfer is going to happen properly. It is to be expected that such a forced knowledge transfer takes a longer period of time and by this causes additional costs and efforts for the parties involved.

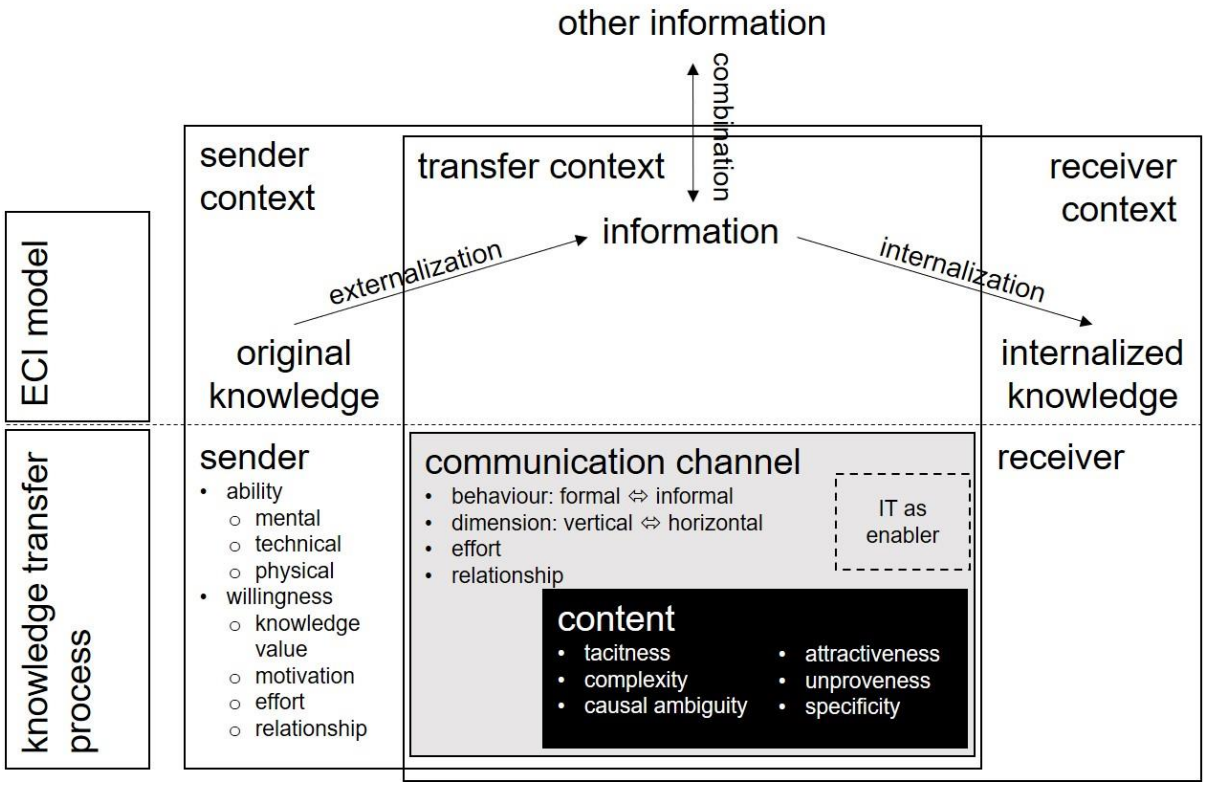
Figure 21 Content characteristics influence on transfer willingness.



As knowledge resides with a person, it is difficult to prove its usefulness before implementation. Knowledge that has proven its usefulness before is less difficult to transfer (Szulanski, 1996). If an organization wants to hire a consultant company for example, it is usually part for the introduction of a consultant during the application process to provide references, where the knowledge provided has proven its usefulness. It is up to the

organization, which in this case is the receiver of knowledge, to verify that the statements about the knowledge effectiveness held by the consultant are true. The higher the degree of 'unproveness', the higher the degree of knowledge transfer (Szulanski, 1996).

Figure 22 Content characteristics in the IKTC model.



Note: ECI = 'Externalization', 'Combination', and 'Internalization'.
Source: Lower part based on "Knowledge transfer in multinational corporations" by Minbaeva, 2007, p. 569. Copyright 2007 by the Gabler Verlag.

The sixth and last knowledge characteristic is 'specificity' (Foss & Pedersen, 2002; Schlegelmilch & Chini, 2003; Simonin, 1999b). Foss & Pedersen (2002) argued that highly specific knowledge is less relevant for e.g. another subsidiary, which would make this knowledge less attractive. It would require either prior related knowledge to acquire the very specific knowledge or it would need the specific context to understand and make sense of it. This would result in a lower knowledge transfer, because the value of the knowledge could not be considered as high for the receiver (Foss & Pedersen, 2002; Schlegelmilch & Chini, 2003). The case described by L. Kim (2001), however, showed that R&D teams reached out to external experts to acquire their very specific knowledge on a certain micro-chip. In this case it could be argued that, due to available prior knowledge and a high organizational requirement to transfer this knowledge to commercial means, the high 'specificity' of the knowledge has increased the probability for knowledge transfer. Hence, the last graph in Figure 21 shows two possibilities concerning the influence of 'specificity' on the KTP.

Six characteristics concerning content have been discussed. It showed that each of them has a potential effect on the KTP depending on their peculiarity. ‘Tacitness’, ‘complexity’, and ‘causal ambiguity/dependency’ had been identified as having a negative impact on the IKT process when being of high peculiarity. ‘Attractiveness’ and ‘unproveness’ on the contrary had been identified to have a positive effect. ‘Specificity’ as last had been identified to be divergent. All characteristics showed to be a potential relevant influencing factor and for this have been added to enhance the proposed IKTC model, as shown in Figure 22. To complete the characteristics of the IKTC model, the receiver characteristics are reviewed in the following subsection.

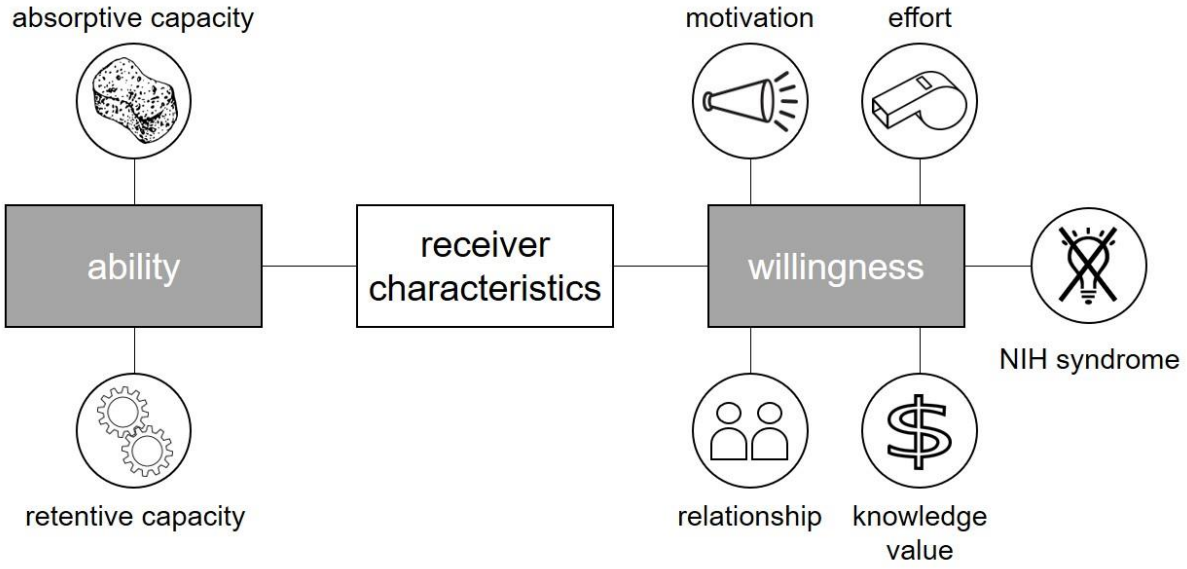
3.5.4. The receiver as knowledge gainer.

Within the process of knowledge transfer the receiver is the knowledge intaking part. This process could be as well referred to as learning (Szulanski, 1996, 2000). There are several learning theories available that integrate context into their theoretical considerations. Hence, learning theory is considered as an initial starting point. The subsequent discussion then focuses on receiver characteristics specifically, which were found in knowledge management research. Similar to the sender, the receiver’s willingness and ability to perform knowledge transfer are the main characteristic cluster (Hansen, 1999; Minbaeva, 2007; Szulanski, 1996, 2000), as displayed in Figure 23. Due to this, first the receiver’s ability and second the characteristics of the receiver’s willingness to intake knowledge are discussed. Each characteristic is discussed under the light of their peculiarity, whether it has a positive or negative influence on the KTP. Lastly, the influencing characteristics enhance and complete the IKTC model.

In order to acquire new knowledge the receiver has to be able to absorb it and apply it, in short: to learn (Szulanski et al., 2004). Hence, from a conceptual perspective, findings from learning theory could support a holistic understanding of the receiver as a learner in the KTP. Learning theories date back to Plato wondering about whether or not persons are born with *a priori* knowledge (Phillips & Soltis, 2015; Silverman, 2014). Different theories have emerged during the research history on learning: behaviourism (Skinner, 2011; J. B. Watson & others, 1958; J. B. Watson, 1913, 1914, 1919; S. M. Wilson & Peterson, 2006), cognitive theory (Köhler, 1925, 1945, 1959, 2015; Sharps & Wertheimer, 2000; Barry Smith, 1988), cognitive constructivism (Perry, 1999; Piaget & Elkind, 1968), social constructivism (Vygotsky, 1978, 1980), transformative learning (Kitchenham, 2008; Mezirow & others, 1990; Mezirow, 1997, 2000; Taylor, 2007, 2008), and geographical learning (Edwards & Usher, 1997; Godlewska, 2013; Simandan, 2013a, 2013b). Within social constructivism and geographical learning theory, context is being considered as a factor influencing the learning process (Edwards & Usher, 1997; Godlewska, 2013; Simandan, 2013a, 2013b; Vygotsky,

1978, 1980). This could be considered a basic similarity to this thesis. Hence, social constructivism and geographical learning theory should be considered as relevant theories to this thesis.

Figure 23 Receiver characteristics in the KTP.



Note: NIH = 'Not Invented Here Syndrome'.

Social constructivism understands learning as an individual task of knowing by doing placed in the learners socio-cultural settings (Adams, 2006; Au, 1998; Kivunja, 2014; S. M. Wilson & Peterson, 2006). Similar to research in knowledge transfer, relationship is considered a central theme. Only through a good personal relationship can learning take place. Adams (2006) argues that "…learning becomes the development of personal meaning more able to predict socially agreeable interpretations." This could mean that it is, from a constructivist perspective, important to integrate the context in order to increase the rate of learning. Only if the context is integrated appropriately into the learning process – in the case of social constructivism, however, only the social part is considered – a relationship could form that creates the environment to possibly create socially agreeable interpretations.

Au (1998) worked on 5 explanations to identify gaps in literacy: "…linguistic differences, cultural differences, discrimination, inferior education, and rationales for schooling." (p.297). Although some context factors are available, the fundamental discussion remains on a theoretical basis in the case of Au (1998). Hence, not only from a knowledge transfer, but also from a learning theory perspective, this thesis adds an exploratory first step into the discovery of identifying concrete context factors that could have an influence on the IKT. Identifying context factors that influence the KTP is necessary to take the frontier of

learning and knowledge transfer one step further to come up with more advanced and practically usable concepts.

One research approach in a similar direction is geographical learning. Being a relatively new field of research, there are so far only two distinct concepts of understanding at hand: the influence of context factors on how to learn and how changing contexts enriches the process of learning (Simandan, 2013a, 2013b). For the first part it is argued that bigger streams of contextual development, e.g. the internet, communication technology, understanding and operating within political systems, do have influences on either intraindividual learning or on the intellectual thrive of bigger groups (Le Heron & Hathaway, 2000; Le Heron et al., 2001; Le Heron, Baker, & Mcewen, 2006; Rose, Le Heron, & Sofat, 2005; Schuurman, 2013). This could mean that the KTP could be influenced by global developments such as digitization. However, it would further be necessary to consider that these big streams affect each person differently. It would follow that the IKT process has to be specifically designed for the person-to-person situation to positively influence a potential transfer. For this specific design, multimodality (Gilakjani et al., 2011; Jewitt et al., 2001; Kress, 2001; Lujan & DiCarlo, 2006) as well as repetition (Gilakjani et al., 2011), should be considered as done prior.

However, this further depends on the ability of the receiver's absorptive and retentive capacity (Szulanski, 1996). Absorptive capacity is the characteristic to which extent a recipient on nodal, dyadic and systemic level (Riis et al., 2010) can internalize provided knowledge, apply it to existing prior knowledge, and implement it to commercial means within an organization (Cohen & Levinthal, 1990; Szulanski, 1996, 2000). Results of Minbaeva show that the absorptive capacity of the receiving end is "… a major determinant of the KTP: the greater the absorptive capacity, the greater the degree of knowledge transfer …" (2007, p. 575). This is coherent with a high number of citations concerning this topic (Cohen & Levinthal, 1990; Gupta & Govindarajan, 2000a, 2000b; Minbaeva et al., 2014; Szulanski et al., 2004; Szulanski & Jensen, 2004, 2006; Szulanski, 1996, 2000). Hence, the three determinants of absorptive capacity: prior related knowledge (Cohen & Levinthal, 1990; Gupta & Govindarajan, 2000b; Szulanski, 1996, 2000), assimilation of new knowledge, and application to commercial ends (Riis et al., 2010; Szulanski, 2000) are subsequently discussed in detail.

The higher the prior related knowledge, the easier the knowledge transfer (Cohen & Levinthal, 1990; Schlegelmilch & Chini, 2003; Szulanski, 1996, 2000). It appears to be clear that a knowledge receiver with high prior knowledge absorbs provided knowledge easier. For example, a musician has, besides learning how to play an instrument, learned to read notes, patterns, dynamics, tempi, etc. If this musician now decides to learn another instrument, the basics required are already there. Following, it would be easier and potentially faster to learn

the new instrument. However, it should be considered that prior existing knowledge might be opposite to what newly provided knowledge states. In this case prior existing knowledge needs to be dismantled. This means, that the receiver of new knowledge first has to be convinced that the provided knowledge is of value for him or her. The issue for the receiver of recognising this value is discussed in detail later in this subsection. Szulanski (2000) identified in his research that the higher the institutionalization of prior existing knowledge is, the higher the effort to dismantle or unlearn it. Existing, working patterns are seldom questioned. They are known and so far, successful. This is sometimes used as an excuse in practice, in order to not change anything from the current status quo. It shows that prior related knowledge is ambiguous for knowledge transfer. Either it provides the receiver with a greater capability of taking in new knowledge. Or it makes the receiver resistant to receive new knowledge.

If an organization is open to receive new knowledge, it is not necessarily true for it to create a commercial benefit from it. Before this can happen, the organization has to assimilate it (Gupta & Govindarajan, 2000b; Szulanski, 2000). Assimilation of new knowledge is labelled by Szulanski (2000) as putting something to use. L. Kim (2001) showed in a case study that Samsung assimilated knowledge for specific micro-chips and realized a working product within six months. The example showed that high motivation due to the high dedication of the team resulted in a high willingness to enter into ‘Knowledge Transfer Processes’ to collect the knowledge required to achieve the goal. However, additional characteristics of the KTP, e.g. prior related knowledge, motivation, language, relationship, etc. had been working in the favour of the R&D team (L. Kim, 2001).

After the assimilation, an organization can try to apply the gained new knowledge to commercial ends (Cohen & Levinthal, 1990; Gupta & Govindarajan, 2000b; Szulanski, 2000). Without creating a commercial benefit from an action, an organization would not invest in it. Logically, there should be a positive link concerning likelihood of knowledge transfer and the ability to apply new knowledge to commercial ends. In literature, there is only limited research available on this topic. It is stated in some sources that it is part of absorptive capacity (Cohen & Levinthal, 1990; Gupta & Govindarajan, 2000b; Szulanski, 2000), but only limitedly researched. It is a challenge up front to determine whether a knowledge transfer is going to be of commercial benefit for the receiver or even for the receiver and the sender. This could be considered a win-win situation. The higher the probability for an application to commercial ends of the knowledge transfer, the more both parties are going to want the knowledge transfer. If the commercial benefit is calculable in the beginning, the sender and the receiver are most likely willing to actually invest time, money, and/or effort into this transfer. Should a potential commercial benefit not be secured,

but likely, it could be compared to investing in venture capital projects. (Cohen & Levinthal, 1990)

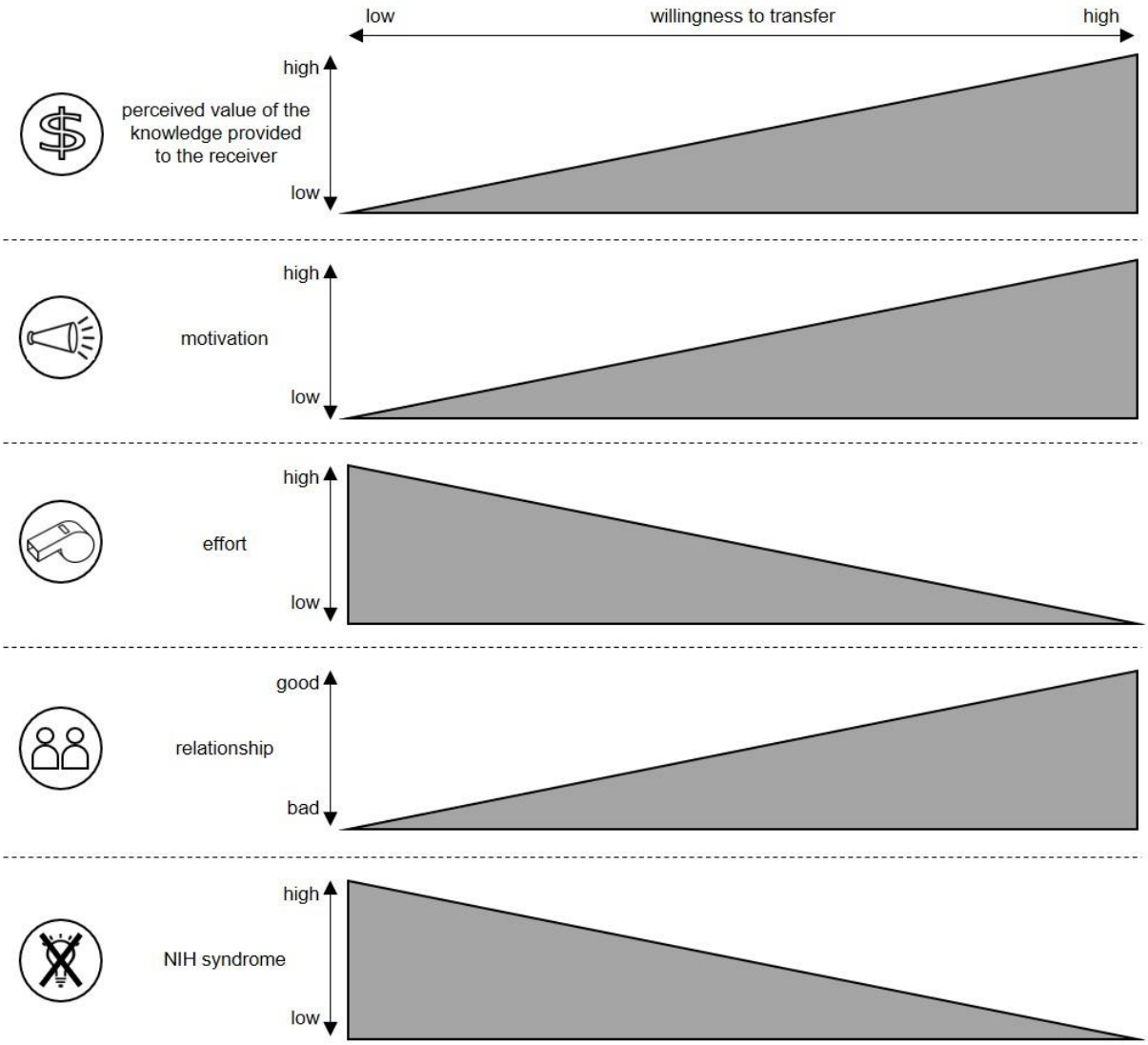
Receivers have to be able to absorb the knowledge transferred. However, in the following process a receiver needs to be able to retain the knowledge transferred (Szulanski, 1996). Retentive capacity is defined as: “The ability of a recipient to institutionalize the utilization of the new knowledge…” (Szulanski & Jensen, 2004, p. 353). A good example that can be added here from practice is e.g. the turnaround of the GM plant in Fremont, California. Through the joint venture of GM and Toyota it was possible to institute the Toyota production and management systems and through this increase performance and quality of the plant in a very short period of time (Shook, 2010). The higher the practicability and with this the foreseeability of performance improvement through the new knowledge, the higher the ability to receive knowledge. By this the likelihood of a KTP increases (Szulanski & Jensen, 2004). However, in the case of GM this foreseeability was not given and only rarely hoped for (Shook, 2010).

Comparable to the sender, the receiver also has to be willing to participate in the KTP. Willingness to participate in a KTP depends on his or her recognition of the value of the knowledge provided (Gupta & Govindarajan, 2000b), motivation (Szulanski, 1996), effort (Hansen, 1999; Minbaeva, 2007), and relationship to the sender (Gupta & Govindarajan, 2000b; Schlegelmilch & Chini, 2003). However, the sender has a specific characteristic that needs consideration: the extent of ‘Not Invented Here Syndrome’ (NIH) (Gupta & Govindarajan, 2000b; Szulanski, 2000).

As can be seen in Figure 24, motivation, effort, and relationship have the same peculiarity as the sender. The arguments made for the sender apply for this for the receiver as well. Further discussions on these characteristics would not add substance. (See subsection “The sender as knowledge provider.” for details.) *Perceived value of knowledge provided to the receiver* has the opposite peculiarity compared to the sender. For the receiver, knowledge of high value is of high interest. It could advance the receiver in achieving better results based on the provided knowledge.

Specific to the receiver, the ‘Not Invented Here Syndrome’ has to be considered (Gupta & Govindarajan, 2000b; Szulanski, 2000). The NIH syndrome can stem from different reasons: ego-defence mechanism, power struggles within organizations (Gupta & Govindarajan, 2000b), reluctant to change, pride of ownership and status (Szulanski, 2000). According to Gupta & Govindarajan (2000b) if the NIH syndrome is not accordingly accounted for it can act as a major barrier hindering knowledge transfer (Szulanski, 2000).

Figure 24 The receiver's characteristics influence on their willingness to transfer.

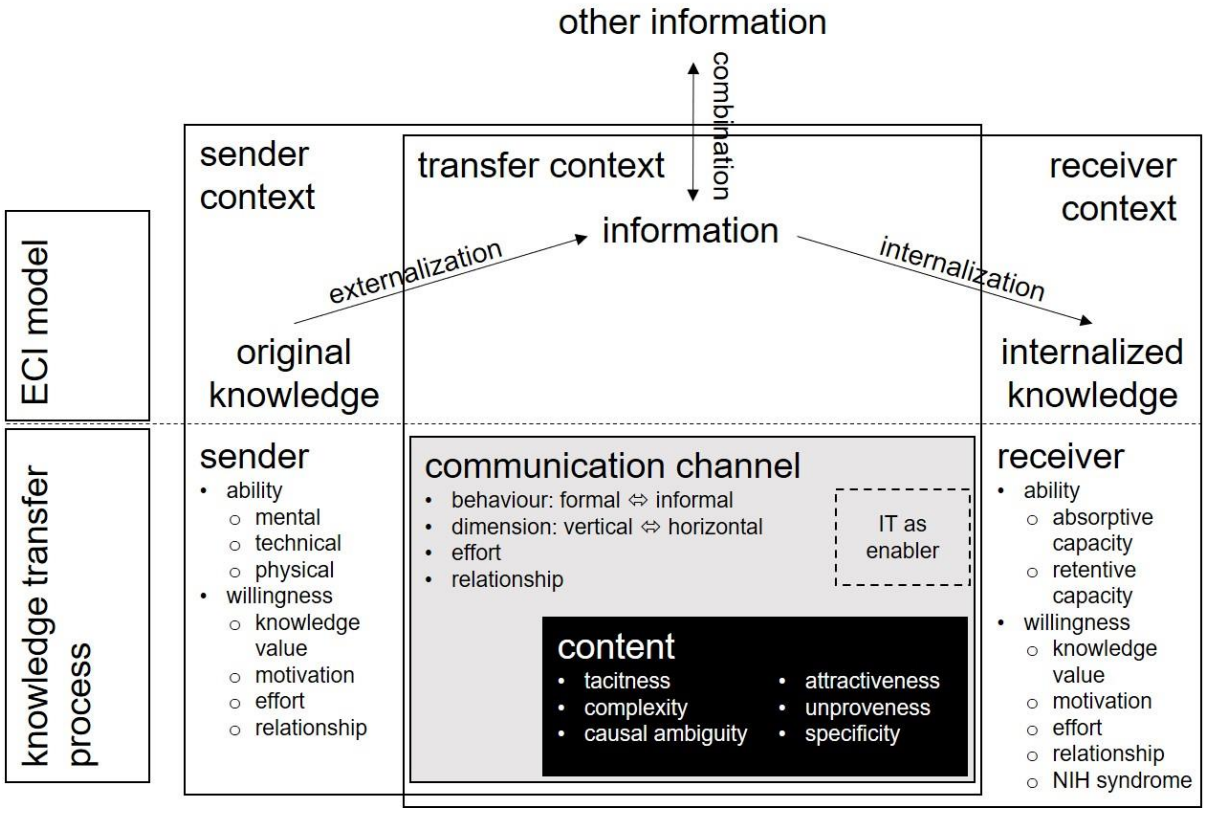


Note: NIH = 'Not Invented Here Syndrome'.

However, it has to be considered that the research of Gupta & Govindarajan (2000b) and Szulanski (2000) was conducted between established subsidiaries within an existing organizational network. As argued in the definition section on the set-up process. (See the subsection "The set-up process in greenfield manufacturing FDIs and its challenges." on page 12.) This situation has specific requirements that need to be considered. It should be considered that there is no existing organization nor longstanding relationship between the local employees and e.g. employees at the headquarters. Within this unique and fuzzy state probably any kind of support is going to be welcome, which is why the NIH syndrome should be lower than researched (Gupta & Govindarajan, 2000b; Szulanski, 2000). Although this sounds logical there is no actual scientific proof available. However, should the NIH syndrome occur anyhow it could be positively influenced, similar to other characteristics, by a strong relationship between the two knowledge transfer partners and the right motivation

(Szulanski, 2000). In any case the NIH syndrome should be considered as a social contextual factor that could have an influence in the IKT process. Each receiver characteristic discussed in this subsection could be influenced by context factors and thus influence the IKT process. Hence, each receiver characteristic was added to the IKCT model, as pictured in Figure 25.

Figure 25 Receiver characteristics in the IKTC model.



Note: NIH = 'Not Invented Here Syndrome', ECI = 'Externalization', 'Combination', and 'Internalization'.
Source: Lower part based on "Knowledge transfer in multinational corporations" by Minbaeva, 2007, p. 569. Copyright 2007 by the Gabler Verlag.

In conclusion, it could be said that the literature review to this point enhanced the conceptual understanding of the KTP by adding specific characteristics. For this Figure 25 represents the current state-of-the-art concerning knowledge transfer and how knowledge transfer is considered throughout this research. Further, Figure 25 also clearly identifies the gap of missing local context factors that influence the characteristics. Throughout the whole section it became clear that context is understood as an influencing factor. However, no research had been identified that tried to identify specific local context factors with a direct or indirect influence on the KTP. This research gives a first attempt to close this gap in the chapters "Analysis and Discussion", on page 129, and "Conclusion", on page 174.

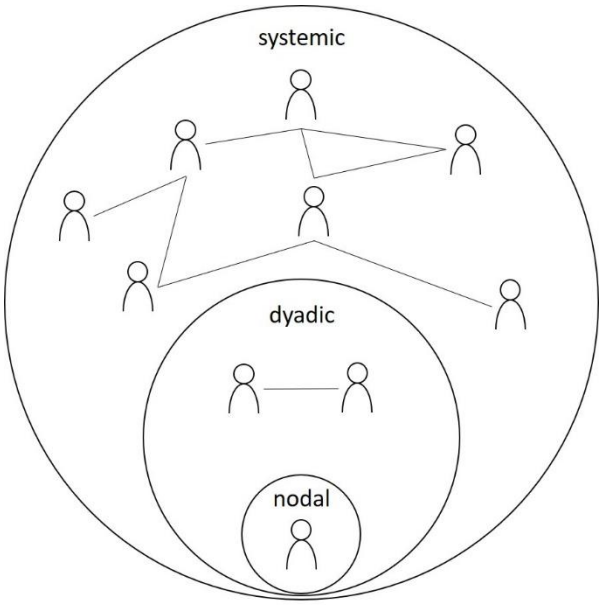
3.6. Knowledge Transfer within 'Multinational Business Enterprises' (MBEs)

3.6.1. Knowledge transfer within business research and organizations.

Schlegelmilch & Chini state that ".... the process of transferring knowledge ... across dispersed units of multinational corporations has only attracted little and rather fragmented research interest." (2003, p. 215). Research in these regards has mainly focused on international R&D 'Knowledge Transfer Processes' (Schlegelmilch & Chini, 2003). Literature review for this research has shown that only limited publications are available. However, it is necessary to review the framework and knowledge interactions of MBEs on a global scale and specifically for existing and new subsidiaries.

Literature considers knowledge transfer to be possibly studied on three levels: nodal, dyadic, and systemic (Gupta & Govindarajan, 2000b; Minbaeva, 2007). Nodal refers to the behaviour of individuals. The dyadic level refers to the joint behaviour of unit pairs. Lastly, systematic refers to the behaviour of an entire network. (Gupta & Govindarajan, 2000b)

Figure 26 The levels of knowledge transfer.



Within the nodal view, as can be seen in Figure 26, the single individual with his or her needs and requirements is focus of the research. There has been extensive research on the individual as sender and receiver within a KTP. (This topic is further discussed in detail in the section "Theory and Characteristics of the 'International Knowledge Transfer' (IKT)" starting on page 36.) When considering two individuals performing knowledge transfer during the ramp-up of a new foreign subsidiary: one is newly hired locally in the foreign country for the new subsidiary and the knowledge transfer partner is from the headquarters. During a ramp-up of a new subsidiary there is only little organizational knowledge, e.g. purchasing

processes, documentation, standards, etc. available locally in the foreign subsidiary. This shall be provided by the partner from the headquarters. As can be envisioned, there are a manifold of possible hindrances that need to be considered: motivation (Szulanski, 1996), personal ego/NIH syndrome (Gupta & Govindarajan, 2000b; Szulanski, 2000), willingness (Gupta et al., 1999; Gupta & Govindarajan, 2000a, 2000c; Hansen, 1999; Szulanski et al., 2004; Szulanski & Jensen, 2004, 2006; Szulanski, 1996, 2000), language (D. E. Welch & Welch, 2008) etc.

Many topics regarding knowledge transfer and 'International Knowledge Transfer' have already been researched. Although quite substantial research had been done in this regard, as critiqued throughout this thesis, a scientific consideration of the influence of context on the nodal level of knowledge transfer during the set-up of a new foreign subsidiary had not been found. Due to the influence of different contexts the sender and receiver characteristics on entering knowledge transfer might differ. One such factor could be governmental rules. For example, the knowledge sender from the headquarters, e.g. Germany, might not be aware of local rules and laws, e.g. high standards concerning occupational health and safety in the UK. Nonetheless, the sender would unintentionally try to transfer his head-quarter knowledge. Within the receiver's context the knowledge provided could make no sense nor add value. There would be little understanding for the provided knowledge and due to this only little interest in a knowledge transfer. Consequently, it could be argued that from a nodal perspective the individual local context might have an influence on the 'International Knowledge Transfer' to new subsidiaries in set-up.

Szulanski found that: "Transfers of best practices are seen as dyadic exchanges of organizational knowledge between a source and a recipient unit…" (2000, p. 16). The dyadic level was stated before to be the joint behaviour of unit pairs (Gupta & Govindarajan, 2000b). The best practice holder has a superior process that, if shared, could e.g. benefit the economic performance of another subsidiary but also the whole organization. As it is, perhaps through the right incentives or personal motivation, the joint goal of both individuals to optimize the performance of the whole organization, both would very easily enter a KTP. It could be seen that in this case both units as a pair would offer their best efforts to make the knowledge transfer happen. This relates to the joint behaviour referred to by Gupta & Govindarajan (2000b) and Szulanski (2000).

However, during a ramp-up the person working for the new subsidiary does not know about e.g. best practices within the organization. In the beginning every provided process would seem to be the best practice to the receiver. This could raise the likelihood of the transfer of inefficient processes. Furthermore, as the local person in the new subsidiary has only very limited contacts within the organization and is not familiar with the general goals of the organization it could be difficult to create a joint behaviour pattern of a unit pair.

Besides this, the previous referenced sentence of Szulanski finishes "… in which the characteristics of the source and the identity of each recipient both matter." (2000, p. 16). This is important, because according to Gupta & Govindarajan (2000b) the dyadic level focuses on the joint behaviour of unit pairs. This behaviour, however, depends, according to Szulanski (2000) on the characteristics of the source and the receiver. Therefore, the nodal level is embedded in the dyadic level, as displayed in Figure 26. This argumentation provides some evidence for the statement made in the definitions, that knowledge transfer only occurs between two individuals. Which concludes that the context of an individual has influence on the dyadic level of knowledge transfer.

Lastly, the systemic level places the network in the focus of the research. Each employee within a company is linked through different dyadic relationships with other actors. Those actors are again linked through different dyadic relationships with further actors. Within this environment not only the exchange of goods and services takes place. Also the exchange of knowledge is distributed through vastly branched networks. (Vahlne & Johanson, 2013). Hence, networking has been identified to have a positive effect on the transfer of knowledge throughout an organization (Axelson, 2005; Terziovski, 2003). Similar to the argument made for the dyadic level the systemic level also consists of individuals performing knowledge transfer. The systemic level however focuses on the behaviour of the whole network. Focusing on the whole network allows the researcher to use state-of-the-art network analytical methods to research knowledge transfer behaviour. However, it does not allow the researcher to focus on the influence of the context on a KTP. As stated, a knowledge transfer occurs between two individuals. These individuals live in their specific context, which influences the KTP between them. Researching network behaviours is not going to support this research.

From the discussion above it was outlined that there are different levels of focus concerning how to approach research on knowledge transfer. Besides identifying which level to focus the research on, it is also necessary to identify the related organizational level. Depending on the organizational level that is being researched different aspects might need consideration. Within organizations a manifold of different levels exists: hierarchical levels, departments, projects, etc. However, they are not seen to be separate to each other, but rather linked and intertwined. Linked to this, is the manifold of knowledge transfer possibilities. It might happen e.g. vertically across hierarchical levels, horizontally across different departments or projects, or without any logical relationship.

The goal of knowledge transfer within the KBV is seen as the competitive advantage of an organization. This raises the question about the increase of performance through the transfer of knowledge (Eisenhardt & Santos, 2002), because "… managers of effective firms should concentrate their efforts on transferring only the most strategically valuable

knowledge." (Eisenhardt & Santos, 2002, p. 152). However, for a new, foreign subsidiary in set-up every provided process would be considered as strategically valuable, as no processes exist. For manufacturing organizations, production knowledge is the strategically most important knowledge, because the competitive advantage is to produce a certain product better than their competition through the existing knowledge at operator level (Drucker, 2001). Therefore, the KTP on the shop floor should be the strategically most important KTP that an organization should focus on during the ramp-up process of a new foreign subsidiary.

Concerning the concept of levels of knowledge transfer, this research focuses on the **nodal level** of knowledge transfer. In alignment with the definition given for the knowledge transfer in the subsubsection "'Knowledge Transfer Process' (KTP) and context.", starting on page 29, there are always two individuals directly involved in the KTP. This also holds true for groups participating in a knowledge transfer, e.g. a group of students observing a master during his work. Each observing student has their specific context, e.g. social surrounding, family, study groups, beliefs and values, political understanding, etc. This influences their understanding of their observation. Additionally, the context in which the knowledge is transferred also has an influence on the individual understanding of the knowledge provided. Therefore, the context servers as some kind of individual filter, which influences the externalization, combination, and internalization of knowledge and information (as displayed in Figure 12). This can only be researched, as the argument above shows, on a nodal level.

3.6.2. Intra MBE knowledge transfer to the shop floor level of a new subsidiary.

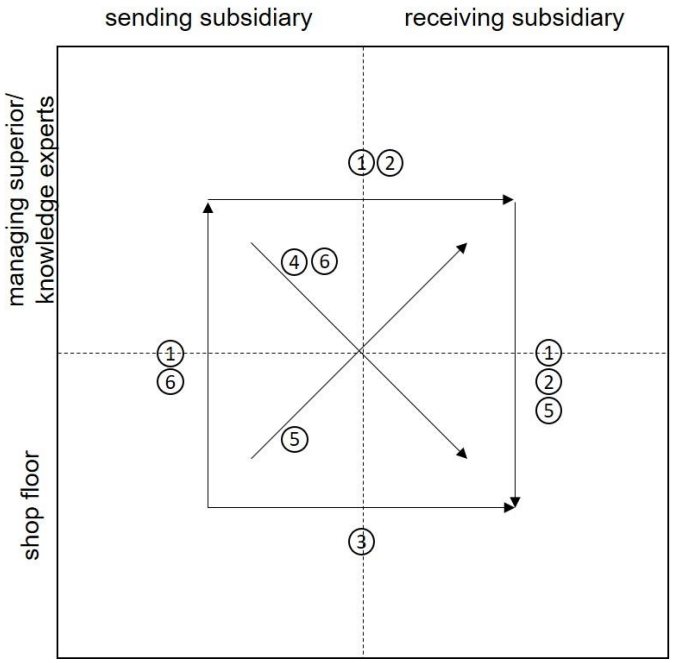
Depending on the organizational structure the KTP differs. Related to this, different actors come into play. These have to be considered accordingly to overcome arising critical events. There have been numerous studies on knowledge transfer. Although these studies bring valuable insights towards the KTP, there are none on knowledge transfer during a production ramp-up. However, the study by Fjällström et al. (2009) focusing on information, determines actors and critical events during a production ramp-up. Hence, this section is going to focus on the manifold of different possibilities that knowledge can get transferred by an IKT to a new subsidiary.

Firstly, it has be considered where the relevant knowledge resides. As identified before, the competitive advantage for a manufacturing company results from the operative knowledge of the shop floor employees. Secondly, the knowledge has to be transferred to the shop floor employees of the subsidiary in set-up. Both groups have managing superiors. These managing superiors can be engineers or well-educated shop floor workers with additional qualifications. And thirdly, new subsidiaries in set-up are highly dependent on

existing subsidiaries or central functions, which can govern to send specific knowledge experts (Gupta & Govindarajan, 1991a, 1991b).

Hence, the following is going to consider two hierarchical levels and two subsidiaries, between which the KTP could happen. In reality even further hierarchical levels could need to be included.

Figure 27 Knowledge flow paths between 2 subsidiaries and 2 hierarchical levels.



Note: the numbers 1-6 describe possible flow paths, how knowledge could flow from a sending unit to the intended shop floor receiving unit (bottom right). Flow paths 1, 3, 6, and 5 start at the employee level of the sending subsidiary (bottom left). Flow paths 2 and 4 start at the superior level of the providing subsidiary.

From the scenario described above, six possible flows of knowledge transfer can derive. These are displayed in Figure 27. As argued before, the competitive advantage for a production company lies within the production knowledge of the employees on the shop floor level. Therefore, it would be best to have the two employees talk directly with each other (Forza & Salvador, 2001; Sjöholm, 1996), represented by flow path ③. Each additional knowledge transfer required could increase the likelihood of loss of knowledge or knowledge transfer barriers hindering a knowledge transfer (Forza & Salvador, 2001). However, employees on the shop floor level usually have higher qualifications in operational skills than in foreign languages. The resulting communication issues are one of the barriers of a knowledge transfer. In order to transfer knowledge, the source and the sender have to able to communicate with each other properly. Hence, knowledge flow path ③ is the least probable option. Depending on the language skills of the superior, communication could be possible in all other knowledge flow paths identified in Figure 27. Although communication

could be possible, the superior of the providing subsidiary needs to have the appropriate and relevant level of knowledge about the operational processes. It seems possible that knowledge flow path ④ could occur. If the required operational skill level should not be held by the superior of the providing subsidiary, the superior needs to be first equipped with it by the employee of the providing subsidiary. Therefore, the local context, in this case the foreign language (D. E. Welch & Welch, 2008) and culture (Dalley & Hamilton, 2000; Hofstede, 2011; Leung, Bhagat, Buchan, Erez, & Gibson, 2005; Ulijn, O'Hair, Weggeman, Ledlow, & Hall, 2000), could have an influence on the process and actors of 'International Knowledge Transfer' to a new subsidiary in ramp-up.

Within the research, the actors involved in the KTP have to be identified. It has to be investigated why these actors were involved. Besides, being able to communicate in a different language does not mean that a knowledge transfer is going to occur. (See section "Theory and Characteristics of the 'International Knowledge Transfer' (IKT) " on IKT characteristics.)

Fjällström et al. (2009) identified in their study the 30 most critical events during and after the ramp-up. These were categorized during their study into six different categories: *suppliers/supply, product/quality*, *equipment/technique*, *process*, *personnel/education*, and *organization*. With 30% personnel/education critical events the category personnel/education had the most issues to be solved. The study further reviewed sources of information to overcome the critical events. Four information sources: other people, documentation, visits, and oneself – as a trial and error approach – were identified. (The order provided reflects the importance of information sources to solve the occurring critical event.) Direct contact with other people showed to be the most suitable source of information in solving a critical event. Fjällström et al. (2009) understand the ramp-up to occur after the 'Start of Production' until production reaches its full capacity. This is partially related to the definition of set-up within this research. Nonetheless, some findings could prove to be viable for the discourse of this research.

From the six critical event categories identified by Fjällström et al. (2009) only *personnel/education* could have an influence on the IKT as a local context factor, because the shop floor is involved as receivers and education is required to ensure absorptive and retentive capacity. (See subsection "The receiver as knowledge gainer.".) *Suppliers/supply*, understood as material provider in this case, would not have an influence on the KTP, as it has not been conceptually identified as IKT part. The definition of the *product/quality*, *equipment/technique*, and *process* are either provided by an existing subsidiary or the headquarters. By this, these critical event categories could also not be considered a local context factor, due to being provided from abroad. Lastly, *organization*, although having an

influence on the IKT process, could not be considered a local context factor during the set-up of a new subsidiary, as no established organization exists.

Fjällström et al. (2009) further identified three events during production ramp-up as most critical: I) hired personnel in assembly work, II) education of and information to assembly operators, and III) the amount of new products to be built seldom agreed with the forecast. Event III) could be neglected, because it does not have a direct connection to the KTP. However, events I) and II) showed to have both been critical during the ramp-up, because domain knowledge about the performance of their job has not been transferred. Information was made available to the operations personnel; however, it was not properly communicated. Training was unorganized, prior knowledge of the operators was limited and not accounted for during training although education plans had been established (Fjällström et al., 2009). Although the information was made available, it was not possible to get the operators to the level of knowledge as would have been needed during the ramp-up in this case. From what was reported in the study of Fjällström et al. (2009) and what has been found in literature and was discussed in the prior subsection on characteristics of knowledge transfer, it could follow that the characteristics and the context of each process part of the KTP was not appropriately accounted for. As described before, only making the information available to the receiver does not guarantee an absorption nor retention. Characteristics such as motivation, relationship, learning ability, prior related knowledge, absorptive capacity, teaching ability, usage of communication channels, etc. as well as the local context in form of e.g. local learning habits, values, beliefs, type of communication, etc. have not been accounted for.

Interestingly enough, it was further found that the main source needed to solve issues concerning the above stated events were other people (Fjällström et al., 2009). Under the light of the KBV of the organization this could mean that when problems arise during a ramp-up support is going to be searched for in properly knowledgeable people. They could give support to find a quick solution. However, they would not necessarily be considered proper knowledge transferrers, if the characteristics and local context factors of the local operator is not being considered appropriately. This could result in a short-term solution, however, it would not guarantee a sustainable knowledge transfer, enabling the operators to solve the same incident the next time by themselves (Szulanski & Jensen, 2004).

Although Fjällström et al. (2009) had used a case study approach and different qualitative methods, such as observations and semi-structured interviews for data gathering, the data analysis was of a rather statistical and quantitative manner. This, plus the fact that each participant was only allowed to name the most critical event for them during this longitudinal study, restricted Fjällström et al. (2009) from exploring further related factors that could influence a ramp-up process, such as context. With an open, inductive approach more

detailed factors could have been identified. Hence, this research is needed to close this gap. (See section “Research Strategy” for research methodology of this thesis.)

3.7. Influence of the Local Context on the IKT during Subsidiary Set-Up

So far, definitions for the term’s context, set-up, knowledge and information have been given. Theoretical models concerning knowledge transfer, knowledge creation, the set-up process, the understanding of the organization, the KBV of the firm, and context were discussed. Adjacent theoretical stances e.g. learning, teaching, communication, intercultural theory was considered and where applicable integrated. Lastly, specifics of the knowledge transfer: levels of knowledge transfer in international settings, organizational embeddedness and local embeddedness were argued for. Although being all somehow relevant for this research, still missing is the connection between all of them.

Within the first section, definitions for all the parts relevant for the conceptual framework were given. The definitions for context, set-up, knowledge and knowledge transfer were given. Knowledge was identified under the KBV as the most important selling proposition for an organization in the future (Takeuchi, 2013). Subsequently, the concepts of knowledge transfer and knowledge creation were reviewed in detail. Based on the definitions used for this thesis the knowledge creation cycle by Nonaka (1991) and Nonaka & Takeuchi (1995) was adjusted to the ECI model. In the ongoing argumentation it was shown that knowledge transfer and knowledge creation share the same goal. Hence, both concepts were integrated into a single conceptual understanding approach. The following discussion focused on the specifics assigned to each process part as identified in the new conceptual understanding of knowledge transfer. Researched characteristics already available were reviewed under light of being subject to influence from local context. It was shown that each characteristic could have a positive or negative impact on the IKT process, depending on the peculiarity. Adjacent theories: learning, teaching, communication, and intercultural management theory were considered as well, because they showed to share conceptual common basics. This resulted in the IKCT model as displayed in Figure 25, on page 61.

The following sections on levels of knowledge transfer and embeddedness showed further surrounding influential factors that need to be considered when trying to understand what influences an ‘International Knowledge Transfer’ process. It also showed that these framing factors could be subject to influence from the local context. Hence, they were considered important to be reviewed. However, as they are framing factors, they were not conceptually integrated into the IKCT model. It could be concluded that from the initial conceptual framework in Figure 2 by reviewing relevant literature Figure 25 was created, which builds the conceptual framework for the following practical discussion of this thesis.

Throughout a lot of different literature an acknowledgement for the importance of context in research was found (Estabrooks, Squires, Hayduk, Morgan, Cummings, Ginsburg, & Norton, 2015; Estabrooks, Squires, Hayduk, Morgan, Cummings, Ginsburg, Stewart, et al., 2015; Johns, 2006, 2017; Kelly & Ashwin, 2013; Needle, 2015; Palmer & Hartley, 2008; Pettigrew, Thomas, & Whittington, 2002; Rabenhorst & Steffens, 2016; Van Dijk, 2008; Worthington & Britton, 2009). Although acknowledging the importance of context the discussion was found to be on a more general level, e.g. the impact of digitization on the KTP (Larsson, 2018; Suominen & Mäenpää, 2017). This is however a macroeconomic discussion, which is not supporting to answer the rather microlevel research question of this thesis. No literature nor any comparable ongoing study was identified that wants to identify the local context's influence on the IKT to new subsidiaries in set-up. Although the knowledge-based understanding of the firm defines knowledge as the key success factor for the future and the set-up process was identified to be the most critical phase of a new subsidiary, no attempt has been made so far to identify local context factors and their influence on the 'International Knowledge Transfer' process.

With this understanding and the developed conceptual framework throughout the literature review, it could be argued that there is currently no understanding of the local context factors and their influence on the IKT to a new subsidiary in set-up. With the developed conceptual integrated understanding of knowledge transfer and knowledge creation in Figure 25, this thesis has contributed to theory. The following provides a starting point to close the identified knowledge gap and provide managerial implications to advance *practice* as well as *theory*.

3.8. Findings from the Literature Review

From the research framework, three main themes emerged: 1) 'International Knowledge Transfer', 2) set-up process of new, foreign manufacturing locations, and 3) the relevance of context on the KTP. (See details in the section "Research Framework".) Based on this, the initial key word search on Google Scholar resulted in huge amounts of available literature, which is displayed in Table 6. For this reason, further criteria to narrow available potential sources down were used, e.g. to sources not older than 2010 and to research conducted only in manufacturing industries. Also, the search terms were altered using single relevant key words linked by search operators. Results consequently dropped in number, as displayed in Table 6.

Table 6 Results of identifying relevant literature on Google Scholar.

search term	results on Google Scholar
initial search	
international knowledge transfer	>4,4 million
set-up of manufacturing location	>1,8 million
context	>3,9 million
adjusted search	
“international” AND “knowledge transfer”	~150.000
“set-up” AND “location” AND “manufacturing” AND “new” AND “foreign”	~43.200
“context” AND “knowledge”	>1,9 million

Although the amount of relevant literature had reduced, still an overwhelming amount of literature presented itself. For each of the three conceptual framework themes of this thesis, the main contributors were identified. As can be seen in Table 7, the main contributors for ‘knowledge transfer’ and ‘context’ are broadly known in research and practice. However, the concept of the set-up of new, foreign manufacturing locations was not evident in any widely-known contributor. What was also interesting when conducting the literature review was that the methodology or method(s) applied to knowledge transfer and context varied considerably – using a quantitative methodology to applying action research. The two identified main contributors for the set-up of new, foreign manufacturing locations both applied mixed methods approaches. (See Table 7.) Based on this, the literature review also showed that the set-up of new, foreign manufacturing subsidiaries is not well-researched, whereas by contrast ‘knowledge transfer’ and ‘context’ had received good research coverage. The breadth of available research supports the argument as to why the phenomenological application to literature review, as suggested by Randolph (2009), was the preferred choice of literature review method for this thesis. (See the section “Methodological Considerations on this Literature Review” for details.)

The literature firstly focused in great detail on the understanding of the terms set-up, context, and knowledge transfer. The lack of research considering the ‘set-up of new, foreign subsidiaries’, gave little grounds for a thorough review. In particular, the set-up of new, foreign subsidiaries was not clearly defined and lacked a processual understanding. It was identified that a particular set-up is specific, unique, and this adds uncertainty. Challenges that add to this uncertainty during the set-up process were identified as: ubiquity, ambiguity,

diversity, uncertainty, and fuzzy situations. The identified contained little processual depth and missed expected specifics for a set-up of new, foreign subsidiaries. Furthermore, knowledge transfer and context were little considered.

Table 7 Relevant researchers by theoretical concept.

Researcher	Research methodology/method	Comment
	set-up of a new, foreign manufacturing location	
Renner	mixed methods	German source, recommended by fellow researcher and not identified via Google Scholar
Almgren	case studies using mixed methods	was identified as a source used by Renner
	international knowledge transfer	
Nonaka and Takeuchi	case studies	n/a
Szulanski	mainly qualitative, some quantitative	n/a
Gupta and Govindarajan	quantitative	n/a
Polanyi	theory building	n/a
Probst	action research	n/a
	context	
Van Dijk	theory building	n/a
Johns	theory building	n/a
Hofstede	quantitative	considers cultural aspect of context only

Thus, for this research context was defined as: “a subjective construct of prevailing factors of a group of participants in a certain place to a certain point in time that have an influence on the KTP of a new subsidiary in set-up”. It was further identified that context can be governed by an organizational, a foreign, and/or a local view. Local context factors, as a major focus of this research, was further defined as “the prevailing environment in the target country of the new subsidiary in set-up”. (See section “Context” on page 18 for details on

definition of context for this thesis.) In contrast to the limited treatment of ‘set-up’, the large amount of literature for ‘context’ was potentially overwhelming and requires concerted effort to effectively consider. However, the great breadth and depth of available literature merited a thorough literature review and built a good basis for the following *review*, *analysis*, and *discussion*.

After that, ‘knowledge transfer’ was reviewed and defined. It was identified that, although papers were entitled ‘knowledge transfer’ or ‘knowledge management’, they actually focused on ‘information transfer’ or ‘information management’. For this reason, the primary terms ‘knowledge’ and ‘information’ were defined and differentiated for this research. Whilst generating a definition for ‘knowledge’ for use in this research, it became clear that there are different understandings available, resulting in a diverse definition continuum for ‘knowledge’. Different definitions of ‘knowledge’ were discussed and the concept finally understood for this research, as: “knowledge is everything that an individual knows tacitly or explicitly, which is embrained, embodied, encultured, and embedded in the individual and which is created by the individual”.

Based on the large amount of research available, knowledge transfer models, like the sender-receiver model by Minbaeva (2007) and the SECI model by Nonaka & Takeuchi (1995), were integrated with identified knowledge transfer specifics – e.g. “knowledge stickiness and absorptive capacity” by Szulanski (1996) and Szulanski & Jensen (2004), and “the importance of relationship” by Gupta & Govindarajan (2000a) – in order to result in the IKCT model. Each topic was discussed in turn and embedded in the IKCT model, resulting in Figure 25.

The third section focused on the discussion about possible knowledge transfer levels and possible transfer routes, including 2 subsidiaries and 2 hierarchy levels. Concerning transfer levels, 3 levels were identified coming from the personal or nodal level and concluding in the network or systemic level. In connection with the previous discussion on knowledge transfer and the focus of this thesis (on the IKT to the shop floor level including single person knowledge transfer), it was concluded that, for this thesis, the nodal level is the relevant level to be researched.

Finally, although much research had been conducted on ‘context’ and ‘knowledge transfer’ independently, it was seen that no research on ‘context’ *in connection with* IKT and ‘set-up of new subsidiaries’ had been undertaken. Although research which interrelated ‘context’ and ‘knowledge transfer’ was identified, the lack of focus on ‘set-up’ of new, foreign manufacturing subsidiaries as a research field could be an explanation for the identified research gap. In conclusion, the literature review built the conceptual framework logically around the three concepts ‘context’, ‘knowledge transfer’, and ‘subsidiary set-up’ and clearly identified opportunity for this research to advance both theory and practice.

4. Research Strategy

"One could perhaps usefully divide the vast universe of subsequent strategy ideas into those that focus on:

- Doing something new.
- Building on what you already do.
- Reacting opportunistically to emerging possibilities." (Ovans, 2015)

Although the above considered organizational strategy as subject, the three named strategy ideas could also be applied to research strategy. Firstly, in order to add value new research strategies, have to be approached to enhance the theoretical and practical state-of-the-art. Secondly, thorough research uses existing knowledge to build upon. Thirdly, research endeavours might uncover topics for further research, which could be used to deepen the understanding of a certain topic.

Like strategies in organizational settings, research strategies require proper preparation and prior argumentation of available approaches. The following defines the research strategy for this thesis and identifies why a constructivist approach, considering an inductive theory approach, applying a multiple case studies, and the usage of qualitative methods builds an appropriate basis to answer the prevailing research questions. Subsequently, the operationalization of research methods and of data analysis applying a streamlined codes-to-theory model by implementing a multiple coding cycle approach. Finally, measures to ensure ethics and research quality are discussed.

4.1. Philosophical Discussion

In order to actually understand an argument, it is necessary to understand on which assumptions the argument is made (Arbnor & Bjerke, 2008; Creswell, 2013a). As suggested by Saunders et al. (2016) the philosophical position of a researcher could be uncovered by peeling off different layers to arrive at the methods used for the research. Based on the literature review and the resulting research questions the following discusses the ontological, epistemological, axiological and methodological position supporting this thesis.

The underlying question concerning ontology is: "What is the nature of reality?" (Guba, 1990; Hatch, 2002, p. 11). Successive theories are often said to be very close to the truth. However, the question is how researchers see "… the match … between the entities with which the theory populates nature and what is "really there"." (T. Kuhn, 1970, p. 206) Exactly this match-making is a principal illusion (T. Kuhn, 1970).

Having stated this, it could be argued that there is no actual 'right way' out there how to see and perform research. It all depends on how it – the problem, the research theory, etc. – is seen from the environment and point of view of the researcher and how personal

values and beliefs form their reality (Guba, 1990). This should not indicate that the ontological position of a researcher could not be a realistic approach. Guba (1990) argues that the question raised in the beginning of the section: 'What is the nature of reality?', has to be answered by each researcher individually, to create an individual understanding of the research problem, the research approach, the argumentation, the analysis, the synthesis, the interpretation, the sense making of data gathered, etc. (Arbnor & Bjerke, 2008; Creswell, 2013a; Eisner, 1990; Hatch, 2002; Saunders et al., 2016).

Different philosophical positions have been proposed in literature as summarized in Appendix 7. The derived research questions, based on the literature review, ask for an understanding of the influence of local context factors on the 'International Knowledge Transfer' in set-up. From a positivist or post-positivist approach initial hypothesis would be formulated that would be based on existing theory (Saunders et al., 2016). An underlying cause-effect relationship would be assumed (Arbnor & Bjerke, 2008; Bryman & Bell, 2015; Bryman, 2015; Creswell, 2013a; Guba, 1990; Saunders et al., 2016). However, the literature showed that an underlying theory for the specific research issue of this thesis is missing and that it seems to be unclear, which factors do have an influence on the 'International Knowledge Transfer' process to subsidiaries in set-up. For this a positivist or post-positivist approach could not philosophically support this research.

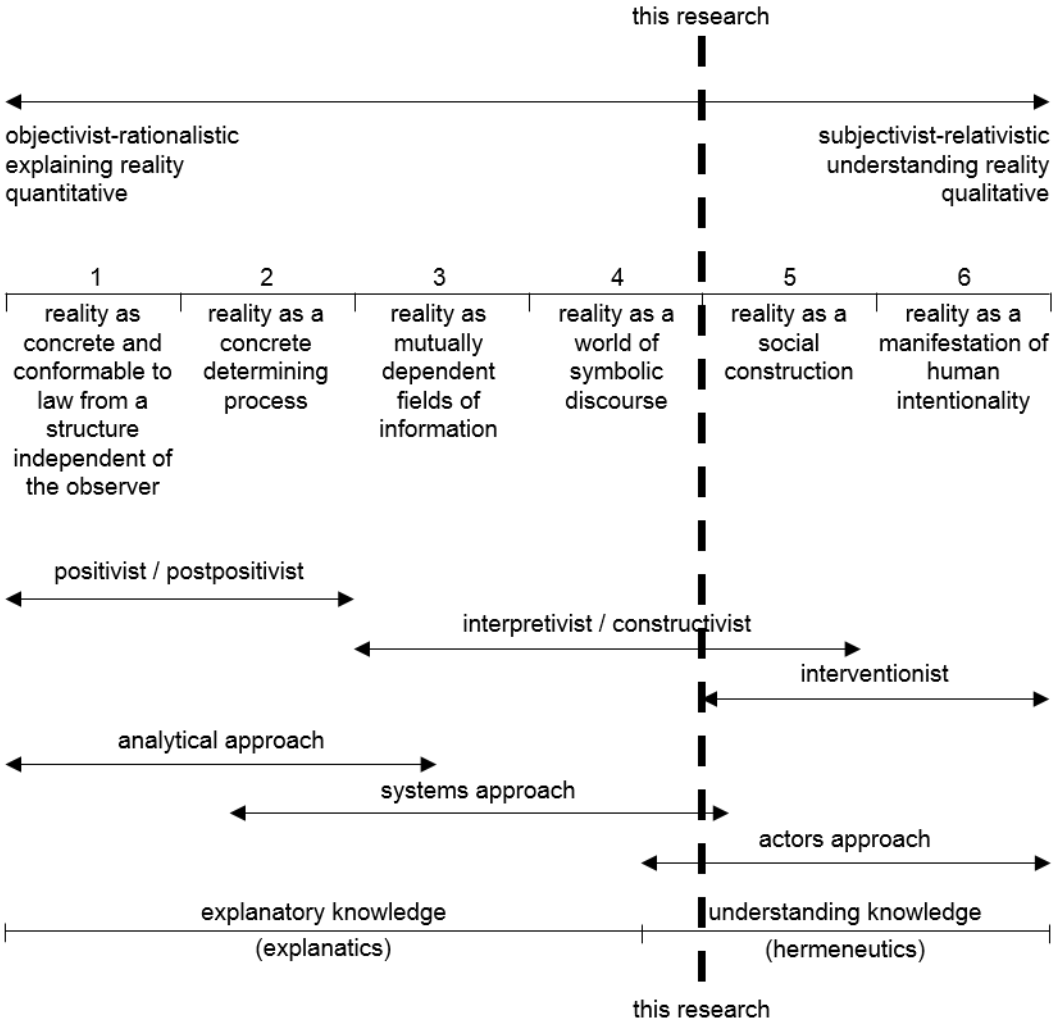
Further, a transformative or pragmatic philosophical approach could also not ideally support this thesis. For a transformative approach a political and change-oriented tenor could be argued to be missing. It is not the goal of this research to change current political systems nor to optimize social dispositions of marginalized groups (Creswell, 2013a). A pragmatic approach would have been possible. However, for a mixed method approach the quantitative approach would be missing and the central part of pragmatism – to support action – could also be argued to be missing within the goal of this research.

Based on the exclusion approach above, the constructivist paradigm, from the paradigms displayed in Appendix 7, remains available as a possible research approach for this thesis. A constructivist approach is often combined with a interpretivist position, as they have similar ontological, epistemological, axiological and methodological positions (Creswell, 2013a). However, only the term constructivist is used throughout the further argumentation, as this term seems to be used more commonly in available literature (Bryman & Bell, 2015; Bryman, 2015; Creswell, 2013a; Guba, 1990; Hatch, 2002).

A constructivist approach supports this thesis best, because it sees the world as a construct of social and historical personal interpretations. It is the ultimate goal to create an understanding of the prevailing situation and gain in-depth insights about the values and beliefs of the persons constructing it (Bryman & Bell, 2015; Bryman, 2015; Denzin & Lincoln, 2005; Gray, 2013; Guba & Lincoln, 1982, 1985, 1989, 1994, 2005; Guba, 1990; Hatch,

2002). This is the first step of this research: to understand how a knowledge transfer in an international setting to a subsidiary in set-up works. Consequently, it questions how local context factors influence this process, and lastly questions how these influences could be managed. Hence, it is necessary to understand the whole concept in each case in-depth from the constructor view (Guba & Lincoln, 2005). This could be argued to be supported by a constructivist view. Further, the whole processes involve certain actors that have to perform the KTP to a certain time, in a certain place, and under certain conditions. Hence, it is further necessary to include all influencing factors into the research. Only then a whole picture for each case could be derived on which new knowledge could be developed.

Figure 28 Placing this research in the paradigm continuum.



Source: Adapted from “Methodology for business knowledge” by Arbnor & Bjerke, 2008, p. 51. Copyright 2009 by SAGE Publications Ltd.

Based on this discussion it could be concluded that from the current circumstances the constructivist paradigm seems to be the most suitable approach for this thesis. Following,

the ontological position is relativistic the epistemological position subjective, and the methodological position hermeneutic/dialectic (Guba, 1990), as displayed in Figure 28.

4.2. Considerations of Approaching Theory

Research usually involves the use of theory (Saunders et al., 2016; G. Thomas, 2010). How theory is used in a research depends on the alignment with the research paradigm and the goal of the research. There are three approaches discussed in relevant literature: deduction, induction, and abduction. Deduction could be related to the classical research approach including hypothesis to test a theory to come up with generalizable truths. Induction on the other hand approaches theory the other way around: generating a theory from data gathered on a rich and informed basis. Abduction switches between deduction and induction back and forth to iteratively optimize the researched phenomenon (Saunders et al., 2016). Saunders et al. (2016) came up with a condensed table reviewing the three approaches concerning logic, generalisability, use of data, and theory. This table is displayed in Appendix 8 for review.

Following these very brief definitions, the deductive approach could be assigned to a positivist or post-positivist research paradigm, because it requires a theory in the beginning that needs to be tested within the research. Based on the results, X is either depending or not depending on Y with a statistical probability of Z (Folger & Stein, 2017; Spector, 2017). Abduction could be assigned to be the approach to theory, when conducting an interventionist approach, because the findings during the research are tested and iteratively optimized throughout the research process through speculative conjectures (Folger & Stein, 2017; Saunders et al., 2016). The previous section, however, identified that the most suitable research paradigm for this research is a constructivist or interpretivist approach deduction and abduction could not support this thesis appropriately.

The inductive approach wants to understand *why* and *how* a cause and effect are linked with each other, including the context of the phenomenon studied (Saunders et al., 2016). Based on inductive findings conclusions could be drawn (Folger & Stein, 2017). From the literature review it was concluded that there might be context factors available that have an influence on the IKT process. An inductive approach could support this thesis, because it gives room for the discovery of alternative explanations that have not been considered by existing research. Based on this, conclusions and new theory could be derived (Folger & Stein, 2017; Saunders et al., 2016; Soiferman, 2010; Spector, 2017; Woiceshyn & Daellenbach, 2018). An inductive approach could support this goal, because it gives room to identify further explanations throughout the research by considering a phenomenon from different point of views in comparison to a deductive approach (Saunders et al., 2016).

Additionally, an inductive approach should include a critical review of the underlying premises. Using a deductive approach would mean to not question whether or not the underlying premises a theory is based on are true or false (Spector, 2017). A deductive approach would, Hence, not add anything new (Folger & Stein, 2017). However, this research intends to uncover the factors of local context that might have an influence on the 'International Knowledge Transfer' process, which has not been done so far as identified in the literature review. For this an inductive approach is rather appropriate for this thesis, because there are no regulations that require a hypothesis, e.g. the local working habit has a negative influence on the successfulness on the 'International Knowledge Transfer' process. It is, however, a research that intends to discover the influencing factors not having a sufficient theoretical basis, which is another characteristic of an inductive approach to theory (Woo, O'Boyle, & Spector, 2017).

Consequently, it could be argued that an inductive approach on theory could support this thesis best because it leaves room for discovery of different context factors and includes different points of view to fully understand the phenomenon. This is all in alignment with the research philosophy identified in the later subsection.

4.3. Research Design

Creswell states that "Research designs are types of inquiry within qualitative, quantitative, and mix methods approaches that provide specific direction for procedures in a research design." (2013a, p. 11f.) In alignment with the research paradigm the research design has to appropriately be argued for. The following shows why a qualitative research design and why specifically the case-study research design could support this thesis appropriately.

Concerning research designs Creswell (2013a) and Saunders et al. (2016) seem to have discussed similar research designs. Although, they are differently outlined, they could be comprehended as in Table 8. Saunders et al. (2016) argue that quantitative research design is usually used in positivistic research paradigms. However, they could be used in a pragmatic and realist research paradigm as well (Saunders et al., 2016). Hence, a quantitative research design could not be used to support the paradigm position of this thesis. Additionally, the quantitative design wants to prove or falsify the interdependencies of variables to prove a theory that is defined beforehand (Creswell, 2013a; Saunders et al., 2016). None of the just stated arguments nor any of the research characteristics of Table 8 apply for this research, because no hypotheses are available to be tested, the prevailing conditions of the cases would hardly allow for a quantitative design, and a quantitative design would not support the philosophical position of this thesis. Hence, a quantitative research design could not be considered an appropriate research design for this thesis.

Table 8 Available research designs and their characteristics.

Quantitative Designs	Mixed Methods Designs	Qualitative Designs
• Experimental designs • Nonexperimental designs, such as surveys • Mono method • Multi method	• Convergent • Explanatory sequential • Exploratory sequential • Transformative, embedded, or multi-phase • Simple • Complex	• Narrative research • Phenomenology • Grounded Theory • Ethnographies • Case Study • Mono method • Multi method

Source: Adapted from "Qualitative Inquiry & Research Design", by Creswell, p.. Copyright 2013 by SAGE Publications, Inc. & "Research Methods for Business Students", by Saunders et al., p.2015, p. 124. Copyright 2016 by Pearson Education Limited.

Within mixed methods designs qualitative and quantitative research design parameters are considered (Saunders et al., 2016). Although this research is going to use a multiple method approach for validity and reliability reasons, there is, due to the argument in the paragraph above, no quantitative method considered. (See sections "Case Study Blueprint" and "Selection of Research Methods" for details on research methods.) Hence, a mixed methods approach was not appropriate, because a quantitative research method was missing.

Creswell (2013a) advocates that a constructivist research paradigm typically tends to use a qualitative research design (Denzin & Lincoln, 2005; Saunders et al., 2016). "In this situation, the researcher seeks to establish the meaning of a phenomenon from the views of participants." (Creswell, 2013a, p. 19). This thesis aimed to understand the influencing local context factors on the IKT process. In order to get an understanding of the whole situation it was possible to get rich and thick insights from the persons involved in the process. Through their experience and point of view the meaning for the phenomenon was created. By this it was possible to picture the nature of the IKT, identify how local context influenced it and make suggestions to reduce or overcome the identified influences.

The literature review showed that no comparable research has been conducted so far. Hence, the qualitative approach could be used to explore underlying patterns (Creswell, 2013a; Denzin & Lincoln, 2017; Saunders et al., 2016). As no available research exists, important local context variables would need to be identified initially. As stated before, quantitative research designs are usually used to explain the behaviour of variable x in relation to variable y (Blumberg, Cooper, & Schindler, 2014; Bryman & Bell, 2015; Bryman, 2015; Zikmund, Babin, Carr, & Griffin, 2013). However, this is not given for the prevailing

cases of this thesis nor does a hypothesis exist that wants to test x in relation to y. According to Creswell (2013a), Denzin & Lincoln (2017) and Saunders et al. (2016) a qualitative approach could be suitable to identify important factors initially through in-depth qualitative inquiry. Appropriately, the research problem and questions of this thesis focus on how and why questions, which fits to a qualitative approach (Creswell, 2013a; Denzin & Lincoln, 2017; Galletta, 2013; Saldaña & Omasta, 2017; Saldaña, 2011, 2014; Saunders et al., 2016).

However, not only the research problem and questions are to be considered when arguing for a research approach. Also, personal experiences and the intended audience are to be taken into account. The qualitative approach leaves room for creativity and open mindedness to develop new approaches to research problems (Creswell, 2013a). From a self-reflecting standpoint, both characteristics could be assigned to me. Having worked in strategy and marketing, creativity and open mindedness were basic personality requirements. Further, a substantial amount of studies reviewed were of qualitative nature. Hence, it could be argued that the research community in the field of knowledge transfer is used to dealing with qualitative research approaches. In conclusion, it could be argued that my personal predisposition, the audience, and the research paradigm would be best supported by a qualitative research design.

Within qualitative research different designs are available, as can be seen in Table 8. Each design could be used for a specific purpose:

- Narrative: Is about collecting complete stories of the participants' life. Social connections and the sequence of events are of importance. The outcome might be comprehensive descriptions of context and the narrators social surrounding collaboratively joined with the experiences of the researcher. (Algozzine & Hancock, 2016; Arbnor & Bjerke, 2008; Bryman & Bell, 2015; Chase, 2011; Coffey & Atkinson, 1996; Creswell, 2013a; Gabriel & Griffiths, 2004; Riessman, 2008; Saunders et al., 2016; Brett Smith, 2007)
- Phenomenology: Gathering in-depth information, experiences and perceptions of a participant concerning a certain event or situation. The individual is at the core of the research. (Algozzine & Hancock, 2016; Creswell, 2013a; Lester, 1999; Vagle, 2016)
- Grounded theory: Building theory from the data gathered (Algozzine & Hancock, 2016; Bryman & Bell, 2015; Creswell, 2013a; Glaser, 2017; Saunders et al., 2016). Glaser talks about grounded theory as. "… the discovery of theory from data systematically obtained from social research. … grounded theory is a way of arriving at theory suited to its supposed uses … [contrasting] theory generated by logical deduction from *a priori* assumptions."

(2017, p. 2f.). The approach might be iterative and/or circular (Bryman & Bell, 2015).

- Ethnographies: behavioural study of a group in their natural setting (Algozzine & Hancock, 2016; Bryman & Bell, 2015; Creswell, 2013a; Guba & Lincoln, 1985; Guba, 1990; Saunders et al., 2016).
- Case study: wants to create in-depth understanding of a defined occurring singularity in its real-life context (Algozzine & Hancock, 2016; Bryman & Bell, 2015; Creswell, 2013a; Gerring, 2016; Gummesson, 2017; Saunders et al., 2016; R. E. Stake, 1995, 2005; Robert E Stake, 2006; G. Thomas, 2010; Yin, 2011, 2013).

Using a narrative research design for this thesis would be very interesting concerning the outcome, because the chronologically-gathered in-depth experience of a participant in the 'International Knowledge Transfer' process in the new subsidiary in set-up could give rich insights about the process. Although the chronological order could support the rebuild of the process, the remaining data would not satisfy the requirement to identify local context factors and their influence on the IKT process. A narrative design could be used to address the receivers experience of the IKT process. However, in this thesis the process and the influence of local context factors is the core research target, not the persons involved. Hence, a narrative, a phenomenological and an ethnographical research design would not be considered as suitable research designs for this thesis, as they place persons or groups at the centre of their research design and not processes or events as in this research.

It follows that grounded theory would also be interesting concerning the outcome. It is however, not the goal to come up with a theory based on the data gathered. Although the research aims to identify local context factors that have an influence on the IKT process, it is not intended to test or falsify these relationships. Hence, no new theory shall be established from the gathered data. Consequently, grounded theory would also not appropriately support the answering of the research questions of this research.

Lastly, the case study remains as a last possible research design. A case qualifies to be a contemporary phenomenon that is spatially and temporally delimited. A case study focuses in-depth on this case and studies it in its natural context (Bartlett & Vavrus, 2016; Creswell, 2013a; Saunders et al., 2016; R. E. Stake, 1995; Robert E Stake, 2006; G. Thomas, 2010; Yin, 2011, 2013). The influence of local context factors on the 'International Knowledge Transfer' process to new subsidiaries in set-up could be argued to be a contemporary phenomenon as it only occurs during the set-up of a new subsidiary. This means that there could be a beginning and end assigned to the process. Hence, the influence of the local context factors would therefore be temporally delimited. Furthermore,

the set-up of the new subsidiary is delimited to a certain location in which the new plant is being established. Lastly, the focus of this research actually lies on the context factors themselves. Based on all these arguments it could be derived that a case-study research design could support this research appropriately.

In conclusion, this section showed that, based on the research paradigm, a qualitative research design could best support this thesis. Quantitative and mix methods designs were argued to be less appropriate as no *a priori* theory exists and the intended research does not wish to test or falsify variables. Consequently, the discussion identified that within qualitative research designs the case-study could be a good option to conduct this approach. It was argued that the prevailing cases of this research are contemporary phenomena that are spatially and temporally delimited, that there is an in-depth interest in the cases and that the context is considered. Hence, the following subsection is going to discuss the case study blueprint for all of the four cases of this research in more detail.

4.4. Case Study Blueprint

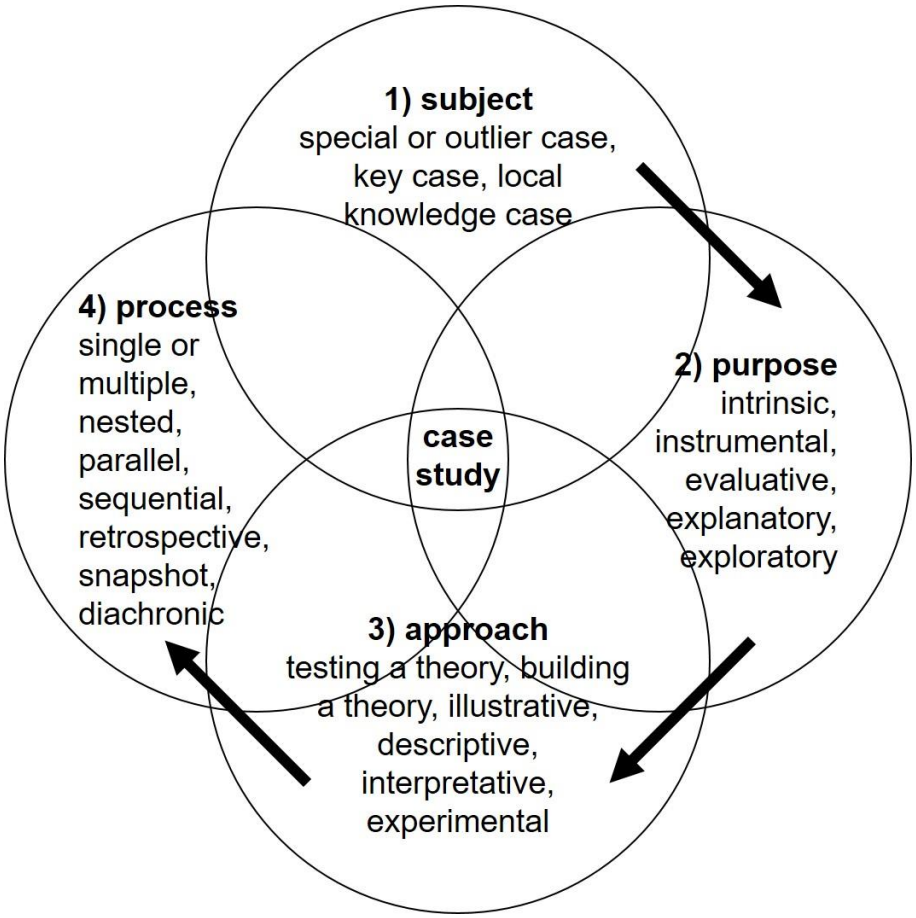
Although it was derived from the previous section that a case study might be an appropriate research design for this research, further ascertainment towards the case study for this research had to be done. As a first step, it is necessary to understand what the cases are and how they are linked with each other. This in combination with the research questions is going to build the basis to evolve further methodological grounds or to select certain case typologies to construct a strong argument concerning the framework of the case study parameters used (Gerring, 2016; R. E. Stake, 1995; G. Thomas, 2010; Yin, 2013).

In order to guide the case study definition, the blueprint suggested by G. Thomas (2010) is used. Yin (2011, 2013) could be probably considered the more well-known researcher concerning case study research designs, however, his tendency towards a realistic worldview does not correspond with the chosen research paradigm for this thesis (Bartlett & Vavrus, 2016; R. E. Stake, 1995). G. Thomas (2010) offers an approach, as displayed in Figure 29, that could be argued to be positioned deriving from a rather interpretivist or constructivist worldview. Hence, it could fit better to the research paradigm of this thesis. Each of the suggested stages: subject, purpose, approach, and process are discussed in separate subsections (G. Thomas, 2010).

G. Thomas (2010) offers a processual downstream approach for case study definition. (See Appendix 8, on page 233.) It could be argued that it does not consequently consider that the intersection of all parts shapes the framework of a case study. However, the single characteristic groups: subject, purpose, approach, and process could be acknowledged to depend on each other as suggested by G. Thomas (2010). Hence, the processual design of

G. Thomas (2010) could be adjusted by using a *Venn diagram*, as displayed in Figure 29, picturing a case study approach in the intersection.

Figure 29 Framework to define a case study framework.



Source: Amended from "How to do You Case Study" by G. Thomas, 2011, p. 93. Copyright 2011 by SAGE Publications Ltd.

4.4.1. Subject to the case.

For R. E. Stake (1995) the main goal of a case study is to understand as much as possible of a real world issue (Gummesson, 2017). In order to do so, it should be considered what kind of case is available (Gerring, 2016; R. E. Stake, 1995; G. Thomas, 2010; Yin, 2013). Different typologies have been suggested by different researchers (Gerring, 2016; R. E. Stake, 1995; G. Thomas, 2010). G. Thomas (2010) offers three different types of cases: 1) local knowledge case 2) special or outlier case and 3) key case. Although it seems common practice to try and cluster types of cases, Yin (2013) raises concerns that no case is easily defined and needs specific consideration of the researcher (Gummesson, 2017). However, using available case types supports the researcher in defining the case. Nonetheless, it should be always considered that each case is specific (Algozzine & Hancock, 2016; Bryman & Bell, 2015; Creswell, 2013a; Gerring, 2016; Gummesson, 2017;

R. E. Stake, 1995, 2005; Robert E Stake, 2006; G. Thomas, 2010; Yin, 2013, 2011) and for this should not be ‘pressed’ in available typologies.

Depending on the definitions of a case subject offered by G. Thomas (2010) the case of this thesis is a local knowledge case. G. Thomas states that: “Research projects often start with some special knowledge, noticing something interesting or unusual, putting two and two together and, with a spark of curiosity, a research project is fired and ready to fly.” (2010, p. 86). At an area manager meeting the issue of the troubles in the set-up phase of new plants were discussed. Each plant manager presented that they had issues with the number of bad parts in production. While talking to one of the plant managers after the meeting it was suggested that, although having similar processes available in other plants, it was not possible to transfer this knowledge to the new location to support a better set-up process.

Based on the definition of a local knowledge case by G. Thomas (2010) it could be argued that the cases for this thesis are local knowledge cases. They started with something very specific: the feedback of the managers concerning the set-up process in regards to performance and knowledge transfer. This situation could only happen to a small amount of people, which is another indicator for a local knowledge case. Other researchers would not have the chance to be part of that kind of meeting. Hence, the case arose from personal knowledge about a certain event, process, situation, etc. and the richness and possibility to gather in-depth data about this event, process, situation, etc. would not be available to other researchers makes the cases of this thesis local knowledge cases (G. Thomas, 2010).

The cases could not be seen as special or outlier cases as of all of them reported similar issues with the KTP. This means that none of them was generally different from the others, in terms of feedback of the plant managers, which would qualify a case as a special or outlier case (Gerring, 2016; G. Thomas, 2010). Furthermore, the cases could also not be seen as key cases as they are not particularly interesting in terms of size, issue, influence on a larger group of people, etc. (G. Thomas, 2010). A good example could be hurricane Kyrill and the consequences of flooding due to the hurricane.

4.4.2. Purpose of the case.

Following the subject to the case G. Thomas (2010) suggests to identify the intended purpose behind the case study. It is the goal identify why this case study shall be done. G. Thomas (2010) suggests 5 types of purposes: intrinsic, instrumental, evaluative, explanatory, and exploratory. Similar types have been suggested by other authors by another name: e.g. goals or strategies by Gerring (2016), design and approach by Algozzine & Hancock (2016), or analogy by Yin (2013). Based on the purpose of the case the later on used methods to conduct the case study should be chosen (R. E. Stake, 1995). Hence, it is

necessary to have a clear understanding about the purpose of the case, because this builds the basis for the selection of the methods used.

The cases on hand are to be seen as a mixture of instrumental, explanatory, and exploratory purposes. An intrinsic purpose could not be considered as it is not the pure interest of the author of this thesis to conduct this research (Gerring, 2016; R. E. Stake, 1995; G. Thomas, 2010). It is the intended goal to come up with a proposal how to optimize the 'International Knowledge Transfer' process to subsidiaries in set-up. Due to this reason however, an instrumental purpose might be given (Denzin & Lincoln, 2017; R. E. Stake, 1995; G. Thomas, 2010). Furthermore, it is not the intended purpose of this research to compare e.g. changes made. For this the cases would not qualify for an evaluative purpose. However, an evaluative case purpose of future subsidiaries in set-up applying the intended outcome of this thesis could be of an evaluative purpose to compare, whether or not a positive effect could have been achieved (G. Thomas, 2010).

The purpose of these cases could be argued as explanatory in the way that an in-depth understanding of the situation is wanted to be achieved. Additionally, the specific of context is of essence, as it is the goal to identify exactly the prevailing local context factors that could have an influence on the 'International Knowledge Transfer' process to the subsidiaries in set-up. It is the intended goal to later on have an explanation how local context factors could influence the IKT process as determined in the second research question of this thesis (Gerring, 2016; G. Thomas, 2010; Yin, 2013).

Finally, the cases could also be considered to be of exploratory purpose. To the researcher there is only little background information and knowledge available as it was not within his professional tasks to be part of the set-up process locally. Hence, only preliminary knowledge of the cases is available and has not been further scrutinized. However, it is the intended outcome to identify why the knowledge transfer happened the way it did and how local context factors could have influenced it (Gerring, 2016; G. Thomas, 2010; Yin, 2013).

4.4.3. Approach towards the case.

After carving out the purpose of the case study this section argues how to approach it. Concerning the analytical frame of case studies G. Thomas (2010) offers five approaches: testing a theory, building a theory, drawing a picture, experimental, and/or interpretative. An experiment – in this regards an experiment is not to be understood as a research design in a post-/positivist meaning – could be something quite loose and supportive for a case study (G. Thomas, 2010). However, it is not going to be used as a case study approach for this thesis, because it was, in the beginning of the research, not understood which the main variables are (G. Thomas, 2010). Additionally, as argued in the following subsubsection

“Process conducting the case.”, the thesis is retrospective. This means that a small experiment with pre-testing, treatment, and post-testing is not possible (G. Thomas, 2010).

It could be argued that some kind of pre-theory that local context factors have an influence on the ‘International Knowledge Transfer’ process existed. However, it was not the intention of the cases to actually test or disprove this theory. It was the goal to understand how local context factors influence the IKT process. Based on the in-depth information from the inquiry process, the interpretation of the data could show which factors had which kind of influence on the IKT process. Hence, it was necessary to first create an in-depth understanding of the wholeness of the situation in order to then come up with a theory (Gummesson, 2017; G. Thomas, 2010). Although it was not the idea to test the theory that local context factors had an influence on the ‘International Knowledge Transfer’ process, it could support the argumentation of this thesis as some kind of thinking tool (G. Thomas, 2010). G. Thomas states about theory: “It is not the aim of the inquiry, it is not an end in itself, it has to do a job, which is to help explain your findings.” (2010, p. 179).

Approaching a research inductively means to create meaning from data (Creswell, 2013a; G. Thomas, 2010; Woiceshyn & Daellenbach, 2018). However, as argued by G. Thomas (2010), the theory developed out of the data gathered should be considered a tool to explain the derived conclusions. Without theory, it would not be able to link the different findings nor would it be possible to place them in context. This would leave the findings and conclusions with less implication power, as the missing understanding for possible uses cases would not be given. Respectively, the link to the existing research boarder would be missing as well. Without theory, the outcomes of this thesis could be considered a sole idea in empty space. Nowhere to be connected to, it would hover in mid-emptiness as a single findings and conclusion island with no argumented linkage. Hence, theory was considered a linking tool to make sense of the findings and conclusions of this thesis.

4.4.4. Process conducting the case.

As stated in the section “Setting the Scene”, there are three different cases available: China, Brazil, and Mexico. Following, the case study approached for this thesis would be a multiple case study. However, this is easy to derive, it has to differentiated: what kind of multiple case study it is (R. E. Stake, 1995, 2005; Robert E Stake, 2006; G. Thomas, 2010; Yin, 2013). Yin (2013) comes up with a 2x2 matrix to differentiate single-case designs and multiple-case designs on the one continuum and holistic-single-unit of analysis versus embedded-multiple-unit of analysis. (Please find his suggested matrix in Appendix 9.) As argued before the intended case study is a multiple-case study design. Yin (2013) promotes a multiple case study design because of the possibility of direct replication of the cases, which could follow in his sense a more substantial analytical benefit. Single case studies are

vulnerable due to their: "… uniqueness or artefactual conditions surrounding the case …" (Yin, 2013, p. 64). Although having identified the case study at hand as a multiple case study it is not yet clear whether it is of a holistic or embedded nature.

Holistic case study designs research the subject of three independent cases (Yin, 2013). This would mean for this research that for each case the influence of the local context factors on the 'International Knowledge Transfer' process on the shop floor level at a subsidiary in set-up are the focus of the case study. In contrast: an embedded design – G. Thomas (2010) refers to it as a nested design – would include different types of e.g. job groups in the study. This could mean that the influence of local context factors on the 'International Knowledge Transfer' process are not solely researched for the shop floor but also for e.g. office staff and management positions (G. Thomas, 2010; Yin, 2013). Therefore, the case study at hand could be seen as a multiple holistic case study.

Reaching this stage is, however, only the initial step. G. Thomas (2010) further differentiates the process of a case study in three different time horizons:

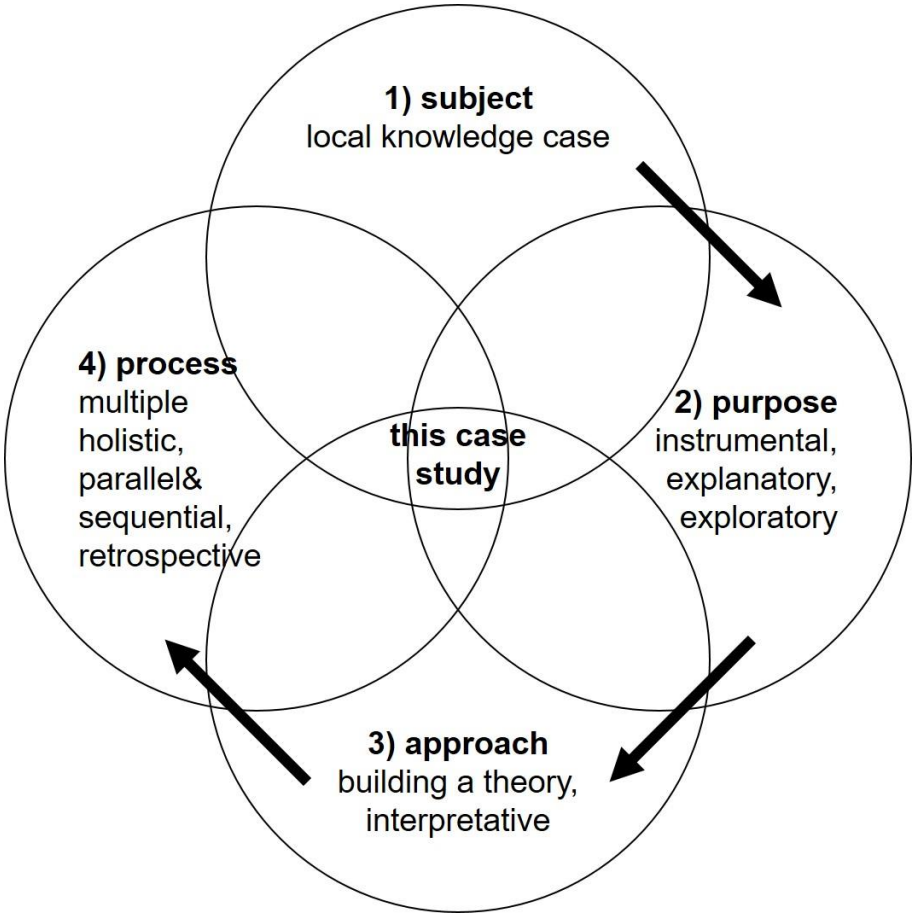
- Retrospective – studying phenomenon's or events that have already happened.
- Snapshot – studying a phenomenon for a certain/fixed period of time, e.g. a day or an hour, as it happens.
- Diachronic – studying changed conditions over a period of time.

All three cases of this research are already operating in serial production. This means that the set-up process is accomplished. Following, it is not possible to study the 'International Knowledge Transfer' process to the shop floor of a new subsidiary in set-up as it happens. Furthermore, changing conditions could also not be observed as the phenomenon has already passed for all three locations. This leads to the conclusion that for this thesis all case studies could be argued to be retrospective, as a snapshot and diachronic time horizon could not be used any more.

Besides the time horizon it could be further necessary to argue in which order the multiple case studies could be approached: parallel and sequential. Parallelism occurs when all cases, nested/embedded or holistic, of a case study are performed at the same time (G. Thomas, 2010). As there is no team available to conduct the research of this thesis a parallel process is hardly doable. For which it would follow that a sequential approach would be likely. However, it should be considered that, due to availability of interviewees, a sequential approach is also hardly doable. Furthermore, certain functions that should be considered for the research as data sources could be seen as an overarching data pool, due to their international position. It could generally be questioned, whether or not a multiple case study approach has to be parallel or sequential, it could also be a mixed process approach. Especially in the prevailing condition, e.g. central company policies would have an impact on

all cases in parallel, although the cases were not parallelly established. This data would need to be considered as relevant for all cases. By, for example, starting with this kind of data all the cases would be started in parallel. However, the following methods used for in-depth analysis for each case would be performed case specific and sequentially, as no team for performing multiple interviews at the same time existed. Hence, it could be argued to be a mixed process approach. Findings from one case could support a stronger research in another case. However, the influence between the different cases has to be accounted for during the research (G. Thomas, 2010).

Figure 30 This thesis's case study framework.



Source: Adapted from "How to do You Case Study" by G. Thomas, 2011, p. 93. Copyright 2011 by SAGE Publications Ltd.

Based on the discussions above, the previously shown case study framework was accordingly adjusted to this thesis's conditions, as shown in Figure 30. Although G. Thomas (2010) offers a straightforward process to build a case study framework, there is, however, only little information available about the specific requirements of a comparative case study. Hence, the following subsubsection discusses this topic in more detail.

4.4.5. Specific considerations on comparative case studies.

Although there is quite a substantial amount of literature available on multiple case study research only few actually pick up the issue of comparative case studies. R. E. Stake (1995), G. Thomas (2010) and Yin (2013) as well only discuss very scarcely the specifics of a comparative case study. However, Bartlett & Vavrus (2016) offer with their Comparative Case Study (CCS) a new approach towards case study research. At the core are three concepts: culture, context and comparison are reinterpreted.

> "In sum, we argue for a view of comparison that is *processual*, in that it considers the cultural production of places and events, as well as the articulation and dearticulation of networks and actors over time and space, rejecting staid notions of culture or context; and one that *constantly compares and contrasts* phenomena and processes in one locale with what has happened in other places and historical moments." (Bartlett & Vavrus, 2016, p. 19)

In contrast to Yin (2013), Bartlett & Vavrus (2016) advocate for an *a priori* unbound case study. Bartlett & Vavrus (2016) see the case as something which develops *during* the actual research, and as such requires *no prior* boundary definition. However, the emerging process has to be made explicit throughout the research (Bartlett & Vavrus, 2016; Heath & Street, 2008). Bartlett & Vavrus argue that: "Instead of this *a priori* bounding of the case, the CCS approach features an iterative and contingent tracing of relevant factors, actors, and features. The approach is aimed at exploring … [and] … to understand and incorporate, at least partially, the perspectives of social actors in the study." (2016, p. 39). Hence, Bartlett & Vavrus (2016) suggest to integrate three dimensions in a CCS:

1) Horizontal comparison: using homologous (fairly similar) or heterologous (distinct different) subjects as a basis for the research.
2) Vertical comparison: studying higher and lower levels of culture and context of the subject.
3) Transversal comparison: understanding the current situation by researching the history that lead to the current phenomena.

Although Bartlett & Vavrus (2016) state that their CCS approach would need a central focus on power and inequality and does not answer "… the "how" or "why" questions, which are fundamental to process-oriented case studies." (p. 40) they call upon neo-positivists and interpretivists to include comparison as a central part into their research studies. Their

proposed three dimensions could be used, similar to the approach of G. Thomas (2010) to frame a case study, to further frame an interpretivist comparative case study approach.

As the cases are very similar to each other, a heterogenous comparison would not be applicable. Homologous cases share corresponding characteristics. This enables the researcher, when comparing, to understand similarities and differences and to make sense of these through the inclusion of culture and context (Bartlett & Vavrus, 2016). Similar to the discussion in the subsubsection “Process conducting the case.”, horizontal comparative cases could be nested or embedded (Bartlett & Vavrus, 2016; G. Thomas, 2010; Yin, 2013).

Concerning vertical comparison the cases could include different levels, e.g. shop floor and management, engaged in the KTP. Bartlett & Vavrus (2016) understand vertical comparison not in the form of different management levels. Similar to Vahlne & Johanson (2013) they form an understanding of a network. It is the connections between the people within different hierarchies of a network that influence e.g. an ‘International Knowledge Transfer’ process (Bartlett & Vavrus, 2016). Hence, it could prove valuable to analyse who participated in the KTP and how they influenced it.

Lastly, a transversal comparison is only limitedly possible, as for new sites there is only little history available. However, existing sites had to be set-up as well in the past, available documentation about the former ‘Knowledge Transfer Processes’ could prove valuable. Further macro or micro political streams concerning e.g. country or company prejudices could as well be considered to understand the influence of local context factors on an ‘International Knowledge Transfer’ process to a new subsidiary in set-up.

In conclusion, it could be argued that in contrast to Bartlett & Vavrus (2016) it could be possible to apply at least a vertical and horizontal comparison into this interpretivist research. A transversal comparison however, depends mainly on the availability of existing historical organizational data. Adding this comparative understanding to the formerly defined case study framework offers the possibility to increase the value of qualitative case study inquiry (Bartlett & Vavrus, 2016).

4.5. Selection of Research Methods

Case study research often combines different research methods to gain a more holistic view of the phenomena of interest (Bartlett & Vavrus, 2016; Blumberg et al., 2014; Bryman & Bell, 2015; Creswell, 2013a; Gerring, 2016; R. E. Stake, 1995; G. Thomas, 2010; Yin, 2011, 2013). Blumberg et al. (2014) identified that: "Typically case study research is built upon interviews (structured and unstructured) and participant observations, but next to those methods often small surveys are conducted or the researcher relies on secondary data sources." (p. 304). Documents are further seen as a major source of case study related data (Yin, 2013). Surveys in the classical, quantitative sense were not considered for this thesis,

hence they would not have supported the constructivist research paradigm of this thesis. However, semi-structured questionnaires with open-ended questions were considered appropriate, as they might had supported the gathering of relevant case study data.

In order to select suitable qualitative methods for this research, available methods have to be reviewed and evaluated, i.e. if the required source is available, if the research method fits the intended research questions or if the research method suits the research object. The following subsection assess the advantages and disadvantages of qualitative methods in terms of their applicability for this research. At the end of this subsection the reasons for the methods applied are clearly outlined.

Given the constructivist research paradigm, qualitative research methods are most commonly applied (Creswell, 2013a). Observations gather what can be seen by the researcher without questioning it the instant it occurs (Bryman & Bell, 2011, 2015; Creswell, 2012, 2013a; Saunders et al., 2016). The underlying cases were at the time of the research however already beyond the set-up process and in serial production. Hence, methods applicable to retrospective research could be used. As it would be not possible to observe the IKT process the instant it occurs, as argued above, observations would not be applicable for this thesis, because the IKT processes during the set-up phase already had happened. If the processes would not have been carried out yet, observation would however resemble an appropriate method, as it could support in identifying the nature of the IKT process and hence give an answer to the first research question.

Besides observations, documents can serve as an initial start to gather information about the case from an organization’s perspective (Yin, 2013). However, documents have to be treated carefully, as they could contain organizational bias and are generally designed to achieve a certain goal (Bryman & Bell, 2011, 2015; Saunders et al., 2016). Depending on the content, other documents could be considered an appropriate source within a constructivist research paradigm, in particular personal documents such as diaries or notes. Documents could be a good starting point to shape further in-depth inquiry in a more purposeful direction for the intended research (Gray, 2019; Saunders et al., 2016). In the prevailing cases there were very few documents available. Nonetheless, documentary analysis is an appropriate method for this research, it could enhance the richness of the answers to the research questions.

Secondary data, which would be suitable for this research had not been identifiable. This is because this research focuses on specific cases of a particular organization, hence it is unlikely that secondary data exists. Nonetheless a search for secondary data was conducted. However, none was found, which led to the result that secondary data is not a suitable method for this research.

A similar conclusion was drawn for questionnaires – particularly those used in a large-scale survey – with closed questions, which would not be appropriate to the constructivist paradigm of this thesis, because it hardly allows the creation of rich and valuable personal data (Blumberg et al., 2014; Bryman & Bell, 2015; Bryman, 2015; Saldaña & Omasta, 2017; Zikmund et al., 2013). However, questionnaires using open questions could be a tool to use in a constructivist case study as it allows the researcher to gather personal feedback from different participants. This could support goals of case study research to gain a holistic view.

Lastly, interviews have to be considered as a possible research method for this thesis. However, it is necessary to distinguish and select appropriately from the different possible approaches. Structured interviews, similar in form to questionnaires, do not ensure that questions are correctly understood, nor do they aim to retrieve rich personal data (Blumberg et al., 2014; Bryman & Bell, 2015; Bryman, 2015; Denzin & Lincoln, 2017; Saldaña & Omasta, 2017; Saunders et al., 2016; Zikmund et al., 2013). As argued before: a constructivist research paradigm seeks to uncover underlying factors about a certain phenomenon. This is however not possible with a structured interview, because it does not leave any room for further unplanned questions (Bryman & Bell, 2015; Bryman, 2015; Denzin & Lincoln, 2005; Gray, 2013; Guba & Lincoln, 1982, 1985, 1989, 1994, 2005; Guba, 1990; Hatch, 2002; Saunders et al., 2016). Therefore, a structured interview approach is inappropriate.

In contrast, unstructured interviews would support the philosophical position of this thesis. Unstructured interviews do not have any pre-prepared set of questions. As a naturalistic research approach, the interview evolves during its performance. The method is open, enabling deeper questioning of certain interests that arise during the interview, which could lead to valuable data about a phenomenon from the interviewee's personal perspective (Denzin & Lincoln, 2017; Saldaña & Omasta, 2017; Saunders et al., 2016).

Semi-structured interviews may also offer an appropriate approach. The difference is that the researcher enters the interview with a prepared set of questions or topic areas (Creswell, 2012; Denzin & Lincoln, 2017; Petrescu, Lazar, Cioban, & Doroftei, 2017; Saldaña & Omasta, 2017; Saunders et al., 2016). The basis for these *a priori* questions is the research goal, the research questions, the research objectives, and the literature review. Unstructured and semi-structured interviews offer appropriate alternatives. However, entering an interview as a novice researcher it may be challenging to maintain focus throughout the interview (Hatch, 2002). Thus, important data to the research might be lost. This, as well as the personal disposition of the researcher, leads to the conclusion that an unstructured approach would not be appropriate. A semi-structured interview on the other hand could be a useful tool to retrieve data to address the research questions.

From the review above, documentary analysis and semi-structured interviews were identified as applicable qualitative research methods. Semi-structured interviews were considered to be the primary data source, because documentary analysis depends on the availability and accessibility of personal or organizational documents. Having the research methods identified, the following section discusses how they were applied.

4.6. Methods Application

In the subsection “Setting the Scene”, on page 4, it was determined that the worldwide training manager as well as the persons responsible for the KTP were central experts for this research. They were directly involved in the planning and execution of the KTP to the new locations. Hence, their knowledge was of great importance. However, not only their knowledge about the process and the organization could be of great essence, but also why the KTP was carried out in the applied way. As well, they would able to answer how the local context was considered. In order to get this kind of data it would be required to have in-depth discussions with the worldwide training manager and the case experts. As was argued before, in-depth data could be retrieved by using semi- or unstructured interviews. It was however counter-argued that an unstructured interview could be tough for a new researcher. As a compromise solution, the semi-structured interview was implemented. (See the subsection “Selection of Research Methods”, on page 90, for more details).

Although the interview participants were easily determined, having them participate might include certain challenges, such as language, different time zones, availability, and understanding of this research. These required careful consideration. Three of the four expert interviewees could have been interviewed in German. This would have made the understanding between the interviewer and the interviewee easier. Using different language could however impact the comparability of the cases. In order to increase comparability all interviews were done in English. This would increase data comparability, as all participants would not be communicating in their native language and so have the same prerequisites.

As the case were in different countries, within a different time zone, and budget for traveling was limited, telephone or video conferencing systems were used as interview enablers. Using a telephone conferencing system did, however, not allow to see the participant. Reactions in form of e.g. facial expressions could not be gathered. However, it was not the intention of this thesis to gather and interpret emotional reactions of the participants. Although it was understood that by this meaning was lost (Denzin & Lincoln, 2017). The focus was laid on the content of the answers. Therefore, telephone and video conferencing systems would be used to overcome the distance to the interviewees.

Furthermore, all of the case experts had become the plant manager after the set-up phase. Managers in this position would need to be considered busy and likely to be limited in

their availability. Hence, it was necessary to plan the interviews over a longer timescale and to be flexible from researcher side concerning time slots. Although an interview was scheduled, a second time slot was scheduled as back-up, because in the operational business context, timing is likely to change abruptly. It could happen that interview appointments are cancelled at short notice. This is why it made sense to have a back-up appointment scheduled beforehand.

In order to increase the likeliness of participation, certain documents were supplied in advance to the participants to get them involved:

1) cover letter (CL)
   Explained the background and research goals. Gave an introduction why the person was chosen as an interviewee. Introduced the research method major topics briefly. (The cover letter is displayed in Appendix 10.)
2) interview guide (IG)
   Served the interviewer as a guideline for the semi-structured interview. It included a checklist to cover all necessary formal interview steps and prepared questions that arose from the literature review. (The interview guide is shown in Appendix 11.)
3) non-disclosure agreement (NDA)
   Ensured the interviewee that participation is voluntary, that confidentiality and anonymity were applied. (See Appendix 12 for the non-disclosure agreement used in this research.)
4) interview protocol (IP)
   Was used by the interviewer to recap and from a personal perspective evaluate the interview afterwards. (See Appendix 13 for the interview protocol template.)
5) transcript approval (TA)
   Following the interview, the data was transcribed. (For details refer to the subsection “Data Analysis”, on page 99.) To give the interviewee’s the chance to adjust the transcription they received their interview transcript for review. Together with their feedback the interviewees were asked to send the transcript approval, which gave the researcher the authorisation to use the reviewed transcript for the analysis process. (See Appendix 14 for the transcript approval and Appendix 15 for a transcript example.)

From the documents above, the IG built the centre piece for the semi-structured interview. The guide was designed to support the researcher throughout the whole interview process. Starting from the initial contact with the interviewee and closing with the transcript approval. By this, the researcher had a clear, standardised plan in order to give each

participant the same level of confidence and not to miss any administrative piece that might support the confidence and openness of the interviewee. The first and second part of the IG considers the initial approach prior to the interview. In order to give the interviewee a positive and open feeling from the very beginning a personal approach was intended to support the probability of understanding for the research and so the likelihood of participation. Part three was designed to assist the researcher with some of the main points to be considered during an interview. These were derived from literature, e.g. Arbnor & Bjerke (2008), Blumberg et al. (2014), Bryman (2015), Bryman & Bell (2015), Galletta (2013), Hatch (2002), Saldaña & Omasta (2017), Saldaña (2011, 2014), Saunders et al. (2016).

The fourth and main part of the interview guide was designed in three segments: Opening, Middle, and Conclusion. The Opening segment started with part ‘a.’: intended as a leisurely entrance using some small talk. Subparts ‘b.’ and ‘c.’ were designed to create a level of comfort for the ensuing interview including the signing of the NDA. Subpart ‘d.’ included some general questions concerning the interviewee that were considered potential important characteristics for the later data analysis. The last subpart of the opening segment, subpart ‘e.’, was designed to present the participant with some open questions concerning the general idea of knowledge, information, knowledge transfer, the set-up process, and context. Open and general questions were used to put the interviewee at ease in talking about their experiences concerning the phenomenon of the study (Galletta, 2013).

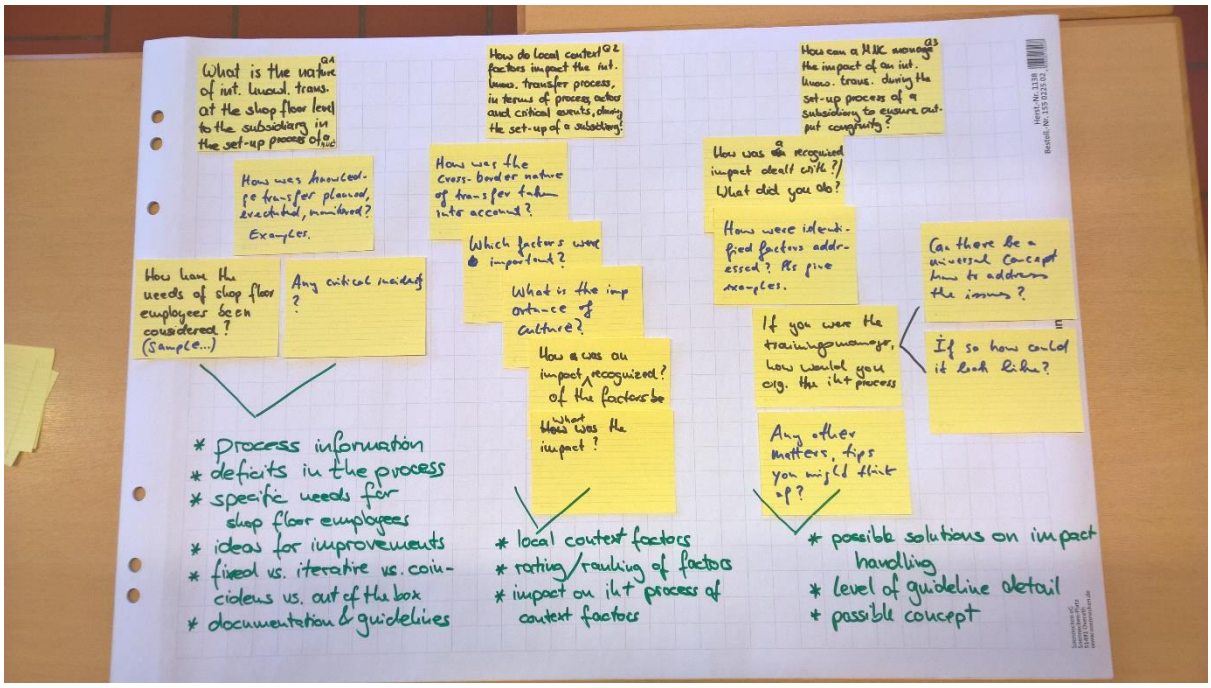
In the Middle segment, subparts ‘f.’ to ‘h.’, specifically asked about the components of the KTP, the local context factors, and organizational considerations in the light of the local context. These topics were identified as relevant points, as discovered in literature, with a potential to support appropriate answers to the research questions. This is why the majority of questions were assigned to these subparts. It was the goal of the Middle segment to retrieve information from the interviewee by asking questions in relation to the research questions (Galletta, 2013). However, these questions did not come unprepared, for topics identified in the literature review as relevant were integrated as questions. These were used to verify whether the findings from the literature could be found in the prevailing cases.

To come up with further, novel questions of interest specifically to answer the research questions, the basic idea of the world café model was used. (See further reading on the world café model usage possibilities: e.g. Carson (2011), Estacio & Karic (2016), Fouché & Light (2011), Jorgenson & Steier (2013), Lorenzetti, Azulai, & Walsh (2016) and Stöckigt, Teut, & Witt (2013).) Although the world café model is designed as an engaging creativity method for bigger groups (Carson, 2011; Fouché & Light, 2011; Jorgenson & Steier, 2013; Stöckigt et al., 2013), the principle could be occasionally adjusted (Carson, 2011; Stöckigt et al., 2013). In this case the method was adapted to fit two persons. In two evolving rounds each researcher enhanced the findings of the other researcher’s potential interview

questions (Fouché & Light, 2011; Stöckigt et al., 2013). Concluding, they identified potential outcomes to be anticipated from the interviews together. (See the result for the research questions for this thesis in Figure 31.)

Using this method enabled the researcher to approach methodically the creation of relevant interview questions used in the ensuing interviews. In this way, cross-disciplinary, collaborative knowledge generation and information exchange was possible (Fouché & Light, 2011). Through the sharing of collective discoveries and adding to the ideas of the second person – in my case a peer DBA student – interview questions were derived that might have not been considered, if this was done by me solely (Stöckigt et al., 2013). In conclusion, using the world café method as an approach to generate potential interview questions most probably enhanced the IG, because having the interdisciplinary perspective involved in the creation process would increase the diversity of questions by including different points of view on the research questions.

Figure 31 Deriving interview questions using the world café model.



Subpart ‘i.’, as the Concluding segment, gives the interviewee room for additional comments and to give feedback to the interviewer (DeJonckheere & Vaughn, 2019; Galletta, 2013). This supports the closing of the interview as the shift goes from being questioned to questioning the researcher and giving feedback. The Concluding segment ends with Part 5: thanking the interviewee for the participation. Although this is the end of the actual interview the conversation ends with addressing the next steps concerning the transcript and approval of the transcripts in Parts 6 and 8. This part is also relevant for the interviewee to obtain a

clear picture what is going to happen to their answers given in the interview and to be reassured that afterwards the interviewee still has control over their answers. In this way, the promises given initially concerning confidentiality, anonymity, the voluntary nature of participation, etc. are honoured and offer the interviewee an additional feeling of trustworthiness in the interviewer. This therefore increases the likelihood of further participation in the research and lends validity to the transcript provided later on via the TA.

Each interview conducted increases the experience of the researcher (Galletta, 2013). To transfer this experience to improvements in the next interview, a direct reflection cycle was performed (DeJonckheere & Vaughn, 2019). For this the IP was created. It gave the researcher the chance to think about the interview setting, the questions, the quality of conversation, the value of answers given and how these facilitated the answering of the research questions, and allowed reflection on the feedback of the interviewee. This iterative cycle of reflection process supported me continuously to improve my interviewing skills, leading to improved answers from the participant, and thus to a better quality of answers in relation to the research questions.

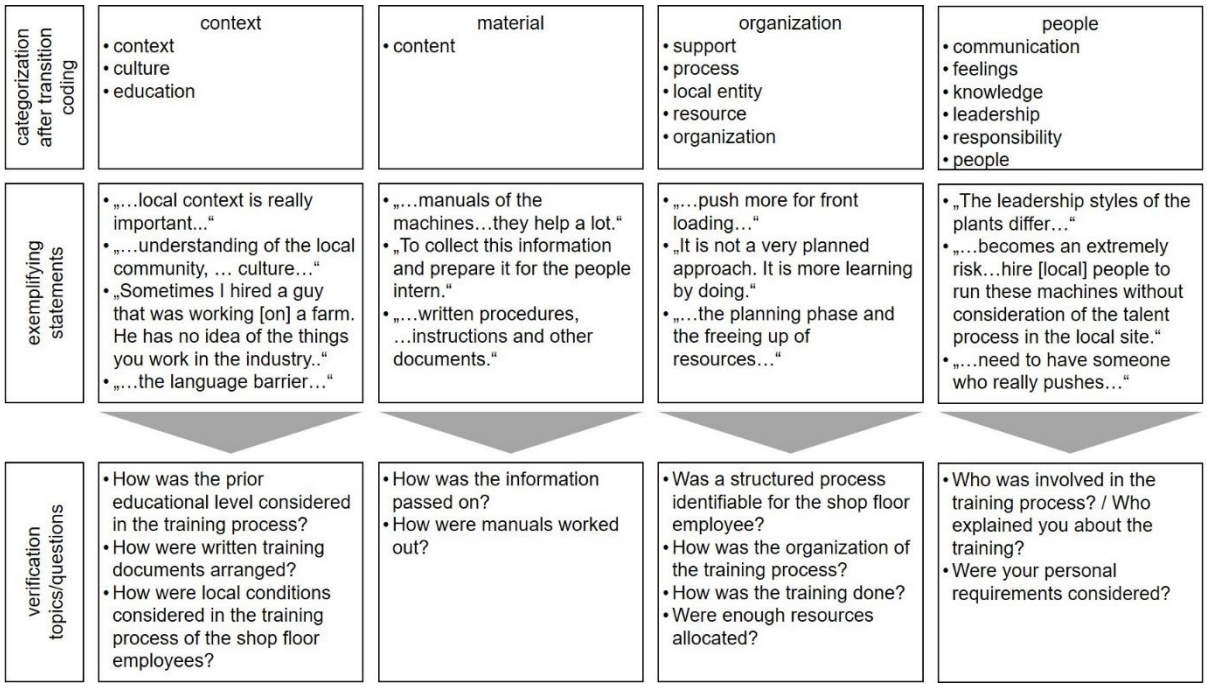
The semi-structured interviews showed only one perspective of the ‘International Knowledge Transfer’ process to the local shop floor. One case however, wanted to understand a phenomenon from different angles to come to a comprehensive understanding of the situation (Gerring, 2016; Gummesson, 2017; R. E. Stake, 1995, 2005; Robert E Stake, 2006; Yin, 2011, 2013). In the cases of this research the ‘International Knowledge Transfer’ process for the shop floor employees was planned by higher level managers. Their point of view was gathered by the in-depth semi-structured interviews. During the implementation, one of the main actors were the shop floor employees as receivers. (See section “Theory and Characteristics of the ‘International Knowledge Transfer’ (IKT) ” for the theoretical basis of the KTP.) In order to understand their point of view on the IKT, and also to verify the statements made by the experts, an open-ended small-scale questionnaire was used. (See the questionnaire in Appendix 16.)

As the locations are located far from each other and from Germany, it was planned in the beginning to send a prepared questionnaire to a selected person of trust within each location. She or he was asked to identify 10 random shop floor employees and have them answer the questionnaire. Going on-site was anticipated to be the better option as then the whole interviewing process would remain with myself, quality of questioning would be thorough along the topic, the understanding and theoretical background of the topic would be superior, leading probably to more and richer feedback, less reluctance of the employees to talk about a personal topic and the overall impression of the employee could better be captured by the researcher during the interviewing process (Blumberg et al., 2014; Bryman & Bell, 2015; Bryman, 2015; Opdenakker, 2006; Wethington & McDarby, 2015; Yeung,

1995). However, due to time and budget restrictions this was not a feasible approach in the beginning. Due to a change of professional responsibilities, the chance to get nearby two case sites in person. This opportunity was used to conduct the interviews with the shop floor employees in China and Mexico personally on-site.

To be appropriately prepared, an interview guide was created, as displayed in Appendix 17. Like the expert interviews, the researcher did not want to leave anything to chance and miss any opportunity or forget any important detail or question during the local interviews. Also, a non-disclosure agreement was prepared, displayed in Appendix 18, to ensure the shop floor employees that everything being said was treated confidential and was only used in an anonymous way within this research. (See section “Axiological Stance” for ethical considerations.) In this manner, an anticipated secure environment for the interviewees was created, in which the interviewees would feel comfortable and by this be more willing to answer the questions in more depth and truthfully (Galletta, 2013).

Figure 32 Deriving questions for shop floor interviews based on expert statements.



The questions for the shop floor interviews were based on the expert interviews. Categories were reviewed and the essential points displayed by some exemplifying statements, as shown in Figure 32. By interviewing the IKT involved shop floor employees, input provided by the experts could be challenged, verified, critically assessed, or negated. It needed to be considered that the questions had to be posed appropriately for the shop floor employees. Therefore, more hands-on questions were developed, which the shop floor employees would probably be willing and able to answer. Consequently, the questions

displayed in Figure 32 were adjusted to the questions displayed in the interview guide in Appendix 17.

Concerning documents, the intranet of the researched organization was a starting point to look for general documents and policies on ‘International Knowledge Transfer’. In addition to this, it was anticipated that the plant managers could supply documents used during the set-up of the new subsidiaries. Additionally, the worldwide training manager could supply documents that were used to plan and execute the KTP during the set-up of each new subsidiary. Although those documents would probably be confidential, it was not understood an issue to retrieve them, because this thesis had the backup of the chief executive officer.

4.7. Data Analysis

A case study is about revealing rich data that gives back a comprehensive picture of the phenomenon studied (Bartlett & Vavrus, 2016; Creswell, 2013a; Gerring, 2016; Saunders et al., 2016; R. E. Stake, 1995, 2005; Robert E Stake, 2006; G. Thomas, 2010; Yin, 2011, 2013). The different methods presented in the previous subsection “Selection of Research Methods”, starting on page 90, resulted in a lot of qualitative data in the form of interview transcripts and organizational documents. Subsequently the data needed to be analysed.

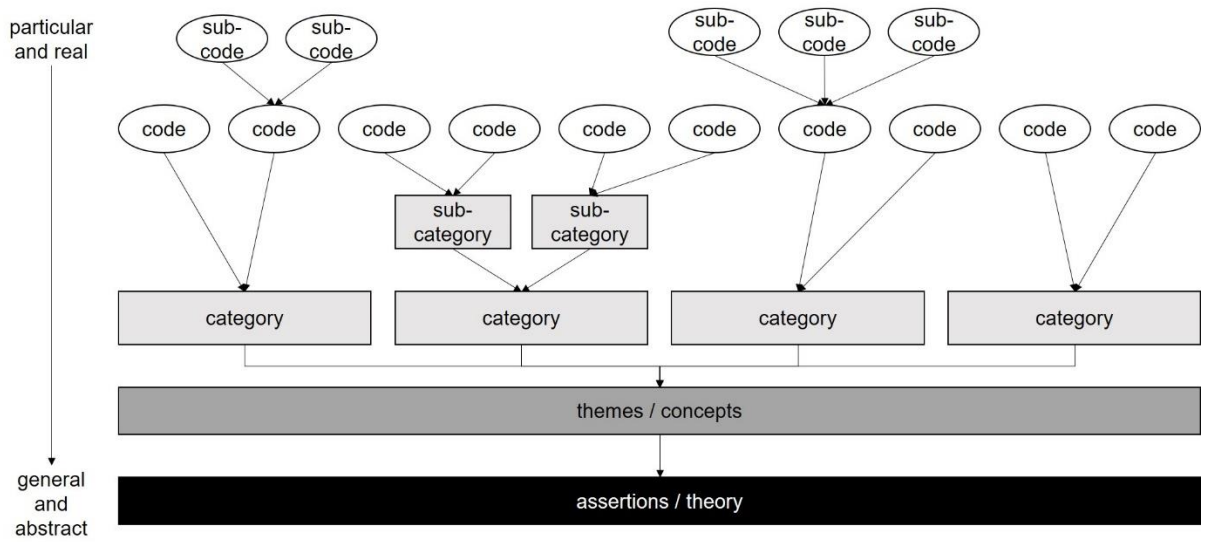
However, in qualitative research there is the question as to how the received data can be made sense of. Therefore, a general approach of qualitative data analysis in alignment with the research paradigm had to be accounted for. Although it was always intended to have a lot of data incoming, it became necessary to think about how to handle this flood of data. It showed that Computer Assisted Qualitative Data Analysis Software (CAQDAS) usage was required for this thesis. Additionally, different approaches towards coding were discussed and selected. And a general approach for the generation of findings from the different cases was defined.

There are no standardized methods available for qualitative data analysis (Creswell, 2012; Saldaña, 2011; Yin, 2013). Generally, the approach to theory, as discussed in the subsection starting page 77, are to be seen as one of the primary heuristics (Saldaña, 2011). Although there are some guidelines or frameworks concerning qualitative analytical processes offered in literature, the qualitative data analysis process is in each research different, needs to be exclusively designed towards the research objectives, and usually emerges during the analysis process (Creswell, 2012; Hatch, 2002; Saldaña & Omasta, 2017; Saldaña, 2011, 2013, 2014; Yin, 2013).

Based on Saldaña (2013), an appropriate analysis concept for qualitative inquiries is a streamlined codes-to-theory approach as displayed in Figure 33. Using inductive reasoning

the particular results from e.g. the semi-structured interviews lead to patterns, themes, or concepts that could further be formed into a theory (Creswell, 2012; Hatch, 2002; Saldaña & Omasta, 2017; Saldaña, 2011, 2013, 2014; R. E. Stake, 1995; G. Thomas, 2010). Identifying patterns could be reached by either direct interpretation or by coding (R. E. Stake, 1995). As for this thesis the inductive streamlined codes-to-theory approach was chosen as an appropriate analytical concept, because it supports the theoretical approach of this thesis and therefore is also in alignment with the philosophical stance of this work. Furthermore, coding was chosen as a vehicle to support the pattern identification process of this work, because it offers the novice researcher a good framework that can be easily related to. Lack of experience in using direct interpretation as a vehicle for data analysis could result in reduced quality during the analysis process.

Figure 33 A streamlined codes-to-theory model for qualitative inquiry.



Source: Adapted from "The Coding Manual for Qualitative Researchers" by Saldaña, 2013, p.13. Copyright 2013 by the SAGE Publications Ltd.

Performing a case study includes dealing with a large amount of data in different formats, because different methods are used to gather a comprehensive understanding of the case (Bazeley & Jackson, 2013; Bryman & Bell, 2015; Bryman, 2015; Creswell, 2012, 2013a; Richards, 1999; Saldaña, 2014; Saunders et al., 2016; R. E. Stake, 1995, 2005; Robert E Stake, 2006; G. Thomas, 2010; Yin, 2013). Due to this, it was necessary to think about assistance in terms of storing, organizing, categorizing, and analytical support (Creswell, 2012; Saldaña, 2013). Different software solutions are available and recognized in relevant literature: MAXQDA, ATLAS.ti; QSR Nvivo; HyperRESEARCH, AnSWR, QDA Miner, Qualrus, Transana, Weft QDA (Bryman, 2015; Creswell, 2012; Saldaña, 2013; Saunders et al., 2016). CAQDAS does not only support the analysis process of qualitative

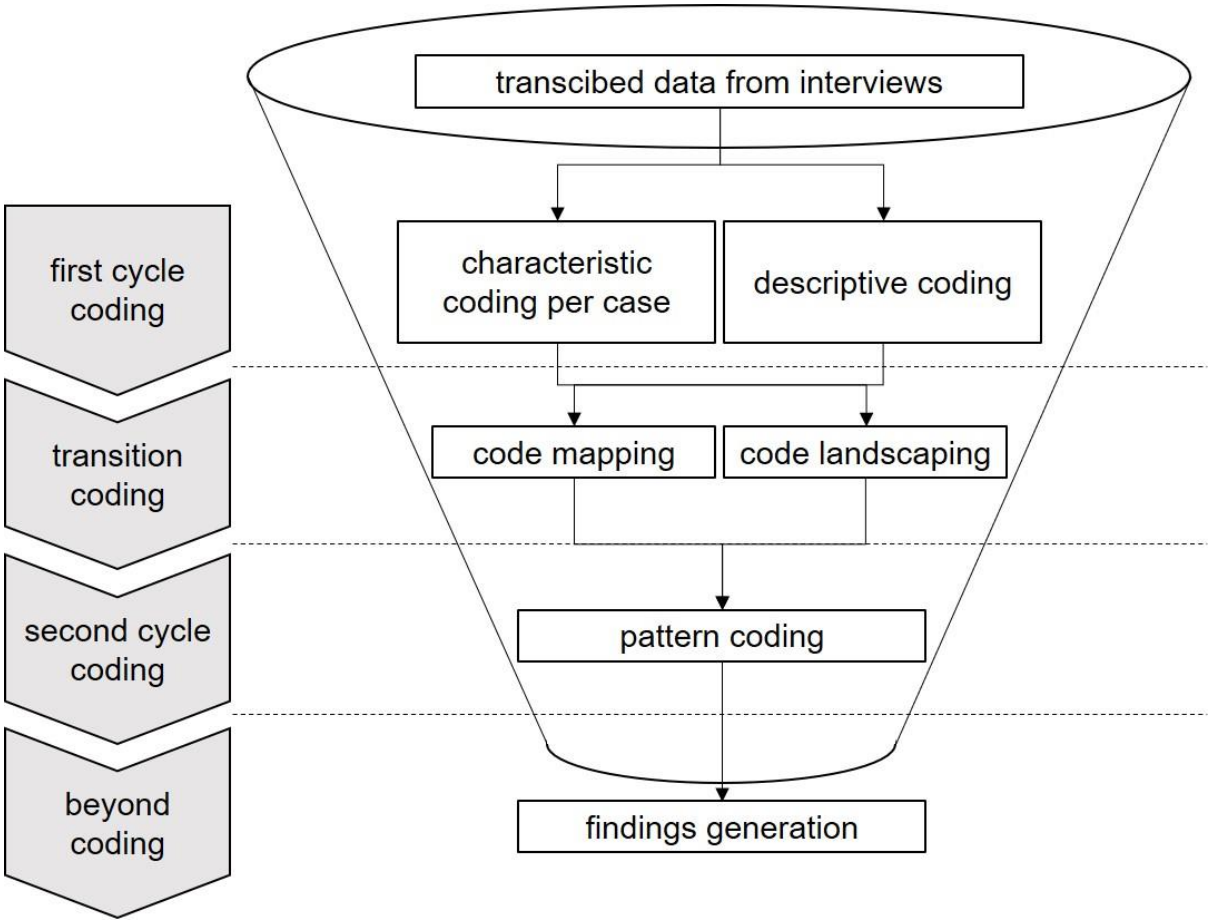
data (Bryman, 2015; Richards, 1999; Saunders et al., 2016) but it also helps in storing and organizing qualitative data (Creswell, 2012; Richards, 1999).

Each of the CAQDAS systems mentioned before has a basic, comparable set of features but offer different specific functionalities (Creswell, 2012). According to Creswell (2012) it is necessary to consider different features when selecting a CAQDAS. (See Creswell's list attached in Appendix 20, on page 267.) Mainly due to the expected large amount of qualitative data, such as documents, interview transcripts, etc. derived from the different research methods it was decided to use a CAQDAS system so as not to lose the overview and control of the data. Otherwise relevant data might have got lost along the analysis process, due to insufficient storing or organization of the data. For this thesis the program QSR Nvivo was chosen, because:

1) training was provided by the university, so
2) it was easy for the researcher to get accustomed to using the software,
3) it was provided free of charge by the university,
4) QSR NVivo is one of the best-known and widely-used CAQDAS software (Bryman, 2015), because
5) a lot of support, e.g. through tutorials on YouTube or information exchange in research forums, is available.

Although a CAQDAS supports the qualitative data analysis inquiry the software does not actually encode any data by itself on behalf of the researcher (Bazeley & Jackson, 2013; Saldaña, 2013). This means that the researcher is required to decide on a coding strategy himself. Figure 33 gave a first impression about how the different layers could be related to each other. It could have been possible to come up with *a priori* codes before the actual coding process. However, having no *a priori* codes available before the first coding round leaves the researcher free repeatedly to make codes during the coding process (Creswell, 2012; Saldaña, 2013). This supported the qualitative and constructivist approach of this thesis as well as the idea of emerging data analysis design referred to by Creswell (2012) before. Concerning the actual coding process, Figure 34 offers a conceptual approach. Similar to Creswell (2012), Saldaña (2013) also argues that the qualitative data analysis process is of an iterative nature. Supporting this conceptual understanding, two main steps used as an umbrella for several coding methods is offered. The transition from first to second cycle method is referred to as a hybrid method to support the refinement of the coding between first and second cycle (Saldaña, 2013). As argued before: the researcher of this thesis is a novice to the field of postgraduate research. For this reason, the concept offered in Figure 34 allowed the new researcher, although using a qualitative approach, to use it as a guideline to give direction in the otherwise open field of qualitative data analysis.

Figure 34 Conceptual approach to multiple coding cycles.



Within each coding cycle, different coding methods are available and could be applied (Saldaña, 2013). (See the extensive list of available coding methods offered by Saldaña (2013) in Appendix 21, on page 268.) The following ordered list has been selected as applicable methods as a guideline to approach first cycle coding:

1) Characteristic Coding

   Also referred to as ‘Descriptive Coding’ (Miles & Huberman, 1984, 1994), ‘Setting/Context Coding’ (Richards, 2014), and/or ‘Attribute Coding’ (Saldaña, 2013). This method is about assigning basic descriptive information to the data gathered, e.g. location, age, years within the organization, position, etc. CAQDAS programs have built-in functionality separately to relate characteristics to data gathered (Saldaña, 2013). As the designated CAQDAS program for this thesis was NVivo, the term ‘Characteristic Coding’ was chosen to stay aligned with the NVivo’s nomenclature and thus create a streamlined use of terms that is easier to follow.

2) Descriptive Coding

> Means representing larger parts of available data in a single word or short phrases (Owen, 2014; Saldaña, 2013; Simon, Porterfield, Bouchal, & Heyland, 2015; Vaismoradi, Turunen, & Bondas, 2013). Its goal is to create overarching ideas or concepts (Simon et al., 2015). *A priori* concepts for descriptive coding could be derived from the conceptual framework (Owen, 2014).

Characteristic Coding has been chosen as applicable for this thesis, because the data retrieved comes from distinct locations that have their specific contexts. Additionally, the participants taking part in the different forms of data gathering are also distinct and require the possibility to be delineated at a later stage for contrasting the findings. In order to carry this out, it would be of value to assign certain characteristics to each data set so that subsequently it is possible to look for similarities or differences and ascertain if these might relate to certain characteristics. It was believed that this could lead to a better exploration of the data concerning interrelationships between the different cases, which is one of the goals of this research. (Saldaña, 2013)

Descriptive Coding was chosen, because Saldaña (2013) states that: “Descriptive Coding is a straightforward method for novices to qualitative research, particularly for those first using CAQDAS programs. The method characterizes data at a basic level to provide the researcher with an organizational grasp of the study.” (p. 91). With no *a priori* codes available, this method allows the creation of an initial set of themes and topics that emerge from the data (Owen, 2014; Saldaña, 2013). This then can be used for further, more detailed coding to identify specific topics within the broader themes or topics derived from the Descriptive Coding. So, the method was chosen because it creates an initial stock of topics and themes inductively emerging from data that can be detailed in later coding cycles, is easy to use by a novice researcher, remains open throughout the analysis process, is possible to apply to different types of data sets, supports the constructivist approach of this thesis, and is easy to apply in NVivo.

Based on the result of the first cycle coding, transition coding – in the forms of code mapping and code landscaping, as suggested by Saldaña (2013) – was used to come up with an operational model diagram. Code mapping builds categories and develops concepts based on the findings from the first coding cycle. By doing this it is possible to sort and order similar topics under overarching categories that will later structure the multiple coding that emerged from the first coding approaches (Corbin, Strauss, & Strauss, 2014; Saldaña, 2013). This process is of a deductive nature, deriving concepts based on data gathered (Folger & Stein, 2017; Saunders et al., 2016; Soiferman, 2010; Spector, 2017; Woiceshyn & Daellenbach, 2018). In order to gain an additional view of the data gathered, the CAQDAS feature word cloud displays the most used words within the data set. Using this feature

enables easy category and concept building during the code mapping process, or to challenge the created categories and concepts after the code mapping process. For this thesis it was decided to use the code landscaping as an initial support for the code mapping process. As novice researcher, these techniques gave me greater confidence in the reliability of the developed categories and derived concepts.

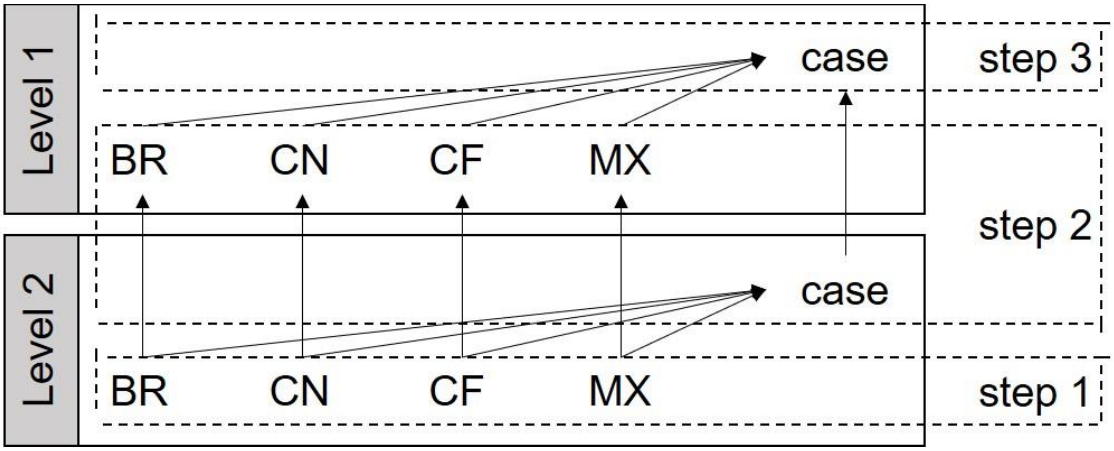
As a final step to the coding process, Pattern Coding was selected to generate organization and meaning (Algozzine & Hancock, 2016; Saldaña, 2013). Additionally, Pattern Coding serves as a basis to develop major themes from data (Saldaña, 2013). Pattern Coding was chosen over the other available coding methods, because it gives the new researcher the chance to channel the massive amount of qualitative data into overarching themes that then can be developed into statements and finally into findings. (See the extensive list of further suggested second cycle coding methods by Saldaña (2013)). From a processual point of view, Pattern Coding is based on the coded data from the first and transition coding cycle, seeking similarities in those codes, and undertaking to assign an overarching theme to it. A similar process is suggested by Robert E Stake, p. (2006, p. 64). Finally, a statement is generated for the emerging theme, which then needs to be refined into a finding from the coded data (Saldaña, 2013).

After the coding process, as a result, findings to the data analysis had to be derived. The findings generation is an integral part to a case study, because it develops meaning from the gathered and analysed data (Algozzine & Hancock, 2016; Saldaña, 2013; Robert E Stake, 2006; Yin, 2011, 2013). However, the process of comprehending findings from the coded data is only rarely formalized and widely different in the various identified literature (Algozzine & Hancock, 2016; Robert E Stake, 2006). In many case study analyses it seems to happen that findings from all cases concerning similarities are summarized, whereas specifics are ignored? (Robert E Stake, 2006). This is not in alignment with the proper goal of a case study, which should aim to create an in-depth understanding of a defined singularity occurring in real-life context, as identified earlier in the section Research Design, starting on page 78. (Algozzine & Hancock, 2016; Bryman & Bell, 2015; Creswell, 2013a; Gerring, 2016; Gummesson, 2017; Saunders et al., 2016; R. E. Stake, 1995, 2005; Robert E Stake, 2006; G. Thomas, 2010; Yin, 2011, 2013).

According to what was found in literature about findings generation, nothing was suited completely to this research. Suggested processes by Yin (2013), e.g., did not agree with the philosophical stance of this research, because in all cases, theory, as a basis for formulating and testing findings, was required. As a further example, approaches by Robert E Stake (2006), did not function with the previously completed coding cycles, because a different kind of analysis outcome would have been required to suit his approaches to the generation of findings. As a last example, proceedings by Saldaña (2013), only merely vaguely

suggested a flow of actions as to how to perform the findings generation. The suggested creation of categories was already made during the first and second cycle process (Saldaña, 2013). In order to keep the individual findings from the cases, but whilst also generating aggregated findings which overarched the cases, the researcher created the conceptual structure for findings generation shown in Figure 35. For each case, findings were created because of the single cases based on *Level 1* and *Level 2* nodes. Similarly, overarching findings were generated based on *Level 1* and *Level 2* nodes cases. This resulted in three steps of iteration that were required to comprehend all the findings for this research. Results are discussed in the respective subsections, “Findings from Expert Interviews”, “Findings from Shop Floor Employee Interviews”, starting on page 122, ‘Complete Findings Matrix for Expert Interviews’ is attached in Appendix 22, on page 269, and ‘Complete Findings Matrix for Shop Floor Interviews’ is attached in Appendix 23, on page 271.

Figure 35 Conceptualization of findings generation structure.



For each step, the nodes entailing the coded data were printed out. Next, the available data would be analysed using the skimming and scanning technique. During the skimming process the reader focuses on identifying key words from the text. Then scanning focuses on identifying specific information and details in the text. The skimming and scanning technique were selected because by this means a lot of text can be analysed in a reasonable amount of time and focus is laid on key words and specific information. This would give the researcher the chance to identify commonalities later on, further categories, overarching themes, individual case specifics, and unique occurrences more easily.

The process described for data analysis holds true for expert as well as shop floor interviews. However, the coding process for shop floor interviews was started directly with second cycle coding, because the node structure from the expert findings served as the basis for assigning data to nodes from the shop floor interviews, thus streamlining the process. Nonetheless, attention must be paid during the coding cycle as to whether or not

there are additional nodes that might need to be added to the node structure from the expert coding process in order not to miss anything unique, relevant, or interesting (Saldaña, 2013; Robert E Stake, 2006).

Given the above, the first part of this subsection identified the streamlined codes-to-theory, as displayed in Figure 33, to be the suitable approach for the overall process of data analysis for this thesis. It supports the theory and is in alignment with the philosophical orientation of this thesis. The first part also found coding to be the best? method for data analysis used. It gives the novice researcher a good framework in contrast to other applicable data analysis methods.

In the second part of this subsection, NVivo was identified to be the applied CAQDAS for supporting the data analysis process. It was selected because it was easy for the researcher to familiarize himself with, because training was provided by the university, and a lot of support was available in the form of YouTube videos or tutorials.

Thirdly, the subsection discussed available coding possibilities and the conceptual coding approach was argued for, as displayed in Figure 34, including first, transition, and second-cycle coding as the general process steps of iteration. Within the first cycle coding, Attribute and Descriptive Coding were chosen as most suitable coding methods. Attribute Coding allows the researcher to add context case specifics that might be of value in the later argumentation of differences in the findings of different cases. Descriptive Coding was chosen, because it is easily-applied by novice researchers and it allows the creation of initial sets of themes and topics in alignment with the inductive approach to theory in this thesis. Code Mapping and Code Landscaping were used for the transition coding cycle, because they give a good overview of the first cycle coding in order to identify emerging patterns and themes. For the last coding process step, second cycle coding, Pattern Coding was identified to be the method used. Pattern Coding was chosen, because it allows the novice researcher to channel the massive amount of qualitative data into refined, meaningful themes based on the coded data from the first cycle coding.

Fourthly and lastly this section created the conceptual approach to findings generation displayed in Figure 35. In literature no formalized way could be identified, however it stated that the process or concept of how to retrieve findings from the case data depends on the coding process of the case. To maintain comprehensibility of case-specific findings and overarching themes in one overview, the derived conceptual approach was chosen.

Throughout the various stages, it was possible to identify major themes both within and also overarching the cases. Furthermore, the separation between expert and shop floor employee interviews permitted both to contrast them and also to integrate the different points of view. This allowed the researcher to derive a comprehensive picture of the specific case,

whilst also summarizing overarching themes and findings. The Results are discussed in the chapter “Findings”, starting on page 114.

4.8. Axiological Stance

A researcher has great power and responsibility towards the research conducted (Biedenbach & Jacobsson, 2016; Kivunja & Kuyini, 2017). I was aware of this responsibility from the very beginning and therefore considerations of axiology were guided by the ethical criteria of teleology, deontology, morality and fairness (Kivunja & Kuyini, 2017). This was done to prevent harm to participants and guard against a lack of informed consent, invasion of privacy, and deception/bias (Bryman & Bell, 2015; Bryman, 2015; Denzin & Lincoln, 2017; Diener & Crandall, 1978; Guba & Lincoln, 1985, 1989, 1994; Saunders et al., 2016; University Of Gloucestershire, 2008; Yin, 2013).

Qualitative research relies on the relationship between the researcher and the interviewee. Through a trustful relationship, deep insights about the subject of research can be revealed (Brinkmann & Kvale, 2015; Galletta, 2013; Opdenakker, 2006; Saldaña & Omasta, 2017). To achieve this kind of trustful relationship an interviewee must be protected from any harm. Although there are other stakeholders, the interviewee possesses a central role, as their responses constitute the primary source of data on which the findings, analysis, discussion, and conclusions of this research are built. It could be understood that the more trustful the relationship, the more likely the interviewees are to reveal their thoughts, opinions, feelings, evaluations, and struggles.

Anonymity of the interviewee is given through usage of a case name instead of the interviewee’s name. However, qualitative research lives from rich and detailed feedback, which gives arguments credibility and trustworthiness. Without direct quotations this would not be achievable. Further, as this research applies a comparative case study approach, the differences and similarities between the cases can only be grounded on the interviewees’ statements. This exposures the case experts to a degree, and therefore it was important that they were made aware of this form at the outset of their participation. Although this is of some risk to the relationship, managers at this hierarchical level are used to expressing opinions and appreciating that this raises issues of possible exposure. Hence, all of them accepted to participate in the research. Throughout the research I did not feel that any of the experts held anything back. Consequently, it should be considered that the interviews were open and enabled opinions to be expressed.

In contrast to the case experts, local shop floor employees were rather cautious in stating their mind, particularly, if this could be perceived as criticizing e.g. organizational processes. Depending on the local context, it was not expected that shop floor employees would speak their mind, due to cultural conforming behaviour. In order to use direct quotes

and not endanger the shop floor employees' anonymity, the shop floor workers participating were numbered randomly in comparison to the order of the interviews. By this, even if someone of the researched organization was aware of the shop floor employee interview schedule, there would be limited opportunity to identify a specific individual's comments in the thesis.

To further avoid any harm to participants, the transcripts of the expert interviews were sent to the experts for review. This gave the expert participants the chance to comment or exclude certain statements they had made. However, none of the expert interviewees altered their interview transcripts. Unfortunately, this process could only be implemented with the case experts. In order to return transcripts to the shop floor employees, they would have had to be sent to e.g. the secretary of the plant, because the shop floor employees do not have company email-address, nor would all be able to read or write English (as material was not translated to the local language for the research). This would made feedback without returning to the data generation site a second time impossible. Another on-site visit was however not possible, because the research is self-funded. As the interviews with the shop floor employees were shorter than those with experts the approach taken was to recap the essential points of the interview back to participants at the end of the interview. This gave the shop floor participant the chance to again decide whether they were happy their answers could be considered in the research.

The measures above sought to avoid harm to the participant. However, this cannot be guaranteed. For this reason, possible risks were discussed with the participant prior to the interview. Informed consent for the expert interviews was accompanied by a covering letter, which can be found in Appendix 10, an interview guide (Appendix 11), and a non-disclosure agreement (Appendix 12). For the shop floor employees, a covering letter was, as argued before, not appropriate due to linguistic barriers. The interview guide used can be found in Appendix 17 and a non-disclosure agreement (Appendix 18) was also used. For each country a translation of the non-disclosure agreement was made available for the participant to review and give confidence in the transparency and trustworthiness of the researcher. However, the English version was the one signed to enable scrutiny for legal purposes should the need arise.

The documents for informed consent covered the purpose, goals, data gathering, storing, and analysis process. It further gave participants information on the use of their input in the research and who would the research would be available to. The voluntary nature of the participation was emphasized. Each participant was explicitly asked, whether they were still happy to participate in the interview after all the supporting information was presented.

Data security and confidentiality were also considered, a dedicated external hard drive with integrated encryption software was used. Only by entering the password is data

accessible. This created some risk for the research should the hard drive be lost or damaged, therefore a backup was made to a password secured dedicated storage on my home network. These measures were detailed in the non-disclosure agreement. (See Appendix 12 for the expert interviews and Appendix 18 for the shop floor interviews.)

No covet research methods were applied. Hence, the invasion of privacy was protected. All applied research methods were communicated in the described to participants prior to their involvement in data generation.

Lastly and most importantly, the research could be deceptive or biased (Bryman & Bell, 2015; Bryman, 2015). Deception and bias can stem from any participant involved in the research (Creswell, 2012, 2013a, 2013b). In the research at hand four major participant groups were involved: the researcher, the expert interviewees, the shop floor interviewees, and the translators during the shop floor interviews. For a researcher, a fundamental reason for deception or bias could be seen to please a research sponsor. This research was however self-funded, removing this issue.

Although not sponsored, this research was done in the organization where I worked for. This raised some minor issues in the expert interviews, as I have worked with the experts interviewed. Hence, they limit their responses, assuming I knew the topic and therefore not offering as detailed an explanation as they might to someone unfamiliar with the context. This could lead to missing information, which would not be considered in the coding process afterwards. Further, the interviewee might have had a hidden agenda, because the research would publicly be available and a traceability on expert level, as discussed before, still be possible. Presenting a case better than it is could lead to a higher reputation of the interviewee.

To prevent data to be held back, it was clarified with each expert that I should be considered an outside person. Further, an interview protocol (Appendix 13) was instituted to directly afterwards evaluate the interview. From the review of the interview protocols later on I found that all interviews were considered open and critical, because not only positive aspects were highlighted by the interviewees. A lot of criticism and room for improvement about the ‘International Knowledge Transfer’ was reported. This might have also stemmed from the good prior relationship of the researcher with each of the participants. Nonetheless, I tried through scrutinizing the provided answers by further questions to ensure credibility and trustworthiness of the information reported.

The situation for the shop floor employees concerning bias and deception was completely different. I was not known to the participants nor were they aware that I had been working for the organizational group. Hence, I introduced myself in each interview as an external researcher. At the time of the interviews I was already working for another company. Following, the interviewees were not lied to. However, reflecting this situation in

retrospect I was intentionally leaving out facts about my person that could have been relevant for the responses of the participants. I chose not to tell the shop floor interviewees, because I considered it as an advantage that the participants might be more open when dealing with an organizational outsider. Although it was not a lie, my behaviour however could be considered deceptive. It could be argued that the answers given would have been similar, because the translator instituted was an employee of the local plant. Following, another person of the organization was involved in the interview, which could be considered having the same effect on the participants' answers then introducing myself as a former employee of the organization. Nonetheless, this circumstance is a thin line that should have been considered more thoroughly beforehand.

Without the already mentioned translator no communication would have been possible, due to missing language skills on both sides. Although it was initially considered to have an external translator, this was neglected due to budget restrictions. The translation was done by a person from the plant. It was understood that this might have implications on the interviewee's answers. Hence, the translator had to sign an NDA and was chosen to be as little as possible related to the operations department. Nonetheless, the shop floor employees knew the translator was coming from the plant. Hence, it has to be considered that the shop floor employees could be reluctant to answer the posed questions. It further should be anticipated that their answers could be organizational correct, because they would fear the translator to transmit their feedback to their superiors or other persons in the plant.

Some interviews lacked of depth. It was however not possible for me to identify whether this was based on the interview set-up or if the shop floor employee was not able to remember, as reported. Most interviews however, were rich in detail and in criticism. Hence, I concluded that, similar to the expert interviews, the feedbacks of the shop floor employees could be considered open and trustworthy. However, it should be considered that the feedbacks might have been more open, when an external translator would have been present. This might have had implications on the findings and conclusions.

Using a translator could result in meaning lost during translation. Missing specific vocabulary could result in wrong or incomplete translations. Further, interpretations by the translator could be required, as a direct translation could not be possible due to language diversity. In the prevailing set-up it further has to be considered that a non-certified translator had been used. This could further alter the meaning of the participant's feedback. Being a part of the plant researched it additionally had to be understood that the translator might interpret or bias the given answers of the shop floor employees. As argued above, from the critical and open feedback given in most interviews I concluded that the translations were made in a trustworthy manner.

Lastly, bias or deception can occur during the finding's generation, the discussion and analysis, and the conclusion. "Objectivity as freedom from bias refers to reliable knowledge … [, which is] systematically cross-checked and verified." (Brinkmann & Kvale, 2015, p. 242). Including myself 10 researchers started for achieving the DBA degree. Although each researcher had its own field of expertise, through an Action Learning Set (ALS) approach the group continued challenging each other's advancements. To keep work and detail to a manageable level dedicated pairs were set-up. In a continuous cycle these pairs shared, commented, criticized, challenged, and scrutinized their work. This supported me on the one hand to remain open for a different view on data, findings, and arguments. Through this, I believe that the objectivity of this thesis increased. Another outside-in support was given by my supervisors. They were continuously challenging my work and supporting it with their research experience.

Concluding, it could be stated that I not entirely lived up to the great responsibility of a researcher. Through the implementation of preventive measures harm to participants, deception, and bias could be reduced or eliminated. However, in one instance not enough prework was done, which resulted in an axiological borderline behaviour from my side towards the shop floor interview participants. The circumstance researching the organization I once was a part of should have been dealt with more appropriately during the preparation phase for the shop floor interviews. Nonetheless, the gathered information could be considered as a reliable data basis for the finding's generation, because the major points of axiology were considered.

4.9. Ensuring Research Quality

Naturally the reader would expect to find a section on reliability and validity, or, in qualitative terms, credibility and trustworthiness (Creswell, 2013a; Denzin & Lincoln, 2017; Hatch, 2002; Riessman, 2008; Saldaña & Omasta, 2017; Saldaña, 2011; R. E. Stake, 1995; Tracy & Hinrichs, 2017). Credibility and trustworthiness, as suggested by Guba & Lincoln (1985), are still the benchmarks nowadays in quality criteria for qualitative inquiries (Korstjens & Moser, 2018; Saldaña & Omasta, 2017; Whittemore, Chase, & Mandle, 2001). However, the discussion on quality criteria for qualitative research has evolved. The following assess the suitability of the 'Big-Tent' criteria, offered by Tracy (2010) and Tracy & Hinrichs (2017), and their implications for this research.

Walby & Luscombe (2017) offered a review on qualitative research quality criteria development (Creswell, 2013a; Denzin & Lincoln, 2017; Saunders et al., 2016). Another review would add little to this research and the current state-of-the-art. For further details, please refer to the named literature sources.

Despite the wide-spread use of trustworthiness, credibility, and transferability by Denzin & Lincoln (2017) as quality criteria for qualitative research, this research utilized the paradigmatic universal and flexible approach (Walby & Luscombe, 2017) of the 'Big-Tent' by Tracy (2010). It was chosen because it offers a differentiation of research process quality, or also *means*, and research result quality, or also *ends* (Tracy & Hinrichs, 2017; Tracy, 2010; Walby & Luscombe, 2017). Further, it includes multiple research quality validation strategies offered by different researchers for different paradigms (Creswell, 2013a; Denzin & Lincoln, 2017; Guba & Lincoln, 1985; Johnson, Adkins, & Chauvin, 2020; Silva Santos, Ribeiro, Queiroga, Silva, & Soares Ferreira, 2020; Walby & Luscombe, 2017; C. Welch & Piekkari, 2017). Qualitative research evolves during the inquiry, which requires quality measures to be applied throughout the research process to ensure end-goal quality (Tracy & Hinrichs, 2017; Tracy, 2010). (See Appendix 24 for the criteria and details on how to achieve them.)

The quality criteria cited by Tracy (2010) were criticized to be too broad and so would not be of any support (C. Welch & Piekkari, 2017). In contrast, the provided details on *means* could be seen as very specific. Furthermore, they could be argued to resemble well-established methods that come under the 'Big-Tent' umbrella. This exhaustive set of methods could, however, degenerate the flexible idea behind it into a checklist (see as an example the quality criteria suggestion by Wa-Mbaleka (2017)), which would not be in line with qualitative research paradigms (Guba & Lincoln, 1985; Hadi & Closs, 2016; Johnson et al., 2020; Tracy & Hinrichs, 2017; Tracy, 2010; C. Welch & Piekkari, 2017). Although there were certain criticisms towards Tracy's approach, it still proved to be the best suitable approach to ensure research quality for this research, because of the universality and flexibility mentioned above.

Concerning the quality criterion 'Worthy topic', this research argued in the introduction that globalization remains at a high level of importance. Globalization requires, to a certain extent, the set-up of new foreign subsidiaries. With it comes the question of 'International Knowledge Transfer'. For this reason, this research can be deemed interesting, relevant, significant, and timely, because many cases, both current and future, can expect to benefit from the outcome of this research.

The generated contributions can also be seen as significant, as they could be taken into consideration in future research concerning set-up cases. Future research could draw upon the ground opened by the findings, e.g. in different industries, other countries, for other work groups. Conceptually and practically, this research has pushed the knowledge boundaries concerning processual details of the IKT process and their consideration in a set-up environment. The identified local context factors, along with their discussed impact on the IKT process, also added to both theory and practice alike. Through these contributions a 'Significant contribution' and 'Resonance' could be achieved.

Despite quite limited time in the field, mainly due to research methods implemented, sufficient data was gathered. As the research's focus is on context, enough context consideration was able to be derived. To further ensure 'Rich rigor' a thoroughly-argued data collection and analysis process was established.

The data collection was argued in-depth and transparently. With the section "Axiological Stance", self-reflexivity and ethical considerations were shown. This part considers in detail the two criteria 'Sincerity' and 'Ethical'.

To ensure 'Credibility', data and environmental triangulation approaches were realized (Silva Santos et al., 2020). The research used a multi-vocational interview approach in order to triangulate different data sources. Experts were interviewed to understand the planning and managing view on the IKT process. In order to triangulate their statements, shop floor employees – being the personnel directly confronted with the implementation of the experts' planning – were interviewed. Findings from three international, distinct locations were compared to each other, enabling environmental triangulation. By this bias was further minimized, due to inclusion of multiple perspectives and triangulation approaches (Abdalla, Oliveira, Azevedo, & Gonzalez, 2018; Creswell, 2013a; Denzin & Lincoln, 2017; Silva Santos et al., 2020). Because of the retrospective approach, it was not possible to apply 'observation' as a research method. If this had been possible, methodological triangulation could have been applied as a further instance to generate credibility for the research.

Using direct quotes and rich context for the analysis and discussion further enhanced credibility. Member reflections were realized for the experts' interview transcripts, because of ethical considerations. However, neither the findings, nor the analysis, nor the conclusion, were reflected by the interviewees, as little evidence was found from methodological research that this improves findings in principle (D. R. Thomas, 2017). Nonetheless, through the measures implemented a high credibility could be achieved.

Lastly, 'Meaningful coherence' was achieved by answering the research questions. This was carried out by implementing an appropriate research strategy, which was appropriately discussed and reflected upon. By organizing the gathered and analysed data thematically and by attribute, a strong, connected argumentation structure was created.

Implementing state-of-the-art research strategies to ensure research quality (such as the 'Big-Tent' approach) supports a firm qualitative research. Although such state-of-the-art research might lack conclusiveness of its effectiveness, only applications to a research like this could show its usability. For this research, the 'Big-Tent' criteria worked in the way that it provided qualitative guidance along the thesis development. This gave support and direction to the quality aspiration of qualitative research throughout the research process and positively added to the creation of a strong qualitative thesis with impact.

5. Findings

The following focuses on: the findings from the expert interviews and the shop floor employees' interviews. Within each of the two interview findings sections, first a quantitative analysis is presented, followed by a qualitative presentation of the chief issues arising. Findings are shown for each of the individual cases and as a summarised outcome. This was completed for nodes on *Level 1* and *Level 2* of the final coding structure. The conceptualization behind the creation of the finding structure is shown in Figure 35, on page 105. This element thereby gives an overview of the development of the process of coding and the generation of findings.

5.1. Findings from Expert Interviews

Starting the inductive coding journey with the expert interviews, there were no nodes available. (See section "Considerations of Approaching Theory".) During the *Descriptive Coding* process, 730 references from the 4 expert interviews resulted in 93 different nodes. (See the complete first cycle coding nodes in Appendix 25.) This was too undistilled to derive any initial findings. For this reason, the *Transition Coding* (which was planned in response to this) helped to organize the results from the first cycle coding under overarching themes. In 2 iterative cycles, using *Code Mapping* and C*ode Landscaping* as methods, 2 preliminary hierarchy levels were created. (See Appendix 26.) Later, duplicate nodes in different levels were eliminated and content was further logically structured by reviewing all codes.

Table 9 Quantitative overview of second cycle coding based on expert interviews.

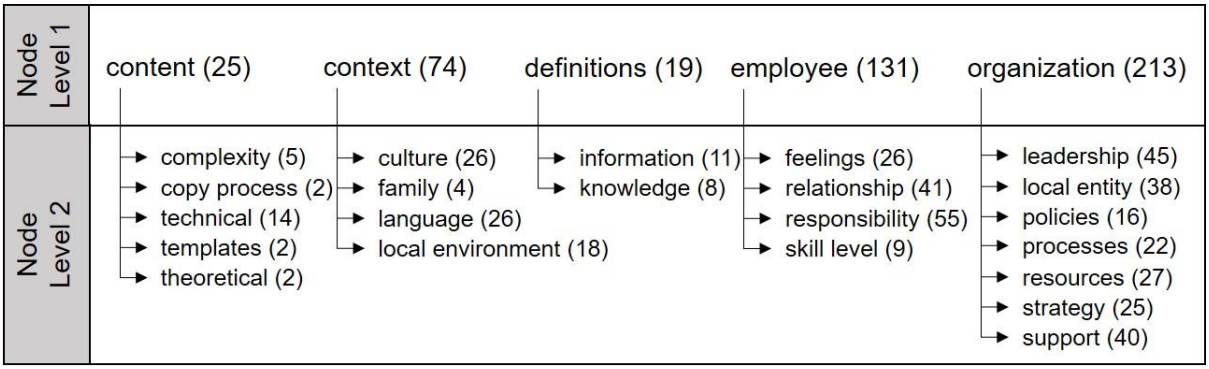
Level 1 node name	# of nodes			% of # of nodes			# of references		% of # of references	
Level:	*1*	*2*	*3*	*1*	*2*	*3*	*1-S*	*1-M*	*1-S*	*1-M*
content	1	5	0	20	23	0	24	25	8	5
context	1	4	9	20	18	16	56	74	18	16
definitions	1	2	0	20	9	0	14	19	4	4
employee	1	4	17	20	18	30	89	131	28	28
organization	1	7	31	20	32	54	133	213	42	46
total	5	22	57	100	100	100	316	462	100	100

Note: S = single consideration of references in different nodes, M = multiple consideration of references in different nodes.

In order to identify overarching themes, word clouds for the most used 20, 40, and 50 words were generated. (See Appendix 27 for the information on and results of the word cloud method.) Using these results as a basis, the meta aggregation on *Level 2* and *Level 1* were accomplished by categorizing schemes in Excel. (See Appendix 28 for categorization process and final list of schemes built.) This resulted in 57 nodes across 3 hierarchy levels and in 462 references – considering multiple nodes coding – as displayed in Table 9.

Over 70% of the references were assigned to the node's 'employees' and 'organization', leaving less than 30% of references available for the node's 'content', 'context', and 'definitions'. From a purely *quantitative* perspective, this shows that 'employees' and 'organization' were topics at the forefront of the expert interviewees responses. However, *quantity* alone as an indicator does not allow any conclusion about the *quality*, *relevance*, or *significance* of the content. In the second cycle coding, the 462 references were processed using the *Pattern Coding* method to create a basis on which to formulate findings. In the following process, findings for all defined *Level 1* and *Level 2* nodes were created for each expert interview separately. (See Figure 36 for *Level 1* and *Level 2* node structure including number of references assigned. See Appendix 29 for the complete node structure list.) To generate an overarching analysis, case summaries, including all expert interview findings, were prepared. (See Appendix 22 for the complete list of findings.)

Figure 36 *Level 1* and *2* node structure as a result of expert interviews coding process.



The expert interviews showed that there is a shared understanding of what defines 'content'. 'Content' is seen as information that is cumulable, stackable, and easy to transfer. As 'technical content', the information provided is very specific, distinct, requires time to transfer into knowledge, and is not randomly available "… I cannot go to Google and ask about this machine." (Expert Brazil Case, 2017). The availability of content during the set-up of a new foreign subsidiary depends on the relationships of the employees within the new location with the existing organizational group.

It was further identified that group-wide standards and availability of theoretical content support faster implementation in new location set-up:

> "… our processes and systems that we need to install for a new plant: they are defined globally. … We have our process map: N5, which also applies for every new subsidiary. So, you do not have to invent the wheel anew. … the general framework and the general processes a plant needs to successfully produce automotive parts are existing, they are accessible for a new plant …" (Expert China Case, 2017).

During the set-up of one of the existing plants, these standards were not available and much more basic definition work had to be undertaken:

> "[B]ack when we started Dalian [- the very first subsidiary in China of the organizational group -], we did not have a process map in N5 or other system. And we did a lot more own development of certain processes. We spend team workshops on-site in Dalian, where we designed processes that are now simply existing when carry over. So, it is much faster to set-up a new subsidiary." (Expert China Case, 2017).

Nonetheless, an appropriate amount of time is still required to internalize the provided content at the shop floor of the new location: "Especially in the technical functions, because the training and the gaining of experience from those functions takes longer than what we allowed for." (Expert China Case, 2017). Although this is understood, the time required is not appropriately considered in the set-up planning "It is really the planning phase and the freeing up of resources, whether it is time from local subject matter experts to help with the training processes or whether it is for the target local leadership for freeing up financial resources ...." (Training Manager, 2017).

From the data gathered under 'context'. based on all four expert interviews, it was shown that 'local belief system', 'mental models', 'way of feeling', 'family', 'spoken and written language', 'style of communication', and 'local educational system' are context factors that need to be considered when planning an IKT. The following exemplary statements support this:

> "So, local culture would be the local belief system …, also the communication style of the local employees, … the relationship that is understood from a local

> community … [, and t]he education level of your local employees …" (Training Manager, 2017),
> "Education, experience and family." (Expert Mexico Case, 2017),
> "I had difficulties because of the language. Cause the operators did not speak the language. And that they was a technical English to talk about the machines with the suppliers." (Expert Brazil Case, 2017), and
> "It makes it extremely difficult to communicate …" (Expert China Case, 2017).

Similar statements showed that 'language', 'style of communication', and 'local educational system' were context factors identified by all interviewees. 'Local belief system' was mentioned by two interviewees. 'Mental models' and 'family' were mentioned only once by different interviewees. From the context factors identified, 'language' was named most often as the chief context factor. In order to manage language issues, the experts suggested professional translating capacities. Three of the four interviewees reported that this was requested to be accounted for in the planning, however, due to budget restrictions, it was not considered in the set-up planning, as exemplified by this statement: "… one thing that has always been missing … is a[n] actual budget designated for learning. … the budget for those new plants there is nowhere in there that says: budget for training material." (Training Manager, 2017).

Findings on node 'definitions' showed a certain state of uncertainty: "What is knowledge? How to describe that?" (Expert China Case, 2017). It showed that none of the participants was able to define 'information' or 'knowledge' without the other:

> "Knowledge is information needed to reach the goal …" (Expert China Case, 2017),
> "… information is, is component that say of the knowledges …" (Expert Mexico Case, 2017),
> "Just knowledge itself is a repository of information about a subject." (Training Manager, 2017),
> "… you can interpretate [sic] information as a knowledge …" (Expert Brazil Case, 2017).

Using all interviewees responses, the following definitions on information and knowledge were aggregated:

- 'Information' is input or part of a person's knowledge. It may or may not be helpful to perform the required job role. 'Information' is the transfer process between two participants.

- ‘Knowledge’ is a repository of information and experiences acquired by a person on a specific topic. It is developed through the input of further information and experiences formed by application. ‘Knowledge’ is required to reach the goal of any process or project. However, there is no clear differentiation between ‘knowledge’ and ‘information’.

Concerning the node ‘employee’ it was found for all cases that newly-hired shop floor employees are not well prepared by the available educational system:

> “That might be worldwide that ... training or that education background is widely different.” (Training Manager, 2017),
> “And then in Brazil it is not like that. The basic school … [v]ery bad, very bad.” (Expert Brazil Case, 2017).

Therefore, the organization and the new local subsidiary need to be prepared to provide basic operational training before starting any kind of IKT. In order to facilitate appropriate IKT after such basic preparation, relationship building between the sender and the shop floor employees as receiver(s) was mentioned as a key enabling factor for IKT. It was identified that a good relationship can be achieved in all locations, if:

- foreign experts remain a long period on-site “... really good about this approach of sending someone to a plant is … for half a year, is that these employees of course then have a very close relationship …” (Expert China Case, 2017),
- training uses simple media for IKT “… make it simple this communication …” (Expert Brazil Case, 2017),
- trainers or experts understand and respect local conditions and traditions “But we also have to understand that the local conditions are very different than in Europe.” (Expert Mexico Case, 2017), and
- senders know how to behave and communicate appropriately at the new subsidiaries’ shop floor environment “... know how to communicate to the people.” (Training Manager, 2017).

Although this was known to the experts, the knowledge holders were *not* well-prepared in the cases of China and Mexico, because they were *not* quite aware of the exact nature of their role. This led to content losses during the IKT, which in turn led to shop floor employees *not* having the appropriate skill level, and thus consequently to losses in productivity. Interestingly, the Training Manager (2017) was aware that preparation is required by stating:

> "… a colleague [from the new location] for example, who is coming to Germany to learn and his counterpart is not well prepared it's going to afflict his or her experience … In the same way, if you send a colleague from Germany, who is a subject matter expert [to the new location in set-up] … [and he] does not have clear objectives, defined by supervisor or by a person who is developing a program like that. Of course, there are going be go with very similar mind-set, that there is no preparation involved and they will be frustrated and not communicate properly in an appropriate manner. Definitely not to the degree, which is expected for the successful transfer of knowledge." (Training Manager, 2017).

Lastly, it was generally understood that shop floor employees are culturally distinct. That is why, for example, in China that this has to be considered when planning an IKT that:

> "… in China ... people do not like to ask questions, because it shows weakness." (Expert China Case, 2017),
> "… people are reluctant to give up their knowledge or their experience, because I had to learn that by myself …" (Expert China Case, 2017), and if a
> "… relationship is not so close then they just send an Email. And if they just heard a name, they might not do anything." (Expert China Case, 2017).

In relation to topics gathered under the node 'organization', the 'set-up process' was determined to start with a thorough 'site selection' and 'location planning' process by all three cases. The 'site selection' process was identified to be: "… a comparison of different locations based on parameters such as benefits provided by the government, labour by availability, availability of plant labour, qualification, safety …" (Expert Mexico Case, 2017). Similarly, the other experts identified 'official incentives', 'labour availability and qualification', and 'safety standards' as main factors of a 'site selection' process. All experts were aware that the 'site-selection' process entailed a straightforward process and was done very thoroughly: "I know that our company has a quite sophisticated process in that regard with a lot of details that are being checked." (Expert China Case, 2017). However, "... one thing that has always been missing from every single [new location] project that I have worked on so far … is a[n] actual budget designated for learning." (Training Manager, 2017).

Besides a lack of budget, it was further reported by all case experts that not enough time was considered in the 'set-up planning' for IKT. However, interestingly, it was stated that mistakes that were made in the planning "… can cause a big problem in the set up and

the ramp up because of the missing information knowledge practices ...” (Expert Mexico Case, 2017).

It was further suggested that lessons learned from former cases should be reviewed to improve the planning process and planning result iteratively. In the later stage of construction and manufacturing equipment installation, it was identified by all three cases that opposing goals existed, resulting in interruptions for IKT. Only the Mexico expert recommended that the ‘set-up process’ closes with the reaching of the intended volume during the ‘production ramp-up’: “I think the ramp up can also be seen as a part of a set-up, because the purpose of a set-up is to install the contracted capacity.” (Expert Mexico Case, 2017).

It was pointed out by the central training expert that the IKT process needs a clear strategy and careful planning beforehand, including the following aspects recognized by all four expert interviews:

- the skill level(s), abilities, and talent of the local workforce
- the consideration of local learning preferences
- the definition of required skill levels for the new production location
- the preparation of basic training with hands-on orientation
- on-site support by central functions
- the identification of relevant knowledge holders
- the planning and reservation of relevant resources in terms of personnel and budget
- the definition of proper timing for IKT
- a process how to consider new shop floor employee feedback during the IKT
- the usage of appropriate media
- the availability of training material in local language
- the availability of translators for on-site IKT

During the analysis of different documents from the organization, none of the cases considered the list above completely. For the Mexico case, some of the above-mentioned topics were considered, however not to the full extent. The China expert reported that for the IKT and trainings processes, a dedicated Full-Time Equivalent (FTE) would be required to oversee planning and execution of IKT. “You need dedicated resources. … We are still doing it aside from the daily jobs.” (Expert China Case, 2017). This was stated despite that there is a world-wide expert for training at corporate headquarters.

The China and Mexico set-up case experts further showed that there is no standard process for IKT currently available, as exemplified by the following statement: “Ideally you

also plan the KTP. And this planning is somewhat difficult, because there is no, no standard template or anything." (Expert China Case, 2017). Furthermore, it was stated by all four experts that leadership has to give a clear vision and concrete objectives to the organization to ensure priority of IKT. Besides ensuring priority of IKT, the Chinese expert required top leadership to consider instituting an expatriate manager from the existing organizational group in the new subsidiary to ensure organizational embeddedness. "Now every plant gets at least one in the engineering area located Expat. To help with communication, with knowledge transfer." (Expert China Case, 2017). So, it was understood that an expatriate is a requirement to ensure contact with relevant functional leaders and experts within the organization, in order to initiate IKT. For the China and Brazil, the person responsible for set-up and later, the plant manager, were both expatriates. In the case of Mexico, however, a local manager, with no prior contacts to the overall organizational group was hired.

Lastly, it was found that some of the IKT was purchased from the respective manufacturing equipment suppliers who were building the equipment and who installed it at the new subsidiary. These suppliers were contracted to then also provided the required training to transfer operational knowledge on how to run and adjust the equipment. The Brazilian and Mexican case experts reported issues in the communication and IKT from the supplier, as substantiated by this statement: "And that they was a technical English to talk about the machines with the suppliers. … I did not have manuals of the machines. … And this we got out the end only one year later, fighting a lot with the supplier. And the manuals they help a lot." (Expert Brazil Case, 2017). From their viewpoint no clear definitions of tasks and goals concerning the IKT were available. Therefore, no target achievement control was possible. The Brazilian case expert added that it was also not possible to gather knowledge from the suppliers' personnel during equipment installation without purchasing it from the supplier explicitly, as exemplified by this statement: "Was not hired from supply to train us. It is more or less inside the conversation that they should teach us the machine. But they never want to do that. They say: "… This is your problem."" (Expert Brazil Case, 2017).

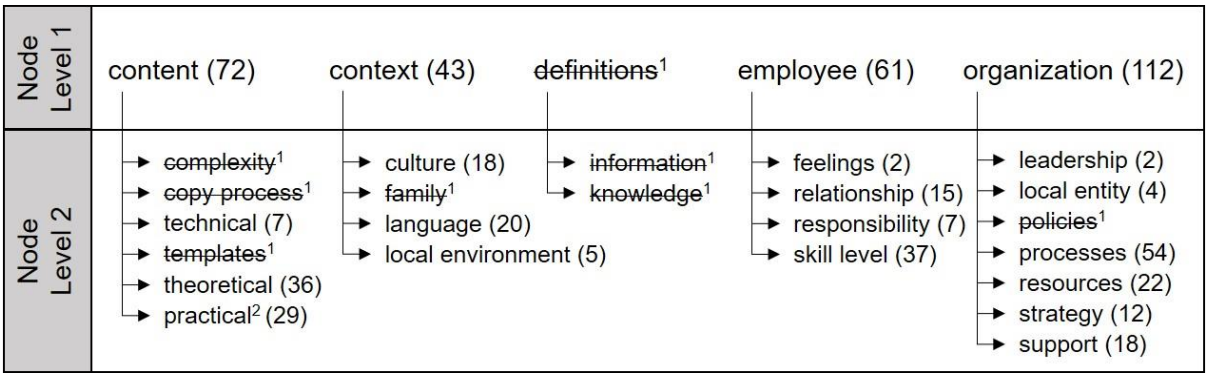
To conclude, the findings of the expert interviews *quantitively* demonstrated a focus on internal organizational inconsistencies for 'tasks', 'competences', and 'responsibilities' concerning IKT to new subsidiaries in set-up. A lack of 'strategy' and 'planning', and not incorporating the expert suggestions for barrier reduction, e.g. by using a translator; these factors were not considered, due to budget restrictions. Elimination of such measures was decided, although it was clearly stated by all experts that lacking preparation and front loading would result in bigger problems later on in the set-up process or serial production. Furthermore, it was interesting to identify that the case experts desired a dedicated person focusing on IKT to subsidiaries in set-up. This request was made even though a dedicated Training Manager is available within the organizational group. Again, as identified before,

this shows ‘organizational inconsistencies’ concerning IKT ‘tasks’, ‘competencies’, and ‘responsibilities’. So, this discovery of both a lack of proper preparation of the sender and a lack of processual understanding of IKT disclose the comprehensible results of the organizational shortfall mentioned above. Despite their focus on ‘organizational inconsistencies’, the expert interviews also identified the following local context factors as influencing IKT: ‘local belief system’, ‘mental models’, ‘way of feeling’, ‘family’, ‘spoken and written language’, ‘style of communication’, and ‘local educational system’.

5.2. Findings from Shop Floor Employee Interviews

In contrast to the expert interviews, the coding of the shop floor employees started with the final node structure derived from the expert interview analysis process. (See section “Data Analysis” for details.) In total, 20 shop floor employees in Mexico and China were interviewed in 15 interviews. Due to the high workload in Mexico at that time, the plant manager limited the interviews to just five slots, so as to not disturb production. Furthermore, it was also proposed to have 2 people interviewed together. Even though this might have had implications for the openness of the shop floor employees, the responses gathered showed detail and raised critical issues.

Figure 37 Shop floor interview compared to expert interview node structure.



Note: 1 eliminated, as no statements in interviews were made by participants concerning these topics; 2 added during the shop floor interview coding process.

The coding process of the 15 interviews resulted in 312 references, considering multiple usage of the same statement in different nodes. As the shop floor employee interviews were not as fulsome as the expert interviews, coding was limited to *Level 2* node structure. Although the basis for coding taken from the expert interview outcomes, the coding of the shop floor employee interviews was not limited to this node structure. During the coding process, the topic of practical knowledge was often named. For this reason, the node named ‘practical’ within the *Level 2* structure was added under the *Level 1* node ‘content’. On the other hand, however, where no references were made by the interviewees,

three nodes from the expert interviews coding process were redundant within ‘context’. The overall coding process resulted in the node structure as shown in Figure 37. This led to the *Level 2* node distribution as shown in Table 10. It displays a more even distribution concerning node structure and references in comparison with the expert interview coding process outcome. Interestingly in both coding processes, the *Level 1* node ‘context’ appeared to be of lower importance – when comparing the number of *Level 2* nodes and number of references coded between the expert and shop floor interviews.

Table 10 Quantitative analysis of second cycle coding of shop floor interviews.

Level 1 node name	# of nodes		% of # of nodes		# of references		% of # of references	
Level:	*1*	*2*	*1*	*2*	*1-S*	*1-M*	*1-S*	*1-M*
content	1	4	20	24	63	72	25	31
context	1	3	20	18	40	43	16	14
definitions	1	0	20	0	0	0	0	0
employee	1	4	20	24	57	61	23	20
organization	1	6	20	35	91	112	36	36
total	5	17	100	100	251	312	100	100

Note: S = single consideration of references in different nodes, M = multiple consideration of references in different nodes.

For shop floor employees, the node entitled ‘content’ identified that these employees were already hired the equipment was installed on the shop floor. This installation time was mainly used for intensive theoretical training. Some employees were additionally sent to existing production locations within the organizational group for practical training. Once the equipment was installed on-site, the first week was used for theoretical training. The theoretical training content was provided in the forms of: technical descriptions, instruction manuals, and ‘expert-centred teaching’[2]. Topics addressed were: safety, quality, and production process topics, as exemplified by the following statement: “The first is about quality for example, the hand cannot touch our products directly and the second is about safety. Then the third is ... the production…” (China Shop Floor Employee 5, 2018).

[2] Adopted from ‘teacher-centred approach‘: “A typical **Presentation – Proactive – Production (PPP)** lesson tends to be teacher-centred, as the teacher leads the activity and provides necessary information, usually in an **open-class** arrangement.” (Council, 2020).

In the second week, practical training commenced on the shop floor at the equipment site. During this training, content was provided by the supervisor through a guided 'learning-by-doing' methodology. The supervisor would firstly show the new shop floor employees how to perform a task at the equipment site. Secondly, the new shop floor employees repeated the task by themselves under the supervision and guidance of the supervisor: "He said, first the main operator do the things and was explaining all the time what was he doing. … Then they did it all together … [and] the supervisor was checking all the things that he made." (Mexico Shop Floor Employee 5+6, 2018). From study of the different statements of the Mexican shop floor employees, it became clear that the content's depth and volume depended on the supervisor responsible for the practical training. Furthermore, both Chinese and Mexican shop floor employees stated that the theoretical training provided in the first week did not sufficiently prepare the new shop floor employees, because details about the production processes and content on problem solving were lacking. The following statements verify this:

> "He thinks, the training ..., where not always a help, … he needs to do in the practise by himself." (China Shop Floor Employee 2, 2018),
> "The presentations is only about listen and see, but the practical operation training is about the "do". It will also enhance the training …" (China Shop Floor Employee 9, 2018), and
> "They say just basic information, for example, how to operate the machine but no [sic] how to read and understand the phase on that, and how to solve the problem." (Mexico Shop Floor Employee 9+10, 2018).

Concerning the node 'context', it was also identified by the new shop floor employees that their prior certified education was not sufficient to perform their new job role: "He think, what he learned from the school or college is not enough for the work. So he still needs to learn from the work." (China Shop Floor Employee 2, 2018). For this reason, it was understood that the organization had to invest in basic operational skills in order to prepare the new shop floor employees to work in a highly automated production environment. In both cases it was identified that: time available, language, and inappropriate communication to local standards were hindrances in IKT. It was further pointed out that these hindrances resulted in gaps in understanding with regards to content being transferred, as exemplified by the following statements:

> "Currently, we have a training by a German colleague, but it is always not so smooth in the communication. No matter if there's a translator or not, always not so smooth." (China Shop Floor Employee 9, 2018) and
> "They say there was not a really good communication between the supplier and some of the production …" (Mexico Shop Floor Employee 9+10, 2018).

As exemplified further in the Mexican case, the shop floor employees felt offended by the inappropriate behaviour concerning local communication standards by supplier personnel during IKT. The Chinese shop floor employees specified that they did not feel enabled to work fully independently. Furthermore, it was described that they felt watched constantly, as illustrated by this statement: "He feels less independence. … He wants do … independently." (China Shop Floor Employee 1, 2018).

The node 'definitions' had to be eliminated, because it was not possible to aggregate any findings, as the interviewees found it difficult to define meta concepts such as 'information' and 'knowledge'. As nothing had been stated, no definitions were derived.

Under the node 'employee', the topic 'relationship' as enabler for IKT emerged as a central theme. 'Relationship building' with foreign experts was evaluated as difficult, because:

- experts remain on-site for a limited time only: "Because they only have their business trip or for a determined time period." (China Shop Floor Employee 9, 2018)
- communication is difficult, because both sides are using English as a foreign language and cannot communicate in their mother tongue "A Chinese trainer is better than a foreign trainer, because still the language problem in, in English is not so good, so if it is … a foreign trainer he don't know how to ask question." (China Shop Floor Employee 4, 2018) and "The hard is the language, the difference for the language to really understand …" (Mexico Shop Floor Employee 1+2, 2018)
- shop floor employees are afraid to ask questions "The main reason to get a little bit angry could be the … repeating …" (China Shop Floor Employee 9, 2018)

With local trainers, these kinds of barriers were not applicable and relationship building was evaluated to be uncomplicated. This statement supports this: "… there was not a really good communication between the supplier and some of the production because … the supplier never taught or explained with more details to the supervisor or the people what they were doing on that." (Mexico Shop Floor Employee 9+10, 2018). In the case of Mexico, four out of

ten interviewees recognized that the relationship building with the foreign equipment suppliers was highly complicated. Inappropriate communication to local standards led to wrong equipment handling, which led to conflicts between the local shop floor employees and the equipment suppliers' personnel, as can be interpreted from the statement above. Significantly, it was identified within the interviews that the supplier used foreign personnel for knowledge transfer rather than available local personnel to hand. "… for him ... [the training] was only with the people [of the supplier] from Germany." (Mexico Shop Floor Employee 7+8, 2018). This was especially curious, because *local* supplier personnel worked on-site to implement the equipment. However, *foreign* supplier personnel*,* rather than the supplier's *local* personnel, were instructed to perform the training with the local shop floor employees, as backed-up with the following statement: "They had people from Mexico, … but it was not ... [their (the supplier's Mexican personnel)] task to give the training for the ... [new shop floor employees]." (Mexico Shop Floor Employee 7+8, 2018).

Lastly, under the node 'organization', the coded statements of the shop floor interviewees identified that different options for training were used: *organizational internal* at *existing locations* by sending new local shop floor employees to these locations, *organizational internal* at the *new location* by foreign subject matter experts, *organizational external* at *official institutions*, and *organizational external* at the *new location* by equipment suppliers. It emerged that the shop floor employees primarily employed were qualified to be multi-skilled operators, being able to operate multiple pieces of equipment: "When he joined our plant, he do the things from the beginning to the end about one product. And now when new operators come to our company, they only do one part of the production line." (China Shop Floor Employee 3, 2018). Later on, with production volume increase and set-up advancement, further shop floor employees in both cases were qualified solely as single operational process step experts, who would be able to operate only one type of equipment.

Although different training was available, both cases stated a similar training process for new shop floor employees:

1) on-boarding training in meeting room
2) theoretical training in meeting room
3) instructions at the machine; in the beginning, assembly and dismantling of parts from the machine
4) repeat by themselves with instructor besides the operator
5) undertake activity by themselves

Within the China case however, interviewees additionally reported that steps for the qualification for different production steps were offered by the organization. These were:

6) to perform on a production step for approximately 1 year with one piece of equipment
7) opt to change production step for 3months
8) to have a superior fill out an evaluation form
9) if number 8 is positive, the change to another production step can be made; if negative, they go back to their initial production step undertaken.

In this process, subject matter experts from the departments of: Process Engineering, Quality, and Operations were involved, as described by the following statements: “He received the training from the process engineering colleagues and the quality colleagues about the … production plan controlling ...” (China Shop Floor Employee 1, 2018) and “the main operator … explain to him about the operation process …” (China Shop Floor Employee 8, 2018). These experts were provided by central functions or existing plants to perform the knowledge transfer at the new location in set-up.

Although the above process seems straight-forward, the interviewees criticized that there was no plan provided concerning the shop floor qualification process. Furthermore, the interviewees of both cases wished for more detailed knowledge in production processes, knowledge in trouble-shooting, dedication of expert resources, and focus on their qualification by not being trained during serial production. The following shop floor interviewees feedback substantiate these assertions:

- no qualification plan available: “… here are many times of instructions and there is no concrete time.” (China Shop Floor Employee 1, 2018)
- more detailed knowledge in production processes: “He say the training was good, not to really operate complete the machine, but for general start up …” (Mexico Shop Floor Employee 3+4, 2018) and “He said he need more training, more practice on the machine, on the computer, …” (Mexico Shop Floor Employee 5+6, 2018)
- knowledge in solving failures: “He feels, he wishes for more trainings, because [h]e wants to do solve, solve problems independently. … Then he don’t need to ask, ask other support …” (China Shop Floor Employee 1, 2018)
- dedication of expert resources: “… sometimes the senior operator is focused on production and getting results, but they left sometimes-- Than your ways to only waiting and just watching them. They are doing all the things in separate line or so.” (Mexico Shop Floor Employee 1+2, 2018)
- decouple training and serial production: “He think that he has needed that to increase the training time because now time is limited and our production is

> also very full." (China Shop Floor Employee 6, 2018) and "… maybe they could get more opportunity to operate on lower take and better overview how to handle the machine, how to make some adjustment on there because on their first weeks, they was only to operate …" (Mexico Shop Floor Employee 1+2, 2018)

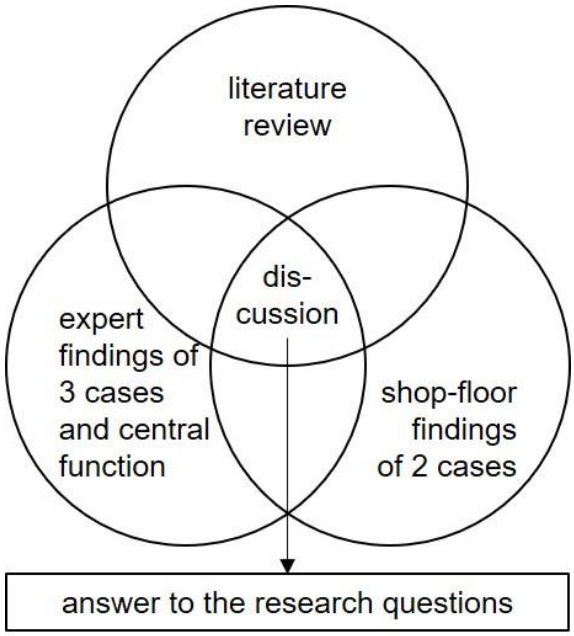
The last statement of the Mexican Shop Floor Employee 1+2 above showed that parallel qualification, alongside serial production, led to stalemate in the qualification process, as the supervisor focused on production results rather than on the training of the new shop floor employee. Ultimately, the new shop floor employees found themselves alone at the equipment with no work instructions or training opportunities.

Based on the above, the findings which came from interviewing the shop floor employees conclude that barriers that influenced the IKT process were: a lack of educational preparation, little understanding of local communication standards, the short-term visits of experts, restricted time allocation for training, prioritization of serial production in comparison to training, and the lack of a visible shop floor employee training plan. Having identified the key findings from the data sources of this thesis, the following chapter discusses and analyses these findings further.

6. Analysis and Discussion

"There are multiple, intangible realities which can be studied only holistically …; inquiry into these multiple realities will inevitably diverge … so that prediction and control are unlikely outcomes, although some level of understanding … can be achieved." (Guba & Lincoln, 1982, pp. 237–238). An understanding of the cases is developed using different resources, as suggested in Figure 38. Through triangulation, critical review, and interpretation, a conceptual and processual IKT discussion produces an enhanced version of the integrated reference model for set-up process (IRMSP). This reveals the nature of the IKT during a subsidiary set-up process. It shows that current processual models do not in any sense consider IKT appropriately. Subsequently, the top three local context factors influencing the IKT are derived based on the findings. Thereafter, their effect on the IKCT characteristics are discussed. In this way, this section provides answers to the first and second research questions and builds the basis for the section "Managerial Implications".

Figure 38 Conceptual approach to source triangulation.



6.1. Nature of IKT in New Foreign Subsidiaries' Set-Up

6.1.1. Discussing the conceptualization of IKT: practice vs. literature.

The literature review showed in the section "Knowledge, Knowledge Creation, and Knowledge Transfer" (see pp. 23-36) that there is no clear definition of knowledge available (Aidemark, 2009; Pustelnikovaite & Chillas, 2016). Similarly, the interviewees found it difficult to define knowledge, e.g. "What is knowledge? How does one describe that?" (Expert China Case, 2017) and "It is complicated to answer this." (Expert Brazil Case, 2017). It showed, however, that the interviewees understand, in accordance with the definition in this research,

that knowledge is an individual matter and is individually created through experience and input of information. This is supported by the following example, “Of course, information is, is a component that, say, of the knowledges, that a person can be carrying. So, since I define knowledge as a theoretical background in the practical implementation, so that is, called background needs to be supported by information.” (Expert Mexico Case, 2017).

In contrast to this, the definitions of information given by the expert interviewees concurred unwaveringly with each other. From the interviews, it can be seen that data were gathered from existing plants, were formatted, and were translated so as to be applicable locally. Furthermore, it was proved to be important that only relevant information was provided to the new location:

> “Information can be also background noise. That is still the information you get. But it does not mean that it helps you in your job.” (Expert China Case, 2017)
> or
> “... information could be something that is just as it sounds in its basic form fyi – for your information.” (Training Manager, 2017).

Hence, all the three characteristics of information, as defined in the literature review, were concurrent with the characteristics of information based on the findings. So, no adjustments needed to be made to the IKTC model, as the fundamental definitions of theory and practice matched.

Much research in the field of knowledge management loses credibility, because the terms ‘knowledge’ and ‘information’ are used interchangeably (T. D. Wilson, 2002). (See Figure 6, on page 28, for the differentiation used in this research.) As was shown in the literature review, knowledge and information are interdependent, which further complicates a differentiation. In accordance with this, expert interviewees were also not clear about the exact usage of the terms ‘knowledge’ and ‘information’. This misapplication is exemplified by the following statement “... I believe that you can interpret information as a knowledge …” (Expert Brazil Case, 2017).

Throughout the interviews it became clear that the interviewees struggled with the clear demarcation of both words, e.g. “Knowledge is information needed to reach the goal…” (Expert China Case, 2017). However, all interviewees recognized that there is an interdependent linkage between knowledge and information:

> “... knowledge itself is a repository of information about a subject.” (Training Manager, 2017),

> "… knowledge is a bunch of information that someone accumulate …" (Expert Brazil Case, 2017),
> "… information is, is a component that say of the knowledges, that a person can be carrying." (Expert Mexico Case, 2017).

It is obvious that a good understanding of both terms is required at the beginning of an IKT. As is shown, a clear demarcation cannot be naturally presupposed. Only by achieving an alignment for both terms, it would be possible to apply the IKTC concept. A non-alignment of definitions would lead to a fuzzy conceptual understanding, which in turn could lead to wrong IKT approaches, resulting in no improvements in the set-up performance.

To exemplify: a certain IT employee is part of the project team which executes the IKT to a new subsidiary in set-up. A general target is defined: to make knowledge available in the new subsidiary. No further alignment on basic understanding and conceptualization is carried out. It could happen that the IT employee misconstrues 'knowledge transfer' as 'information transfer'. This could result in an implementation of document libraries on a shared drive, where the subject matter experts could store their information and new local employees could access the information provided. With the realization of the shared drive, the IT employee could see the project as accomplished. However, in the light of the fact that no knowledge was actually transferred, due to the fact that the IT employee was not aware of the difference between knowledge and information, the project could not be seen accomplished.

It could be argued that the implementation of the shared drive would support the IKT process by enabling central information management. However, no receiver specifics, such as absorptive capacity, retentive capacity, prior knowledge, learning preferences, language skills, etc. would have been considered. It is very likely that this approach would end up in the lap of non-qualified shop floor employees, who could be overstrained with self-learning, understanding, and sense making. Therefore, it could be argued as crucial that an alignment of target, concept, and definitions be accomplished in order to achieve target congruency for the IKT.

Concerning *concept*, the literature review identified sender, receiver, content, communication channel, and context as the basic components of IKT (Axelson, 2005; Gupta & Govindarajan, 2000b; Minbaeva, 2007; Sjöholm, 1996; Szulanski, 1996, 2000). (See Figure 7, on page 30.) All experts were aware of these process components:

> "So, your source is the person who has the knowledge. Whether it is a process owner or an experienced employee wherever in whatever context of the job role is to the new person without the knowledge. Whether it is a new location in

> a different country or whether it is a new employee at a current location. And the knowledge, the content of the knowledge is the experience of that source. It is also information that can be easily accessed. And then the media to transmit that knowledge plays a huge role. And there are several different strategies for the transmission." (Training Manager, 2017).

However, solely the Training Manager alone would be able to name all the components specifically, as shown in the statement above. Therefore, only a general understanding could be ascribed to the three case experts. They would not be aware of the particular component names, probably due to missing background in training and learning. This is exemplified by the following statement: "… you need to define: what this new person in place needs to know, comparing to the people already working. That is the transferring knowledge in my opinion." (Expert Brazil Case, 2017). In light of this, it is clear that new employees need to achieve a certain knowledge level to perform their job role. This would require training. The new employee would need to internalize information provided. It follows that the new employee could be considered the receiver. However, the Brazilian Case Expert did not use the specific term 'receiver', which lead to the conclusion above.

So, we can therefore understand that the employees already working for the organization are seen as job role benchmarks. They should hold more knowledge than the new employees and thus would be able to externalize their knowledge. In this way the existing workers could be understood as senders.

Further statements show similar missing specific terminology. Nonetheless, it showed that the basic concept of IKT correlated amongst the case experts. Consequently, the basic components identified from the literature review could be seen as applicable to practice as well.

The final IKTC model also included detailed characteristics for each component. Quite substantial research had been done on each characteristic. However, the findings showed little awareness of these characteristics in practice. Only by focusing the experts through specifically pinpointed character questions, would they start thinking about them. This is demonstrated by the following statement: "Would you say there is a specific communication channel you would assign for knowledge transfer for one of these groups or you would say you could also use video conferencing for shop floor workers?". Despite the detailed questions, little substantial feedback was gathered. It could be construed that a superficial knowledge about the IKT component characteristics could be voiced. Consequently, it could be argued that the characteristics were not considered when planning for the IKT process to their new subsidiary. This could lead to the conclusion that the concept of IKT and its specifics were neither known nor shared with the case experts. This could occur because of

a missing conceptual understanding, which would ideally have been required at the beginning of the IKT planning process, as previously argued.

Lastly, the IKTC model considered individual contexts for both the sender and the receiver. However, the findings from the expert interviews did not mirror this conceptualization. It could be argued that a general awareness for different situations existed. This notion is based amongst others on the following statements:

> "You need dedicated resources. So, you need to have someone who focuses on this. We are still doing it aside from the daily jobs." (Expert China Case, 2017),
> "... probably the most influential factor is how that subject matter expert or how the sender understands his or her role in relationship to his everyday role." (Training Manager, 2017), and
> "If these guys do not find a good way to communicate and to understand that they are in the same way, this can block." (Expert Brazil Case, 2017).

However, it did not occur to the experts that the situations described could resemble that employee's individual context (in the IKCT referred to as 'receiver's context'). Additionally, it could be argued that the expert interviewees were not reflected enough to see that exactly in these instances the influence of context crystallized.

All interviewed experts confirmed multiple times that context was of great importance, as shown by the following two paradigmatic statements:

> "The influence is strong in a way that sometimes you cannot just transfer the knowledge, because the people on the other side cannot receive this knowledge." (Expert Brazil Case, 2017), and
> "All those other factors motivated people to understand and prepare in be open to get new knowledge, yes." (Expert Mexico Case, 2017).

However, missing conceptual understanding and non-sensitivity for contextual implications, as identified above, lead to the conclusion that the importance of context could be considered mere lip service than actual conviction of the case experts – only the Training Manager showed the anticipated level of understanding. If it would have been the case expert's conviction, a higher understanding and awareness of context management would have been expected. Hence, the following processual view on the nature of IKT proposes to implement an appropriate alignment workshop at the beginning of the IKT process to raise understanding and awareness for the concept of IKT.

6.1.2. Contrasting the processual understanding of IKT in subsidiary set-up.

6.1.2.1. Adjustments to the work stream 'site planning'.

The review of different set-up definitions and reference models is found in the IRMSP. (See Figure 12, p. 35 or Appendix 2, p. 224.) It was argued that a set-up process starts with a strategic decision, continues with a preparation phase, thereafter a ramp-up phase, and finally concludes with the reaching of planned production volumes. From the findings, this general demarcation is supported. The following statement demonstrates the congruency for the closure of the set-up phase:

> "… and then start with the ramp-up until we reach the capacity that we were contracted to deliver. This is for me the ramp-up. It is the curve how we will be achieving the volumes of the customer nominated to us. … I think the ramp-up can be seen as a part of a set-up, because the purpose of a set-up it to install the contracted capacity." (Expert Mexico Case, 2017)

For the working stream 'site planning', the first work item was 'location planning' in the IRMSP. However, all experts identified a site selection as a subsequent work item to a strategic decision, a fact which is supported by the following statements, "… the selection process is crucial, because this is how all starts, but of course this selection processes starts, because a customer has already decided to award a certain business to the facility or to the organization." (Expert Mexico Case, 2017). Although this process step proved to be important, it is not specifically named in the IRMSP. It could be argued that it be part of the preparation phase. The reviewed sources, however, did not indicate this. Thus, the 'site selection' requires individual integration as a work item subsequent to the PA, as suggested in Figure 39.

Location planning and building planning were named as subsequent work items to the 'site selection'. These were not named by the interviewees explicitly, but could however be derived from statements like, "…[The site selection] is the initial phase and then the set-up process of course includes … a whole more detail in planning…" (Expert China Case, 2017). Although it was mentioned by the Training Manager that appropriate financial planning for IKT is of importance, it was expected that budget planning would be named as a key element in the set-up process. However, despite this, budget planning was only mentioned in the Mexican case in relation to the set-up process work items.

This could stem from the case experts' professional backgrounds. The Mexican expert had an economics background, whereas the two other case experts had technical backgrounds. This might serve as an explanation as to why budget planning was not mentioned more often. It could be argued that a person with mainly technical work

experience prioritizes differently than a person with an economics background. Due to the fact that a clear explanation cannot be derived from the interview data, the speculations stop here. As a result, budget planning was not considered as a primary work item. The Chinese and Brazilian Expert did not even mention it, and it was not specifically highlighted or elaborated on by the Mexican Expert.

From looking at the following statements, ‘construction’ emerged as an important work item:

> “So, you find these and you start this in parallel. The construction of the plant and the purchase of the machines …” (Expert Brazil Case, 2017) and
> “… the construction, it was at least for me very stressful, because there were, we needed to push a lot of the construction in the same companies to complete the construction in time.” (Expert Mexico Case, 2017).

We can understand from this that the construction was an integral and important part of the subsidiary set-up. None of the interviewees identified a reason why the construction was so important. It could be argued that the construction of the building is time-wise essential for the overall set-up. If there are construction delays, equipment cannot be put into place, and it follows that production cannot be ramped-up, resulting in a potential delay of customer delivery. For this reason, ‘construction’ was added as a separate work item. All changes discussed above were implemented in the Enhanced Integrated Reference Model for the Set-up Process (EIRMSP)., as displayed in Figure 39. The review enhanced the understanding and details of the site planning process.

6.1.2.2. Work stream ‘production’ reexamined.

In the work stream ‘production’, the work item ‘Equipment Planning’ was moved into an earlier stage of the set-up process, while work items ‘Production Process Planning’ and ‘Strategic Production Program Planning’ were put in dashed format. The latter one was done, because the set-up cases under investigation took into consideration copy-plants. As described in the section “Setting the Scene”, production and manufacturing processes were completely alike within existing plants. No processual innovation had been implemented. Also, the layout of the plants and equipment was completely alike. Also, we can see that the work items ‘Production Process Planning’ and ‘Strategic Production Program Planning’ were not at all mentioned by the interviewees. If new processes had been implemented, this would have required testing without experienced support from central functions. However, within a copy plant context, a process development would not be necessary and experienced support from central functions would exist. Based on this reasoning, both work

items could have been deleted. However, they were kept in (in dashed format), as not every set-up process has a ‘copy plant’ context. If this should not be the case, then both work items would require consideration in the set-up process.

The work item ‘Equipment Planning’ was moved forward and extended to cover process gate ‘Production Approval’ to ‘Location Decision’. The case experts’ statements suggested that ‘Equipment Planning’ was done in parallel to the work items ‘site selection’ and ‘building planning’. In a copy-plant context, the ‘Equipment Planning’ would probably be considered short-term, and therefore could be done in a later stage, as shown while considering the IRMSP.

However, the findings showed that, for a manufacturing set-up, the equipment ordering, delivery, and implementation took more than one year to accomplish. Reasons for this mentioned were: saturated markets and the requirement of specific equipment from dedicated suppliers. As the equipment could be seen as critical for the operations of a new manufacturing subsidiary, the processes were moved and prolonged according to the expert findings.

In conclusion then, it can be said that the work stream ‘production’ is certainly case-dependent. Therefore, the suggested typology matrix by Böning & Sejdic (2015) could be used. Depending on the set-up type, different production reference work streams could be developed. (See Table 2, p. 13 for the typology matrix.) In this way, any set-up type would have an individual and suitable reference ‘production’ work stream.

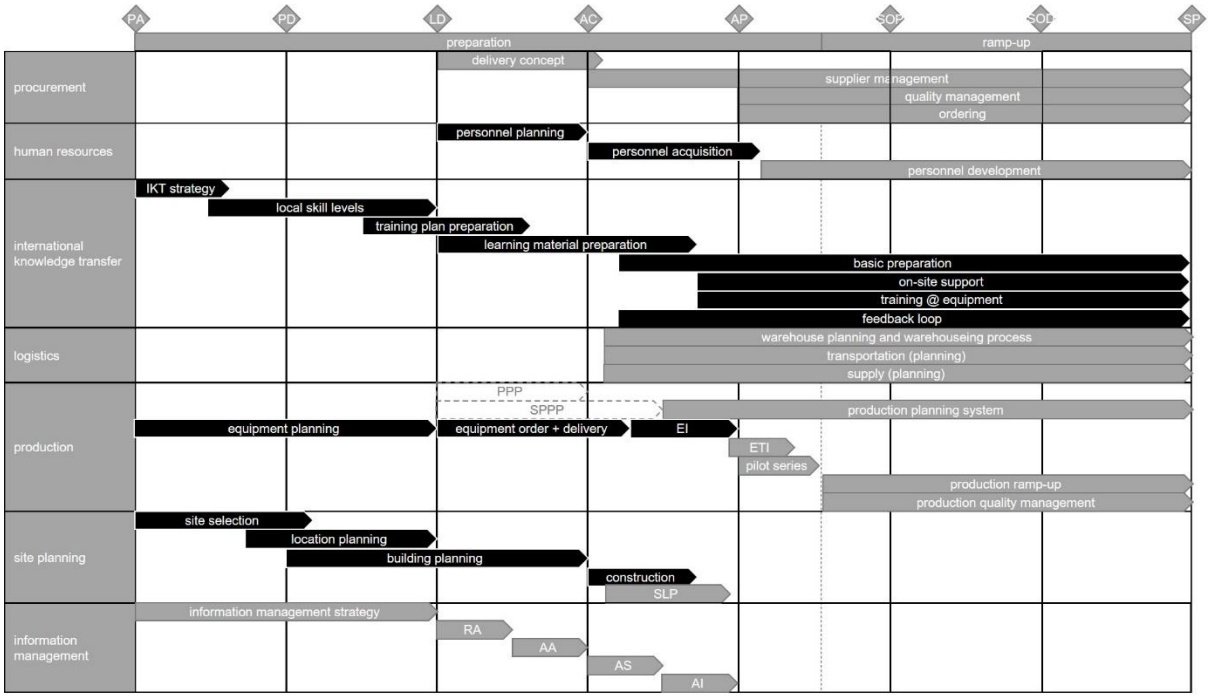
6.1.2.3. Considerations of an independent ‘IKT’ work stream.

“You need dedicated resources. So, you need to have someone who focuses on this. We are still doing it aside from the daily jobs.” (Expert China Case, 2017). In the IRMSP, knowledge transfer is represented as two work items within the work stream ‘human resources’. Although it might be thematically correctly located, IKT would remain indistinct: “… [As the training manager I had to] consult with the leadership of the various employees, where they were working and make sure that [the ‘International Knowledge Transfer’] was a priority.” (Training Manager, 2017). However, as is argued throughout this thesis, IKT is of primary importance for a new manufacturing subsidiary set-up and requires the appropriate focus. By adding a separate work stream, this can be realized. A relevant draft, named ‘International Knowledge Transfer’, can be found in Figure 39. (See also Appendix 30 for better readability of Figure 39.)

The two work items ‘Personnel Planning’ and ‘Personnel Acquisition’ were considered in the IRMSP. From the findings, it can be seen that shop floor ‘Personnel Acquisition’ was performed too late. Not enough time for training existed: “HR needs to be in place, because you need to hire the people, you need to train the people … I have to stop my job to supply

training the operators … to go to the city to check for safety shoes for the guys." (Expert Brazil Case, 2017). Starting both processes after the milestone 'Approval Construction Drawing' (AC) could be argued as too late. Therefore, both processes were preponed to start directly after the milestone 'Location Decision' (LD). This should allow enough time to do a detailed workforce scan and acquire the appropriate shop floor employees. In this way, enough time for IKT and training would be available.

Figure 39 EIRMSP: Enhanced IRMSP by expert interview findings.



Note: PA = Production Approval, PD = Product Decision, LD = Location Decision, AC = Approval Construction Drawing, AP = Approval Pilot Series, SOP = Start of Production, SOD = Start of Delivery, SP = Series Production, IKT = International Knowledge Transfer, PPP = Production Process Planning, SPPP = Strategic Production Program Planning, EI = equipment implementation, ETI = Equipment Testing and Industrialization, SLP = Space and Layout Planning, RA = Requirements Analysis, AA = Application Architecture, AS = Application Selection, AI = Application Implementation. Grey areas indicate processes as identified for a set-up process in the "Literature Review", starting on page 12, and as displayed in Figure 5, on page 17, and Appendix 2, on page 224. Black areas indicate processes updated by expert interview findings.
Source: Adapted from "Reifegradplanung und -überwachung für den Anlauf zusätzlicher Produktionskapazitäten an neuen Standorten als Entscheidungsbasis für Optimierungsschritte (Ramp-up Maturity)" by Böning & Sejdic, 2015, p.16. Copyright n.d. by n.a. & Adapted from "White Paper Ramp-Up Management" by Ammer, n.d., p. 6. Copyright n.d. by T-Systems Enterprise Services GmbH.

From the expert interview findings, eight work items for this new work stream 'International Knowledge Transfer' could be observed. Firstly, the findings identified that a clear strategy needs to be announced and backed-up by the overall leadership (Expert Mexico Case, 2017; Expert Brazil Case, 2017; Expert China Case, 2017; Training Manager, 2017).

> “But it is the top leadership on both ends [(central and local)]. … the leadership team locally and even on a worldwide level, a step higher, that the local leadership, our worldwide leadership for production for example … [who] really believed and supported in such a process to enable our colleagues at the new plants. So, leadership all the way down to the shop floor employees.” (Training Manager, 2017)

The strategic direction gives everyone involved “… an aligned understanding of the end-goal.” (Training Manager, 2017). In other words, through a defined target, a unified understanding can be achieved. Hopefully, this would result in aligned IKT actions. However, as identified in the subsection “Discussing the conceptualization of IKT”, underlying definitions and the IKT concept require adequate alignment. This was also highlighted by 2 out of 3 case experts. Due to the critical importance of this, these three topics – target, definition, and concept alignment – were considered in the EIRMSP in the first work item titled ‘IKT strategy’ for the work stream ‘International Knowledge Transfer’.

Secondly, it is important to “… understand the educational level ...” (Expert Mexico Case, 2017), because “… there is very different educational background in China. So, that sure can influence the knowledge transfer.” (Expert China Case, 2017). (See subsection “Impacts of ‘education’ on the IKT process.” for a detailed discussion on the influences on the IKT process.)

Due to these differences and their influence on the IKT, it is necessary to understand the local educational system: “… if we were going to build a new plant in a completely different environment, where we have never been before, I think the most important thing is to understand the local culture and the local education system.” (Training Manager, 2017). Each case expert highlighted the understanding of the local educational system as important. A review of the interview transcripts also reinforced that the understanding of the local workforce (including their skill levels) is of prime importance.

From multiple reviews it became clear that the case experts denoted the need for a skill level review in order to understand consistently the local educational system. Most clearly, this is illustrated by the following statement, “But I think probably the most important step in the beginning in even the research project is understanding the local workforce and the availability of workforce and the education system.” (Training Manager, 2017). Through this statement, and in conjunction with further findings, one could conclude that same job titles in different countries do not necessarily entail the same knowledge level and experience. This is also illustrated by the following statement, “But for main operators on machines, we recruit typically young college graduates. So, they have a technician level in

China[, which would be the level hired in Germany for this job]. … an operator has a very different education background. … they used to be a baker." (Expert China Case, 2017). Based on such statements, one must assume that a same knowledge base for same job titles must have been considered. Otherwise, different educational levels of same job titles would have not been mentioned in this frequency by so many different case experts. This is why, in this thesis, the work item 'IKT strategy' and an initial part of the 'site selection' needed to be accomplished, before starting with the review of 'local skill levels'.

Thirdly, based on the locally-available skill level, a training plan was prepared. This is demonstrated by this statement, "So that when you do plan a training activity or training strategy that you have those concepts [- local skill levels -] in the back of your mind. To understand what are my barriers possibly going to be in this culture in this context? And how to potentially overcome them." (Training Manager, 2017). Of course, barriers could lead to a mis-planning, which could negatively impact the IKT. As discussed in the later subsection "Impacts of 'education' on the IKT process.", prior knowledge is required in order to absorb the provided content during the IKT. 'Training plan preparation' could start towards the end of the 'local skill level' work item, because the training plan is based on the prior findings.

Interestingly though, the three case experts required the Worldwide Functional Heads to define the required training for the new employees: "… you cannot have the flow of knowledge, if … you [(the Central Functions)] do not ... describe this position well …" (Expert Brazil Case, 2017). From the statements, it was evidential that this had *not* been the case in the investigated cases – that in fact the training requirements had *not* been defined by the Functional Heads. It seems that the Functional Heads could only provide their aspiration as to what knowledge they would like an employee to have in order to perform a job role. Due to the contextual distance, it would be difficult for them to be able to align their skill level aspiration with the locally-available skill level in order to define what trainings would further be required. This is interesting, because it shows the missing alignment and concept that was very often required before. If a proper concept, including the consideration of the local context, had been established, the non-alignment that we see/ that is seen might not had have happened. This small excursus could not be considered a work item nor a work stream. Nonetheless, it is important, because it exemplifies the impact of an initial 'IKT strategy' alignment. Without an alignment throughout the IKT process, such imponderables might result.

Fourthly, two case experts and the Training Manager mentioned that learning material was to be prepared prior to the actual training. "We have to translate everything. … every single document that exists to support the colleagues in operations is in German." (Training Manager, 2017). Besides translation, the information needs adjustment to local standards. This is supported by the following statement: "Because, if a technician in Germany writes a

lessons learned, it is not necessarily said that the Chinese colleague later on will understand it, so that you have to do the whole step of translating the document with another technician, processing it into a format a Chinese colleague later can do." (Expert China Case, 2017).

This thesis requires information to be well-prepared and meaningful to the addressee. (See the definition of information on page 28.) Without translation, the information would be meaningless to the local shop floor employees, as they are usually not bi- or multi-lingual. Furthermore, the information could be seen as an important support for the IKT. The information supports the learning process by offering not only verbal but also written transfer. As identified in the literature review, learning preferences vary, and so are supported by the implementation of different media. This is why the work item 'learning material preparation' was included in the IKT work stream.

For a logical order in this thesis, 'learning material preparation' was placed subsequently to 'training plan preparation'. It could be argued that without a training plan, training material preparation would be not specific enough. It would only be possible to provide general training material. This could lead to less-motivated new shop floor employees, because they might have to learn the same content twice. This could possibly lead to a lower motivation to participate in the IKT process and so could create a barrier. It follows that the timely order of learning material preparation following training plan preparation is logical.

Fifthly, all experts called for prior preparation of the operational workforce:

- "… you are trying to export experiential knowledge that we have in a certain location to a workforce that has no prior experience with." (Training Manager, 2017)
- "... the low base knowledge about disciplines, general disciplines … I had some operators that does not know how to use a computer. … First, I need to teach him, how to use a computer. One step first. And after I teach him to go for an, to enter in a control system in the machine." (Expert Brazil Case, 2017)
- "… they used to be a baker. And now they run a machine. So, there is very different educational background in China." (Expert China Case, 2017)
- "So, I also have to ensure that the person receiving the knowledge, are having the competencies to understand easily and fast the knowledge …" (Expert Mexico Case, 2017)

Based on the statements above, the investigated countries indicated that they had non-appropriate curricula about automotive manufacturing standards. It showed that many new shop floor employees lacked basic education. One solution could be to hire only well-

qualified employees. However, due to cost reasons, the new subsidiaries were established in low-cost areas. As a consequence, workforce availability with the required skill set was limited, as identified in the statements above. As argued before, IKT only happens with the right foundations in order to absorb the provided content. This topic could therefore be deemed critical, because "… if you don't have time to prepare this guy and you need to put [him] in [the] production area, he will produce failure ..." (Expert Brazil Case, 2017).

Although this was known and highlighted by the case experts, the onboarding process as described by the shop floor employees reveals little consideration of prior basic preparation. This is supported by different shop floor interviewees' statements: "The first time the training from all the colleagues was a little short and later a little urgent." (China Shop Floor Employee 2, 2018), "It is really normal but not so good, he thinks, to give some presentation directly through the PPT PowerPoint files and the presenters shows and they sit down to see something." (China Shop Floor Employee 9, 2018), and "… on the first two weeks, they were on the machine, operating the machines …" (Mexico Shop Floor Employee 1+2, 2018).

In the case of Mexico, it has to be acknowledged that in the early set-up stage, basic preparation had been accomplished for new employees, as can be retrieved from the following statement. "… the first weeks [there] were not really the machines here on-site. That is why they really learned all the things by paper. They received a lot of trainings, here in [unintelligible 00:04:30] and also in Celaya, but were most focused on [unintelligible 00:04:34] and all the things, measurements and that." (Mexico Shop Floor Employee 3+4, 2018). It could be argued that, due to missing equipment, employees were sent to training. A question that could, however, not be answered during the interviews was, whether priority could have still been given to basic preparation, if equipment was already available on-site. What was answered, however, was that it was the organisation's responsibility to provide the basic preparation. Although it could be considered an action item and interest of the local government to make an appropriate workforce available, this has not in practice always been the case. The findings from the Training Manager interview showed that it was part of his task to align and coordinate basic training with nearby institutions.

The above argument showed that basic preparation was considered as essential and mission critical for IKT during subsidiary set-up to achieve operational performance efficiency. Hence, the work item 'basic preparation' could be included in the IKT work stream. Basic training could be realized before the finalization of the work item 'learning material preparation', because the latter focuses on organizational specific knowledge. However, basic training could be provided by almost any educational institution. Furthermore, a building may not necessarily be required, as shown in the Mexican case, where the training sessions were accomplished in nearby educational institute buildings. The

basic preparation could, however, only be accomplished in alignment with those personnel who were already available at the time. Proper training could only start after having hired the initial shop floor employees. Therefore, the basic preparation's starting point could be placed shortly after the start of the 'Personnel Acquisition' work item within 'human resources'. (See Figure 39 for implementation).

Sixthly, the case experts for Brazil and China argued for long-term, on-site support by central functions in order to implement standard processes. "Having people with extensive knowledge of the product, of the processes and extensive connections to other plants permanently on-site, to be the local contact point and then can coordinate and can get people in touch, I think is key for building up new subsidiaries." (Expert China Case, 2017). The other two experts also mentioned central functions as helpful, however did not point it out explicitly.

Being a contact point locally, the on-site central function employee was able to support relationship-building into the central organization and to peers in established subsidiaries. It was also identified that longer stays on-site, deepened the relationship between the local workforce and the central function employee. The following statements illustrate some of the points made above: "… when you do not know the people, you do not know that this knowledge exists. So, you think there is no one that has that answer for a problem, for example." (Expert Brazil Case, 2017). This understanding was also shared by the shop floor employees interviewed.

'On-site support', as a work item, could be argued as necessary, because it was mentioned by all experts and also by some shop floor interviewees. As was briefly indicated, a longer on-site support could help in overcoming IKT barriers concerning relationship-building. (For more detail, see the later discussion in the subsection "Implications of 'relationship' on the IKT process."). On-site support, especially for shop floor employees, could start with the first local shop floor employees hired. However, to unfold the full potential, it should be considered that production equipment should be already available. In general, it seems that an earlier start would be preferable. It is, however, not the aim of this thesis to focus on detailed arguments about each function required in a set-up. For this reason, the work item was integrated in Figure 39 starting with 'equipment implementation', because this research focuses specifically on the shop floor IKT.

The seventh point is that all interview findings suggest the need to provide more time for training on the production equipment: "Maybe a little bit more time or focus on the training [is needed]. … You need more time, work more on the machines …" (Mexico Shop Floor Employee 1+2, 2018) and "… he has needed that to increase the training time, because now time is limited …" (China Shop Floor Employee 6, 2018). However, time for IKT was limited, as shop floor employees were "… [trained] on production machines. When we had some

special training machines, where you can simulate that kind of stuff …" (Expert China Case, 2017). Tight set-up plans could lead to high occupancy of the production equipment and therefore to less focus on the IKT: "… sometimes the senior operator is focused on production and getting results, but they left sometimes. Then your ways to only waiting and just watching them." (Mexico Shop Floor Employee 1+2, 2018).

Dedicating less time for IKT on the production equipment could result in poorer individual experience, which could necessitate a longer IKT period and so potentially a lower chance of increased operational set-up performance efficiencies. This should be considered a critical element of the IKT. Therefore, 'training @ equipment' was considered as a separate work item. 'training @ equipment' could only happen after installation of said equipment. Thus, training could only take place subsequent to 'equipment installation' (EI).

Finally, a continuous feedback loop proved to be beneficial for the IKT in the Mexican case "… I had a meeting with them [(Mexican employees)] like a feedback … I talked to the people there, we prepared a presentation and then we gave them [(supervisors and trainers)] feedback, how the people was feeling. … It helped." (Expert Mexico Case, 2017), and: "... I often have feedback from these subject matter experts that they just do not have time or they do not know what they should be doing." (Training Manager, 2017). It could be argued that, due to the many individuals involved, the IKT should be seen as a dynamic process. Therefore, based on the statements above a constant alignment between all involved parties was shown to be beneficial. Through the alignment process, the IKT could be shaped iteratively towards the needs of the acting persons. To meet this requirement, it was suggested that a 'feedback loop' could be implemented as a work item for the IKT. This work item could start firstly with hiring shop floor employees. Before that no IKT relationships would exist that would require any iterative alignment and adjustment. So, it could be argued that with the start of the work item 'basic preparation', the work item 'feedback loop' should be started as well.

This subsection showed that the current state-of-the-art for subsidiary set-up was missing substantial detail on the IKT. By integrating a separate work stream dedicated to IKT, a clear focus was created. However, it became clear throughout the argumentation, that interrelations of all set-up work items require additional research. It has to be further considered that the findings only relate to the investigated cases and to the transfer of shop floor knowledge. Timings, interrelations, and the general requirement of work items will still have to be discussed on a case-by-case basis. As a conclusive suggestion, the Enhanced Integrated Reference Model for the Set-up Processes (EIRMSP), as displayed in Figure 39, could be understood to add great detail concerning the nature of the IKT during subsidiary set-up. In this manner, an answer to the first research question is provided. (See the section "Answers to the Research Questions" for a comprehensive response.)

6.2. Impact of Local Context Factors on the IKT Process

6.2.1. Identification of the three key local context factors.

By identifying the local context factors with the highest influence on IKT in this subsection, focus is provided. Only through this, can depth and significant contributions to the understanding of the influences of context on the IKT be later achieved in detail. Having outlined the conceptual and processual nature of the IKT, the following discusses the influence of local context. Although it may make sense to discuss each context factor highlighted, the resulting discussion of a large number of issues would make treatment superficial. Focus is provided by identifying those local context factors that have the highest influence on IKT in this subsection. It is only in this way that depth and significant contributions to the understanding of the influences of context on the IKT can be achieved.

Three sources of information on context were available: the literature review, the expert interviews, and the shop floor employee interviews. Through the triangulation of a 'context factor influence ranking', the key context factors that had the highest influence on the IKT were identified. Although this case study is qualitative in nature, the ranking was developed based on an assessment of the number of context factor influences cited. This could be considered a *quantitative approach*, its use is primarily to, increase the focus of the subsequent *qualitative discussion*.

Table 11 Influences of context identified from the literature review.

rank	local context factors influencing the IKCT	sum of mentioning
1	education	6
2	language	5
3	relationship	4
4	protectionism	3
5	reward	2
5	technical networks	1
5	health/environment conditions	1
5	hierarchy understanding	1
-	*no category assigned*	*4*

The literature review concluded in the IKCT model. For each IKCT process characteristic, the influencing local context factors were assigned, as displayed in Appendix 31. The assigned context factors resulted in the ranking presented in Table 11. It

demonstrates that, for the literature review, the three context factors with the greatest influence are: ‘language’, ‘education’, and ‘relationship’.

From the findings of the expert interviews (Figure 36, on page 115), the *Level 1* node ‘context’ is sectioned into 4 *Level 2* nodes: ‘culture’ (26), ‘family’ (4), ‘language’ (26), and ‘local environment’ (18). Of these 4 *Level 2* nodes, only ‘culture’ and ‘local environment’ are further sectioned into *Level 3* nodes. ‘Culture’ is composed of into 4 *Level 3* nodes, of which, ‘mind-set of the people’ with 14 assigned references out of 26, is the highest-ranked context factor. Similarly, the ‘local environment’ node is split into 5 *Level 3* nodes, of which ‘education’, with 13 assigned references out of 18, is the highest-ranked context factor influencing IKT. The ranking in Table 12 includes both *Level 2* and *Level 3* nodes, as the ranking *Level 2* alone would have neglected detailed context factors and also prevented later in-depth discussion.

Table 12 Influences of context identified from the expert interviews.

rank	local context factors influencing IKT	sum of references from coding process
1	language	26
2	mind-set of the people	14
3	educational system	13
4	mental models	5
4	prejudices	5
5	family	4
6	belief system	2
6	community	2
7	law	1
7	market	1
7	time difference	1

In terms of the shop floor employee interviews, there were only three *Level 2* nodes under the *Level 1* node ‘context’: ‘language’ (20), ‘culture’ (18), and ‘local environment’ (5). Any further detailing of the *Level 2* nodes ‘culture’ and ‘local environment’, as conducted for the expert interview findings, was not necessary, due to less usable feedback from the shop floor employees. However, when reviewing the assigned references for the node ‘local environment’, e.g. “He think what he learned from the school or college is not enough for the

work." (China Shop Floor Employee 2, 2018), it was identified that the focus is clearly laid on education. By using the node structure of the expert interviews as a basis for the shop floor interviews analysis, the node 'local environment' was not adjusted for conformity reasons. However, based the content of the references that highlights education foremost, the node was changed from 'local environment' to 'education' after the coding process. For this reason, the concluding context factors with the highest influence on IKT by number of references identified from the shop floor employee interviews were: 'language' (20), 'culture' (18), and 'education' (5). Table 13 shows the ranking of the context factors by number of references by all interview shop floor employees.

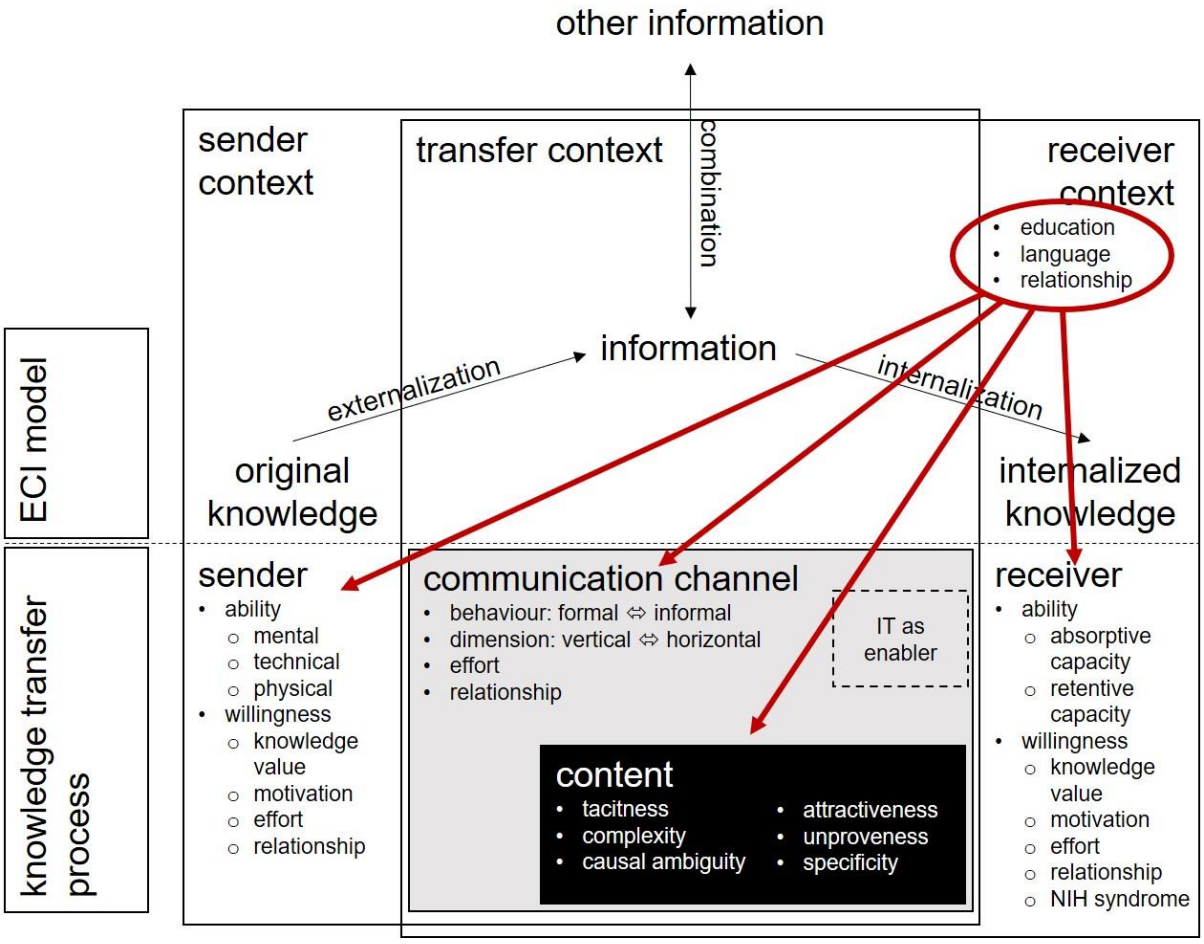
Table 13 Influences of context identified from the shop floor employee interviews.

rank	local context factors influencing IKT	sum of references from coding process
1	language	20
2	culture	18
3	education	5

The context factors 'language' and 'education' were shared by all three sources. Besides those, 'culture', 'mind-set of the people', and 'relationship' remained. While further reviewing the findings, it showed that 'relationship' was also a highly-referenced node from both the expert and shop floor interviews. It was, however, not aggregated under the *Level 1* node 'context', but under the *Level 1* node 'employees'. Reviewing the coding on 'relationship' in more detail, provided interesting and unanticipated outcomes. Furthermore, this context factor was shared by all three sources, which was not the case with any other identified context factor. Therefore, it was decided that the third and last context factor to be examined in detail was 'relationship'.

As shown in Figure 40, these three context factors were added to the receiver's context in the IKCT model. This was, however, only an initial step to add to the current theoretical and practical frontier. Furthermore, it did not thus far offer any substantial answers to the second research question. Hence, to provide suitable answers on how local context factors influence the IKT process to new subsidiaries in set-up, the impact of the three chief key local context factors on the KTP characteristics needs to be discussed and analysed. (Highlighted in red in Figure 40.) This is provided in the following three subsections.

Figure 40 The IKCT model enhanced by the key local context factors.



Note: NIH = 'Not Invented Here Syndrome', ECI = 'Externalization', 'Combination', and 'Internalization'. The red arrows indicate the possible influences of the three key context factors on the IKT process.

6.2.2. Impacts of 'education' on the IKT process.

As one of the three dominant context factors, 'education' impacts the IKT process. Local prior education was cited, sometimes often, by all expert interviewees. Therefore, this subsection firstly analyses the possible impact of local prior education and also considers whether all the identified influences can be continuously related to the basis of the patterns discerned in the interviewees' comments. 'Prior education' was seen to influence the receiver's ability to absorb and retain the knowledge provided. This is an essential target of any knowledge transfer. Consequently, the influence of education on the receiver's absorptive and retentive capacity is discussed. As an upshot of this, erroneous assumptions emerge where an identical educational background is believed to underpin the knowledge of individuals with the same job titles in different countries. This, however, leads to the assumption that an employee with a particular job title has the same educational background

as in another country. Such projections generate a presupposition in the sender – a possible influence that is also examined in this thesis.

Figure 40 suggests that the identified main local context factors could have an influence on each part and characteristic of the IKT process. However, the findings also strongly suggest that 'education' had: 1. a direct influence on the receiver and the content characteristics, 2. an indirect influence on the sender, and 3. no influence on the communication channel. For this reason, the following discussion focuses both on the influence of education on the receiver and on content characteristics. It also considers in the analysis the indirect influence on the sender.

6.2.2.1. Local prior education: building base knowledge.

The literature review showed that the receiver was required to have both an ability and a willingness to participate in the IKT. (See Figure 23, on page 56, and Figure 24, on page 60.) It was identified that the ability to internalize new knowledge could only be achieved if an appropriate knowledge basis is available with which to connect. The interview findings showed that educational preparation was not always sufficient, as exemplified by the following statements:

> "He think, what he learned from the school or college is not enough for the work." (China Shop Floor Employee 2, 2018) and
> "… there is a curve that we always look in on-boarding new employees and it is from zero knowledge or very minimal knowledge on a process to the 100% level, when we expect somebody to [be] able to perform." (Training Manager, 2017).

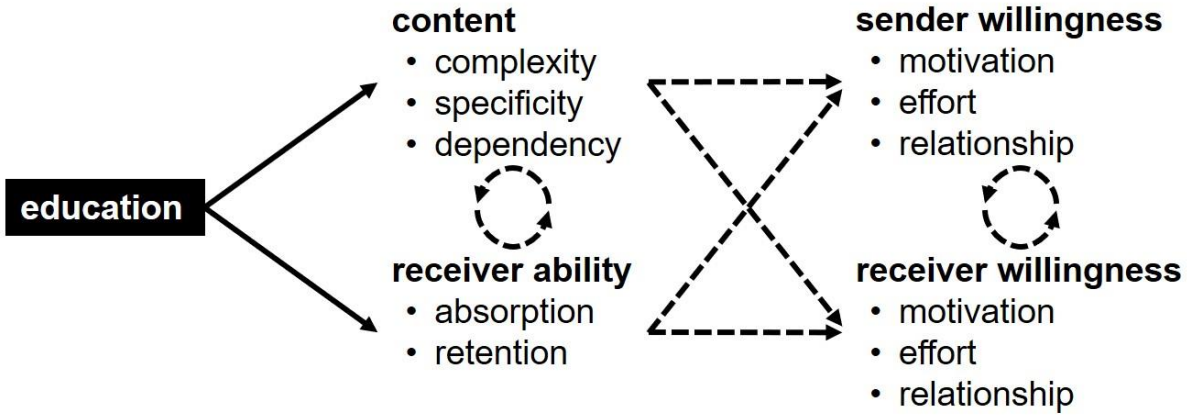
In this way, it was discerned that the receiver's ability had an influence on training as part of the IKT.

Thereafter, the literature review argued that the willingness of a receiver was determined by motivation, NIH syndrome, effort, relationship, and knowledge value. The findings provided evidence that motivation, effort, and relationship were influenced indirectly. A lack of educational preparation led to an increased level of effort on the receiver's side, because additional training was required before being able to operate equipment, as represented by the following statement, "… giving the knowledge transfer plan a little bit more time, a little bit more preparation…" (Expert Mexico Case, 2017). This increased level of effort had an influence on the motivation of the shop floor employee, because it took longer to internalize the provided knowledge. A higher need for an increased amount of reassurance that the content was correctly understood resulted in unplanned-for

consequences, which put time pressure on the trainer and thereby led to an adverse IKT relationship for both the sender and the receiver alike. Evidence for this is provided in the following statement: "… he asks again, again and again to confirm, so the trainer maybe gets a little bit angry." (China Shop Floor Employee 9, 2018). In this way, an influence of education on some of the receiver's willingness characteristics was detectable.

The literature review in Figure 21, on page 53, concluded that the content's 'tacitness', 'complexity', 'dependency', 'attractiveness', 'unproveness', and 'specificity' influence the IKT. It was discussed that, through appropriate preparation, a positive influence concerning 'tacitness', 'complexity', 'dependency', and 'specificity' was achievable. This is especially important as it was further identified in the literature review that for copy-plants achieving a high productivity and OEE quickly is key (Böning & Sejdic, 2015). (See also Table 3, on page 13.) A discernible influence of education on the characteristics identified above was interpretable from the data gathered. It could, however, be deduced that the operational shop floor knowledge was only 'complex', 'dependent', and 'specific'. An influence of 'education' on 'tacitness', on the other hand, was not observable, as 'tacitness' was low, due to the operational manuals, procedures, and work instructions available. "We have our process map: N5, which also applies for every new subsidiary. … It is a lot of information; a lot of knowledge is already in the system. … the general processes a plant needs to successfully produce …, they are accessible for a new plant …" (Expert China Case, 2017). This statement led to the conclusion that 'education' did have an influence on 'complexity', 'dependency', and 'specificity', however did not on 'tacitness' or 'unproveness'.

Figure 41 Influence network of education on the IKT process.



Note: continuous arrows = direct influence, dotted arrows = indirect influence

The above showed that education as a context factor merits appropriate consideration, because it influenced several parts and characteristics of the IKT. This influence network is pictured in Figure 41. Therefore, it is necessary to get a clear understanding of the local

educational system. This is shared by all experts and exemplified by the following statement: "… the most important thing is to understand … the local education system." (Training Manager, 2017).

6.2.2.2. Local educational level defining: absorptive and retentive capability.

The manufacturing processes in the prevailing cases were highly advanced and automized. This required less repetitive work, e.g. feeding the machines, than actually operating the equipment. However, new shop floor employees were struggling with this challenge, as we can see from the following statements:

> "Sometimes I hired a guy that was working a farm. He has no idea of the things you work in the industry here." (Expert Brazil Case, 2017) and
> "He, he were shocked by the fully automatic production method, because before he apply do the things by hand." (China Shop Floor Employee 3, 2018).

A lack of educational preparation created a knowledge gap, which would result in an inability of the receiver to absorb or retain the provided knowledge. The basic education would not be sufficient in tying the advanced manufacturing knowledge of the organization at hand to the new shop floor employees' knowledge. As identified above, this could overwhelm new shop floor employees. Depending on the personality, this overwhelming challenge could either frighten or motivate the new employee. A motivated worker would be trying to create the required basics and be proactive in the IKT sessions. This employee would be able to help the IKT to thrive. The following statement exhibits this attitude, "He think, what he learned from the school or college is not enough for the work. So, he still needs to learn from the work." (China Shop Floor Employee 2, 2018).

Frightened employees, however, would not be able to relate to or absorb the provided knowledge. This would lead to a demotivated new shop floor employee. Without being able to absorb the provided knowledge, the employee would not be able to apply it on the shop floor later on, thereby creating a struggle and possible failure to achieve operational performance. Furthermore, the time in training could be interpreted as not useful, as the shop floor employee would not be able to follow the specifications of the trainer. For this reason, the employee uses the training time for other purposes, e.g. to learn English, as seen from the shop floor interviews and exemplified by the following statement: "… it is a good chance to learn English in the training." (China Shop Floor Employee 8, 2018).

A non-receptive training participant could also affect the trainer. A lack of positive response and participation would be evident. This could be interpreted as a non-valuation of the provided content and effort for knowledge transfer. The following statement represents

this finding "… if you are transfer the information in paper and the people is not to read. … So, you have this misunderstanding. One guy is saying: this guy is bringing me this problem and the other guy is thinking: I'm giving him a present." (Expert Brazil Case, 2017). It may follow that the sender could become annoyed and so demotivated. Not achieving the intended IKT goal could result in longer or further business trips of the sender to the new location. Further consequences might be that planned targets would not be met, and so bonuses might not be achieved, more time abroad could be required, other tasks might be delayed, and budgets could be exceeded. These factors could have a negative impact on the sender's willingness to participate in the IKT and could lead to less knowledge transferred. Therefore, new shop floor employees would not receive the required knowledge to achieve operational performance. Resulting negative consequences of minor knowledge level in highly automized manufacturing environments have been identified above.

Concluding from the above it could be argued that a proper preparation of the new shop floor employees is essential in order to enable IKT. Without that enablement, the efforts of a sender to transmit the IKT could be high, if not impossible. This could lead to demotivation, which in turn could be perceived as non-effective trainings, which could demotivate new shop floor employees. Sender and receiver would enter a vicious circle of questioning the sense making of the IKT, as identified by the Training Manager, "Without consideration of context you really run into a very critical piece of the puzzle, which is: why are we doing this? If that is not considered then you are going to have very frustrated employees." (2017). Therefore, it is necessary to understand the local educational system and so where to start with the required preparation to ensure absorptive and retentive capacity.

6.2.2.3. Understanding of local job titles and their associated educational level.

Usually, job titles would be used to understand the educational level of an applicant, because it labels an associated skill set. However, in an international setting it was shown that job titles were to be considered a black box for non-local embedded organizations: "But for main operators on machines, we recruit typically young college graduates. So, they have a technician level in China." (Expert China Case, 2017). The statement exemplifies that the local educational level in comparison to e.g. Germany is different. A bachelor degree holder from a university would rarely apply for a shop floor supervisor job. In Germany, applicants of supervisor jobs are considered to have needed to complete a specialized vocational training and to have followed a foreman or technician training. This training is not completed at a university, rather at dedicated vocational training institutions.

Non-unified skill level requirements for same job titles in different countries could lead to hiring inadequately qualified shop floor personnel. Owing to this, an IKT may not be able

to be performed, because the required educational preparation would not be available. It would necessarily result in the same barriers for ITK that were identified before. Missing basic knowledge leads to a non-bridgeable knowledge gap which leads to missing internalization of provided knowledge, and finally leads to low operational performance on the shop floor.

So far, only ‘education’ in the understanding of theoretical knowledge has been discussed. However, certain job titles, as well as practical training and skills, stem from a German perspective. As illustrated by the following statement, this cannot be considered valid for all countries: “And another point that I think [is] German. There is a practical time in the studies. Like the apprentices go to the plant and they have this environment of the company or industrial. Sometimes I hired a guy that was working a farm. He has no idea of the things you work in the industry here.” (Expert Brazil Case, 2017). This could result in new shop floor employees being in an actual manufacturing environment for the first time. It could mean that basic understanding of an operational manufacturing setting cannot be presupposed. Missing basics concerning operational systems, health and safety, vocabulary, quality aspiration, cleanliness, maintenance, etc. have to be established.

Consequently, even if a theoretical absorptive capacity existed, the new shop floor employees could still struggle to apply the provided knowledge. The shortfall on experience in manufacturing settings could become an excessive demand, which could result in insufficient or faulty application of the provided knowledge. Consequently, additional IKT would be requested, which could lead to the previously proposed vicious sender-receiver-demotivation-cycle. However, no additional IKT would result in low operational performance during the set-up.

It could be argued that the missing experience would not affect the IKT directly, because experience would emerge after the initial training. However, the IKT should not be seen as a one-time training. The IKT should be understood as a process that ideally would integrate different training methods. Especially in highly automated cases, such as in the one researched, a continuous training process including theory as well as practical parts is required. This was identified by all experts and by a manifold of shop floor employees interviewed and is backed up by the following statements:

> “Theoretical and practical both are in my mind are important …” (China Shop Floor Employee 4, 2018),
> “The training method is not the most key point, because after the training, you still need to do some practical thing that is critical, to have some practical experience.” (China Shop Floor Employee 7, 2018),

> "He say[s] the training was good, not to really operate complete the machine, but for general start up and so on it was really good on both sides, only for the theory and also practical for that." (Mexico Shop Floor Employee 3+4, 2018), "He said he need[ed] more training …" (Mexico Shop Floor Employee 5+6, 2018).

This demonstrates that an exact understanding of the job titles and associated theoretical and practical skill level needs to be understood to avoid implications on the IKT process.

Continuing on the above issue of the understanding of different job titles, the Training Manager interview showed that this dilemma already needs to be considered when planning for external qualification courses. The following statement revealed that a substantial amount of time was invested in identifying an appropriate curriculum with the external qualification provider, "I spend a lot of time speaking with local universities, vocational schools, government affiliates … To just discuss what feasible programs we could come up with together." (Training Manager, 2017). It was understood that the external qualification institution would complete basic preparation with the new shop floor workers in the Mexican case. This means that they would prepare the required basis on which to absorb the provided organizational specific manufacturing knowledge from an IKT.

Not taking into consideration differing understanding of job titles could have resulted in wrong curricula, resulting in insufficiently or wrongly trained future personnel, resulting in a knowledge gap, and ultimately, again, in the vicious sender-receiver-demotivation cycle and low operational set-up performance. However, the Training Manager interview did not show that curricula were analysed and prepared in detail. Therefore, if an external qualification service is used, the job title understanding dilemma needs to be accordingly considered to avoid IKT implications and thereby low operational set-up performance.

This subsection argues that the local context factor 'education' has an impact on several parts of the IKT process. However, it also showed that a distinction between *direct* and *indirect* influence should be made. Whereas a receiver's absorptive and retentive capacity and content's 'complexity', 'dependency', and 'specificity' showed to be directly influenced by the local education, an indirect influence on the receiver's and sender's motivation, effort, and relationship was also identified. Specific shortfalls, e.g. job title misunderstandings or missing educational preparation would lead to IKT implications, triggered by an 'impact network'. It could be concluded that it is untenable to understand 'education' alone as a local context factor with a direct influence on certain IKT characteristics. On the contrary, it should be considered that an IKT 'impact network' exists. This would also have to be considered when dealing with impacts on the IKT process emerging from the local context factor education.

6.2.3. Influences of 'language' on the IKT process.

'Language', as an expected local context factor with influence on the IKT, has been named often and by nearly all interview participants. Although a *general* impact was anticipated, the following argument firstly identifies which IKT characteristics are *specifically* influenced. If 'language' emerges as a problem, translators are usually considered to be the first choice to overcome this barrier. Interestingly enough, the Chinese case identified that external translators are of minor support and rather add uncertainty on the receiver side. This feedback was a surprise, which is why the influence of the translator on the IKT is specifically analysed. However, without the usage of a translator, shop floor employees with lower foreign language skills required the assistance of their peers for translation. The argument shows that this is an unwanted circumstance, as both employees would emerge only ordinarily trained. Additionally, evidence was provided to show that training sessions by foreign trainers were used to improve English rather than to absorb the provided content.

6.2.3.1. Identification of direct and indirect influences.

Throughout all interviews it was identified that language had an impact on the IKT process: e.g.

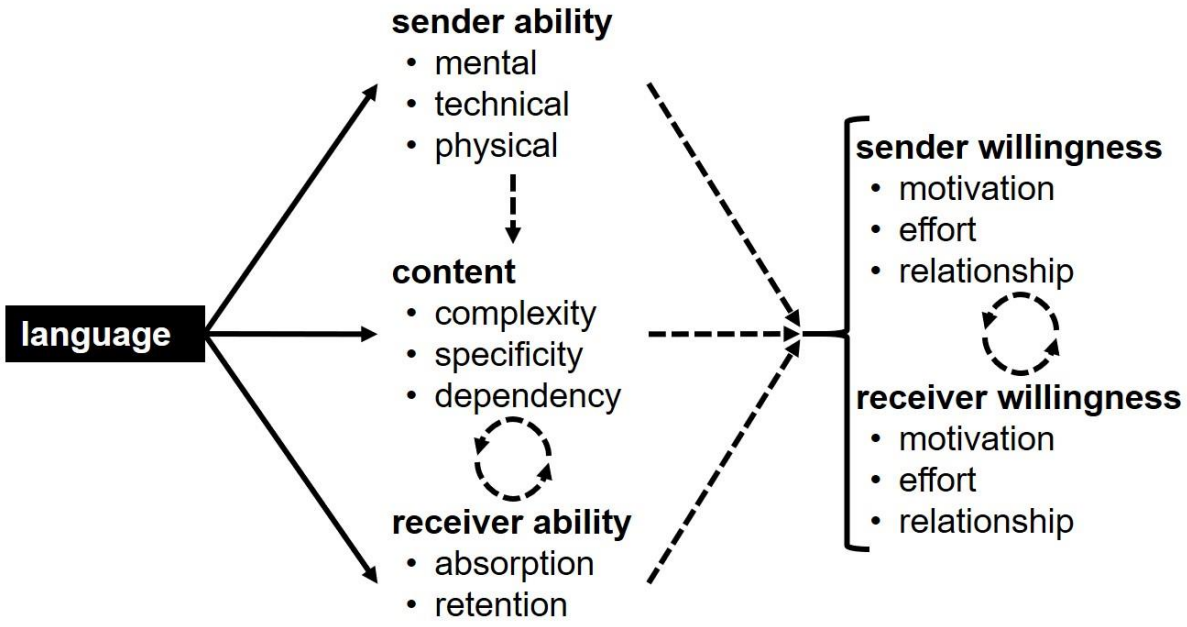
> "A Chinese trainer is better than a foreign trainer, because still the language problem in, in English is not so good, so if it is a foreign trainer he don't know how to ask question." (China Shop Floor Employee 4, 2018),
> "The hard is the language, the difference for the language to really understand …" (Mexico Shop Floor Employee 1+2, 2018), and
> "… if I have to name a third hindrance, is communication at the shop floor level or at the level of transfer. Whether, it is communication from a language barrier …" (Training Manager, 2017).

By communicating in English, one could construe that the sender was either not able or not willing to communicate in the local language. If it was the sender's ability, it could be either their mental, technical, or physical inability to perform the training in the local language. For each inability, different reasons could exist. The findings, however, did not mention these characteristics as a barrier to IKT, but communication in foreign languages was identified as a general topic, as understood from the statements above. In many instances, the usage of a translator was also mentioned by the expert interviewees, which is further evidence of an influence on the sender's inability to communicate in the local language.

Figure 42 shows that the content's 'complexity', 'specificity', and 'dependency' could be influenced. If the sender were not able to communicate appropriately in the local

language, vocabulary to express the content directly and unambiguously would be missing. Furthermore, the statements above show that complex content requires inquiries by the receiver. Without proper local language skills, however, they might not be correctly understood and may be wrongly or unclearly answered. This could finally result in mishandling of equipment or incorrect application of working procedures, which would result in failures, scrap, waste, and poor operational set-up performance.

Figure 42 Influence network of language in relation to the IKT.



Note: continuous arrows = direct influence, dotted arrows = indirect influence.

Apart from the previously identified indirect influence of local language on the content's 'complexity', 'specificity', and 'dependency', a direct influence was also identified, "He thinks not all the material should be in Chinese, because some ... training content cannot be translated aware from a foreign language to Chinese." (China Shop Floor Employee 4, 2018). For the Chinese case, this statement shows that locally adequate technical translations might be missing. It could be construed that firstly, the local shop floor employees would have to learn specific foreign terms or secondly, the translations could remain unclear. In the first instance, the receiver's ability to absorb the provided content would be influenced by language as a local context factor. Initial preparation would require the consideration of foreign terminologies. This could result in a prolonged IKT timeline. In the second case, no complex, specific, or dependent content would be able to] be transferred, because details would become lost in translation. As the prevailing cases are highly automated manufacturing environments, the second option would not be an

applicable approach, because too much operational performance could be lost. Although the terminology translation issue only emerged from the Chinese case findings, it does however exemplify that local context specifics cannot be generalized and require case-by-case assessment.

Based on the above, it could be concluded that language had a direct influence on the sender's ability; the content's 'complexity', 'specificity', and 'dependency'; and the receiver's ability characteristics. Furthermore, that indirect influence of senders' ability on content characteristics, as well as the interrelated influence of content and receiver's ability, could be identified. (See Figure 42.)

The indirect influence of language on sender's and receiver's willingness could be correlated with the arguments given for the local context factor 'education'. Although triggered differently, like 'education', the direct influences of 'language' on the sender's ability, the content, and the receiver's ability, increase the effort for either the sender or the receiver, or for both. As argued in the previous subsection, this could influence the overall IKT project and with that the sender's or receiver's motivation, resulting in the proposed vicious sender-receiver-demotivation cycle. This ultimately could lead to an adverse knowledge transfer relationship. In order to avoid repetition, see the argument on influences and consequences in the previous subsection "Impacts of 'education' on the IKT process.".

6.2.3.2. Undesireable consequences of insufficient language capabilities.

A specific influence on the IKT that emerged from the Chinese shop floor interviews was that new shop floor employees would ask their peers to translate for them. The following statement backs this up: "Should be no special problem, because not only he attended the training, but also other colleagues. The other colleagues were to communication and some translation." (China Shop Floor Employee 7, 2018). Although it could be seen as positive that colleagues support each other in the early stages – as identified from this statement: "He also understands almost all the things, but he indicates that he didn't understand, he asked for support …" (Mexico Shop Floor Employee 7+8, 2018), peer translation might have the anticipated outcome as displayed in Figure 43.

It could be anticipated that concentrating on translating for a peer and learning the content for one-self would be hard to accomplish simultaneously. Unfortunately, only the person that has been provided the translation was interviewed and not the shop floor employee translating. Hence, a comparable evaluation from both sides cannot be given. Hence, the scenarios proposed in Figure 43 have to understood as hypothetical. Employee 'A' is considered capable to translate, due to high language skills. Not providing peer support would enable employee 'A' to focus entirely on absorbing the provided content. However, Employee 'B' would not be able to follow the training at all, due to missing language skills.

Supposing the right *a priori* knowledge base existed, employee ‘A’ could show a high and employee ‘B’ a low learning curve. Consequently, the shop floor performance of the two employees would be considered higher for employee ‘A’ and lower for employee ‘B’. Eventually, employee ‘B’ would not be able to live up to the required operational performance level and could be reassigned to other tasks or ultimately be sacked.

With employee ‘A’ translating for employee ‘B’, it could be anticipated that employee ‘A’ would struggle to entirely follow the trainings discourse. On the other hand, employee ‘B’ would be able to understand at least the translated content, which would not be considered the entire training content, because employee ‘A’ would not be able to follow and translate the training entirely. Consequently, this would result in two medium trained employees.

Figure 43 Two possible scenarios of peer translation support.

	language skills	learning curve with **no** peer translation	learning curve with peer translation
A	high	high	medium
B	low	low	medium

In a highly automated manufacturing environment, a high expectation towards shop floor employee qualification should be presumed. Hence, it should be considered that peer translation during IKT is undesired, because two employees with medium knowledge level could result. In an ideal case, no shop floor employees with low language skills would be present. However, the statements before have shown that employees with lower language skills existed. Depending on the strategy of the organization either peer translation during training could be support. However, requires probably retraining of the same content to elevate both employees from medium to the required high knowledge level. On the other hand, if no peer translation is supported, the organization either could focus on specifically retraining the employees with lower language skills, accept employees with a certain lower knowledge level on the shop floor and find according job assignments for them, or, ultimately, consider a certain percentage of shop floor employees to be dropped out.

The literature review identified that the set-up process is a very challenging and ambiguous situation (Ammer, n.d.; Böning & Sejdic, 2015; Renner, 2012). This was confirmed by the expert interview findings, which were based on statements like:

> "So, you start to buy the machines, you, to designing your line, to designing your building, to do the construction firm building, so on. So, you find these and you start this in parallel. … In one part of this two process you should start also to prepare your people local." (Expert Brazil Case, 2017) and
> "… this also starts in parallel a series of processes. They are related to investing in their only own resources but also to nominating suppliers[,] … purchasing management project, … human resources selection process to build up the team[,] … deal with the government in regard to follow-up of intensives[,] … prove to the, to the government and the ecological authority and the environmental authority, that we are also friendly with the environment and, of course we need to start following, following up on the machines and lines, that [we] will be installing in the future in parallel." (Expert Mexico Case, 2017).

Investing unplanned money and time in transferring knowledge to shop floor employees that either deliver poor operational performance or are dismissed during a set-up process adds further pressure. In the case of Brazil, it was identified that central functions, like human resources, did not provide proactive support, as can be seen from the following statement: "They were supposed to help with the HR, but in my opinion they did not do. There were more problems than solutions." (Expert Brazil Case, 2017). It could be assumed that no excess of operational personnel was hired during the set-up process with which to safeguard adequate operator availability, no matter the consequences of non-performing new shop floor employees. It follows that the shop floor management would either have to deal with a non-performing employee or with the risk of dismissing the employee and creating a shop floor personnel shortage. Both cases stem from a lack of management of the local context factor 'language' in regards to the IKT. This again reinforces the relevance and influence of language on the IKT process.

Another identified impact was that employees would see the benefit of IKT as an opportunity to improve their English skills rather than primarily to absorb the provided content, "… it is a good chance to learn English in the training." (China Shop Floor Employee 8, 2018). Although this quotation was a one-off, the echo of the answer endured as significant throughout the data analysis and discussion preparation phase. Two things could be derived from the statement, firstly, that non-consideration of linguistic preparation of the sender or the receiver would influence the IKT process. This is, however, no news, and would result in comparable influences and consequences, as described in the previous part of this subsection. Secondly, it could be said that the target of the IKT was not clear to the new shop floor employee. As no supporting statements were available, two options would

have to be considered: whether a target was communicated or not. Even if a target was communicated, due to a lack of foreign language skills on the receiver side, it might not necessarily have been understood appropriately.

By not understanding the target correctly, the new shop floor employee might not comprehend the organizational requirements towards the IKT and the future job role. The statement showed that employees with an unclear understanding of the target defined their own targets for the IKT. However, as the example showed, these might not be in line with the overall set-up goals. Although it might be personally beneficial for the new shop floor employee to improve their language skills, the missing knowledge gap would result in poorer operational set-up performance overall. Therefore, a clear understanding of the IKT target for each training session should be generated with the participants, preferably in the local language to ensure target congruency and understanding, as the example shows. The following statement exemplifies this: "… the difference for the language to really understand …" (Mexico Shop Floor Employee 1+2, 2018).

6.2.3.3. Trilemma: translators, local trainers, or international trainers.

In both the Mexican and the Chinese cases, translators were used. In this way, the language barrier was thought to be overcome. However, the Chinese case expert and Chinese shop floor employees did not consider the external translator who was employed to be the ultimate solution for the language problem. Lacking technical knowledge created misunderstandings between the sender and the receiver, as identified from the following statements: "… with the translator, with a great technical translator …" (Expert China Case, 2017) and "There are some misunderstandings from the trainer and the trainees with the translator." (China Shop Floor Employee 9, 2018).

So, it could be argued that despite having an external translator available, IKT barriers could nevertheless still result. Firstly, due to missing technical knowledge, content could be translated wrongly, leading to flawed understanding of e.g. production procedures, in turn causing mishandling of production equipment, resulting in failures, equipment crashes, and poor operational set-up performance. Secondly, retention of the new shop floor employees would be required. Because of the retraining, the set-up timeline could be endangered, senders would be required to do another unplanned on-site training, and unforeseen financial impacts could occur. As argued before, this could further lead to the aforementioned vicious sender-receiver-demotivation cycle, further negatively implicating the IKT process.

Although the negative impact of an external translator on the IKT was brought up only by the Chinese expert and one Chinese shop floor employee, the literature review showed that usage of a translator was a viable solution to overcome language barriers in

international settings. This feedback was not expected and so was considered very interesting and important, because a definite impact on the IKT could be discerned. Reviewing the Mexican case, it became clear from the following statement that the Training Manager was translating in some instances: “Additionally, I even did, you know like I said, lessons in German.” (Training Manager, 2017). Based on this, it should be questioned whether it might be beneficial that an organizational employee with local language skills, and also with deeper technical involvement should support in translating, instead of using an external translator without proper technical understanding. (See the section “Managerial Implications” for more details on potential solutions.) It could be argued that for general topics, an external translator might be useful for IKT. But when it comes to transferring specific, complex, and dependent technical content, an internal employee should be considered for translation. In view of this, the overall translation capability might be lower, but the technical part might be transferred more appropriately. This should be considered the higher priority for a manufacturing organization, which’s economical state relies mainly on their operational performance.

The following statement provides further evidence that local language skills are required, “Especially for the deep … questions the common language is ... good for this questions and the solutions.” (China Shop Floor Employee 3, 2018). This is why it was stated that a local trainer is better than a foreign trainer, “The main reason, the only reason is the language problem for a better Chinese training than a foreign trainer.” (China Shop Floor Employee 4, 2018). If it is not possible for the employee to ask questions to the sender, the content might not be correctly transferred. This bares the risk of misunderstandings and wrong conclusions on the receiver side. The influences and consequences that have been already described might arise.

6.2.3.4. Barriers: trading an increased risk for a mere training by observation.

Without proper communication options, the IKT might result in ‘training by observation’, which is undesirable. This was accordingly expressed through the following statements:

> “[The company] ... run[s] into the issue of ... [the operators] only being able to observe with their eyes.” (Training Manager, 2017) and
> “... this is something that I would just bring up immediately without hesitation to the leaders of the projects. … I would say to not letting programs fade into simple observation programs.” (Training Manager, 2017).

As identified in the literature review (Gilakjani et al., 2011; Jewitt et al., 2001; Kress, 2001; Lujan & DiCarlo, 2006) and in the expert findings, learning preferences are different. Without

a proper explanation, the new shop floor employee might learn how to operate the machine. However, the shop floor employee would never be in the position to solve technical issues by themself, because of absent background explanations. This was retrieved from statements like:

> "The reason why he needs more trainings, because he feels, he had only do something, match things together, yah." (China Shop Floor Employee 1, 2018),
> "Because he received the training from Chinese operator, also Chinese operator, the operator only knows some know the operations, but not some programs." (China Shop Floor Employee 4, 2018),
> "The training is pretty useful and he expects more training like this, for the problem solution during work." (China Shop Floor Employee 7, 2018),
> "… to really give all the information to the new operator, but also the new operator be completely focus on the time. Because, if they are not in the same way, they cannot carry this, other recruiters' skills for that." (Mexico Shop Floor Employee 1+2, 2018), and
> "He say he was not successful the training because nobody has the real knowledge on the machines, and until we get the first problems on the machine, was when we really get the knowledge on that as general." (Mexico Shop Floor Employee 3+4, 2018).

Although 'language' was always understood as an anticipated local context factor with influence on the IKT process, Figure 42 also comprehensively detailed both the *direct* and *indirect* influences. Language was shown to influence the sender's and receiver's ability, as well as several content characteristics directly. However, similarly to 'education', 'language' only indirectly influences the sender's and receiver's willingness to participate in the IKT. Without proper communication basis, peer translation could lower the overall knowledge level after training and it hinders employees from asking questions directly to the trainer. Traditional and wide-spread usage of translators proved to be less effective for specific technical content and resulted in misunderstandings. This showed that language has to be considered as one of the main local context factors impacting IKT. The influences identified were shown to be mission-critical for a subsidiary in set-up and therefore would require specific management attention.

6.2.4. Implications of 'relationship' on the IKT process.

'Relationship' as a concept was evident in the literature review (Gupta & Govindarajan, 2000b; Schlegelmilch & Chini, 2003; Szulanski et al., 2004; Szulanski, 1996, 2000), was

present in each stage of the IKT process, as shown in Figure 40, on page 147, and has an impact on the IKT process. Findings from the expert and shop floor interviews substantiated that ‘relationship’ is an important influencing factor on the IKT process. Shop floor interview findings identified that it was easier to connect with a local than with a foreign knowledge sender. However, some expert knowledge was only available from a central expert function. Therefore, the following discussion firstly focuses on the differences of relationship building with local vs. with foreign knowledge providers. In particular, it was identified that in order to build up a relationship between the sender and receiver, the understanding and behaviour to local communication standards was required. This is especially interesting to analyse as one expert identified that, despite existing language barriers, befriendment between the sender and receiver was nevertheless possible. Subsequently, the influence of longer-term support of the receiver by the sender is discussed. Arguments are provided to the effect that longer stays of the sender on-site had an advantageous effect on relationship building, due to a positive perception of the new local workforce.

6.2.4.1. Discussion of the influence network.

In all cases, findings from the expert interviews agreed with the literature review (Gupta & Govindarajan, 2000b; Schlegelmilch & Chini, 2003; Szulanski et al., 2004; Szulanski, 1996, 2000) that an impact of ‘relationship’ on the IKT process does exist. While approaching the analysis of relationship on each IKT characteristic, it derived that relationship has no identifiable influence either on the sender’s or on the receiver’s abilities to participate in an IKT process. As identified in the two discussion subsections before, ability characteristics could also be understood as prerequisites. It could be argued that the word ‘prerequisite’ itself already labels the characteristics as being available beforehand already. Although the ability characteristics need to be there prior to the IKT process, a relationship would only really develop during the IKT process. Especially in the case of a set-up process and new shop floor employees joining the organization, a prior establishment of a relationship would be very difficult to accomplish. Therefore, I conclude that the local context factor ‘relationship’ has no influence on the sender’s and receiver’s ability characteristics and thus no influence on the IKT process.

The shop floor interview findings showed in both cases that it is easier for new shop floor employees to connect with a local rather than with a foreign knowledge provider. Nine of the twenty shop floor interviewees labelled the matter of language and smooth communication as the major barrier, as exemplified by this statement: “A Chinese trainer is better than a foreign trainer, because still the language problem in, in English is not so good, so if it is … a foreign trainer he don’t know how to ask question. But a Chinese trainer he can ask question directly.” (China Shop Floor Employee 4, 2018). As was identified in the

subsection before ‘language’ has a definite influence on the IKT process. However, what could not be identified in the subsection before is that language could influence the relationship building between the sender and receiver. As stated in the quote, it is not possible for the shop floor employee to ask questions directly. If it is not possible to enter into direct interaction with each other, it could be argued that it is hard to establish a relationship basis. As argued in the literature review, knowledge transfer takes place on the nodal level, e.g. the personal level between two individuals. However, a relationship could only be established if direct interaction is possible. Without that personal link, one could say that the effort for the receiver to obtain the provided knowledge is quite high, as the communication would have to go through a third person, e.g. a translator or a co-worker.

Although these are valid possibilities, the findings showed that also using a translator entails hurdles: “… when you have a translator in the training, but there're always some - but he could fear. There are some misunderstandings from the trainer and the trainees with the translator.” (China Shop Floor Employee 9, 2018). Misunderstandings could occur in different forms. The translator might use an erroneous expression or not correctly translate the provided knowledge. In a manufacturing environment, this could have large implications, as the new shop floor employees might have been incorrectly trained and, so they might damage the product or production equipment due to this. Irrespectively of the prior preparation of the new shop floor employees, they would not be able to evaluate the technical translation, due to the high specificity of production equipment. Without the possibility to evaluate accuracy of the provided knowledge, the shop floor employee would in principle consider the content as correct. However, due to translation issues, mismatched knowledge could have been transferred. Hence, the shop floor employee could never be sure to have received the correct knowledge and does not know what to do on the shop floor. It follows that this could have an impact on the motivation, and through this on the relationship between the receiver and the sender. Receivers that are less motivated to participate in the IKT process, due to a fear that knowledge is not correctly translated, would also be less engaged in the training, which could also annoy the trainer and thereby corrupt the relationship between them.

It could further happen that, content-wise, the translation given may not be understood. In this case the new shop floor employee would ask questions. However, as found from one interview, too many questions led to a reported angry knowledge sender, which in turn could result in a reticence to question misunderstandings. The following backs up this argument accordingly: “… when he asked the questions to the trainer, the reaction of the trainer is different from what he thinks. It's different and he asks again, again and again to confirm, so the trainer maybe gets a little bit angry.” (China Shop Floor Employee 9, 2018). Any relationship where one side is angry could be seen as a dysfunctional relationship at that

time. However, for an IKT process, a totally functioning relationship is required, as has been argued before. Although using a translator was attempted in order to overcome language barriers, this might not completely solve the problem of the formation of a good relationship, even though overall communication could be seen as improved. This is important, because the literature review (Gupta & Govindarajan, 2000b; Javidan et al., 2005; Schlegelmilch & Chini, 2003; Szulanski et al., 2004; Szulanski, 2000) identified that better communication leads to a better relationship, which impacts the IKT process positively. This was also identified by all expert interviewees.

6.2.4.2. 'Relationship' in the context of local communication standards.

However, there is more to communication than merely an exchange of words which make sense. From the expert interviews of Mexico, Brazil, and the Training Manager, it was found that in order to create and foster a good relationship, a proper way of communicating to local standards is required, which can be supported by the following statement: "But, it is the most evident that we experience in our foreign investments and it is the most, it is probably the most complained about topic is, how to communicate locally." (Training Manager, 2017). From the statement of the Training Manager it could not be clearly identified exactly who complained about the topic of communication locally, because there are two sides to the KTP; it could either be the receiving or the sending side.

For the sender side, one could say that, if not properly prepared upfront, the sender would have little awareness and skills to understand and behave to local communication standards. In the interview, the training expert asked the opposite question: "… what if your colleagues do not respond to your communication style that has worked for you all your life in your local context?" (Training Manager, 2017). This question could be said to hold true for both sides of the KTP. Although the question is very important, it was missed in the interview to follow-up on the Training Manager about specifics and background. For the sender, it could mean that the receiver is not willing to communicate with them and does not want to absorb the knowledge provided. This could jeopardize the goal with which the sender was sent to the new location. No accomplishment of set goals could result in unpleasant questions from the sender's superior, additional trips to the new location in order to ensure establishment of the knowledge, and longer stays on-site. This all requires time, which could have been more productively used by the sender for other tasks, or indeed for time spent with the family. Therefore, it could be argued that proper knowledge on the sender's side about communication to local standards is essential, because it could have an influence on the willingness of the receiver to enter into a desired relationship that would positively influence the IKT process. This conclusion can be backed up with the following statement: "If these guys do not find a good way to communicate and to understand that they are in the

same way, this can block. … For sure, flow of knowledge, because they cannot communicate in a good way." (Expert Brazil Case, 2017).

The last part of the prior argument showed that a potential shortfall on the one side of the IKT relationship influences the other side as well, because both are interlinked on a nodal level in the IKT process, as also identified by the literature review. (See the subsection "Knowledge transfer within business research and organizations.") Besides being not willing to interact with an ill-prepared sender, an improper local communication style also was identified in the case of Brazil to be an insult to the local shop floor employee, as set out above: "In Brazil the people, the name in Portuguese is sentimental. We feel more. So, depend of the way that you look to another person, depends of the way that you talk to another person, this person can think that you have a problem against him." (Expert Brazil Case, 2017). A person who feels offended or even insulted by another person could be said not to have good relationship with them. Especially in 'feeling' countries, e.g. Brazil and Mexico, direct communication of failures or shortfalls could be taken personally and not on a professional level. From the shop floor employee interviews conducted in Mexico, very little direct negative feedback could be detected. This could also be an indicator of the local communication habits mentioned above. A direct approach towards failures could be considered an insult on a personal level. This could affect the willingness of the receiver to participate in any further IKT process.

In contrast, the interviewed experts were able to articulate direct feedback in the cases of Brazil and Mexico. Hence, it could be argued that the experts learned, in order to achieve this kind of expert management position, how to give and receive critical and direct feedback. However, shop floor employees probably would never receive this kind of education. Consequently, they would not be able to act appropriately according to different situations. They would, especially in extreme situations, fall back into their familiar and shared local patterns.

For the China case, no similar implications stemming from a lack of understanding of local communication patterns were identified. It could be argued that China, as a more hierarchical and centralized governed state, is, in comparison to Mexico and Brazil, more used to direct communication styles. So, one can assume that e.g. a German sender would find similar familiar communication patterns within such a context. In this case, the question raised by the Training Manager regarding functioning communication patterns could be answered by drawing the conclusion that China and Germany could be seen as more alike than Mexico and Brazil. In summary then, it could be shown for Brazil and Mexico that an understanding of, and behaviour according to, local communication standards is of prime importance in the IKT process, because, as local shop floor employees would not be educated in different communication styles, it would directly influence the relationship

between the sender and receiver, and thereby also directly affect their motivation and willingness to perform an IKT or to achieve the set goals. On the other hand, for countries with similar communication styles the impact, as argued with the Chinese case findings, could be less or not so dominant.

6.2.4.3. Befriendment despite less compatable personal attributes.

As a unique circumstance of the Mexican Case, in the very beginning, eight newly hired Mexican shop floor employees were sent to Germany for an initial training. One might argue that this example could be omitted from this research as insignificant, because it occurred only in one case and it could not be considered a local IKT. However, the findings suggested an interesting point, which might shed a different light on the understanding of relationship determinants and how they could impact IKT. In Germany, the Mexican shop floor employees were put alongside a German shop floor employee in order to learn. Both sides were only able to communicate in their mother tongue. Not even in English was it possible for them to communicate effectively, due to a lack of language skills. Nonetheless, the Training Manager reported that: “And, an interesting cultural difference: our Mexican colleagues actually befriended many of these machine operators despite the language barrier. And, they were able to learn because of their social competence I would say.” (Training Manager, 2017). It was further reported by the Mexican Case expert and the Training Manager that the initiative was considered a success, because the Mexican shop floor employees were able to learn from the German shop floor employees and actually prepared work instructions that supported future IKT processes in Mexico.

In contrast to Gupta & Govindarajan (2000b), it could be derived from the finding that having same attributes is not necessarily a prerequisite for having better communication and therefore a stronger relationship relevant for the transfer of knowledge. In the situation above, the shop floor employees shared their job roles with each other, but from a personal and contextual background, they could well be considered completely different. If one were to apply Gupta’s & Govindarajan’s (2000b) understanding of causality on this situation, the argument would indicate a poor relationship, if indeed a relationship could be built at all. However, the finding shows that, despite different personal attributes and no possibility for direct communication with each other, a good personal relationship could in fact be possible.

Both sides have the same communication hurdles to overcome; this is why one could say that there existed a shared understanding of the same problem of communication. Both sides would have had to accept this circumstance and no side could be seen as superior. In a local IKT situation, the expert would be considered to have decent English skills. This could be understood as a superior attribute, which could not be matched by the local shop floor employees. Following, this could be interpreted by the local shop floor employees as

the expert would like to excel himself, which could negatively influence the relationship building. However, in the above situation, both sides share the same problem of communication and both share the same job role. It could be followed that the absence of hierarchy and superior personal attributes, entitled the German and Mexican shop floor employees to befriend each other and make a knowledge transfer work, despite the before mentioned barriers.

Due to the retrospective and constructivist approach, it was not possible to identify whether further factors enabled a befriendment of the two shop floor employees' sides with each other. Common activities, e.g. sharing a beer in the bar in the evening, could have had a positive influence on the relationship. However, this would now go too far into speculation, because no further findings would support this reasoning. An action research approach could focus on researching this question in other cases. Similarly, it could also be of interest, if the same befriendment would have happened in a vice versa situation.

Although an influence of 'relationship' on the IKT process was already identified, the personal prerequisites should be considered generally. Only focusing methodologically on preparing both sides for what could be expected from the other side as a communicational behaviour based on their cultural preconditioning could be argued to be too short sighted. However, the above showed that communication can also be effective when non-verbal, due to a good relationship. Arguments were provided that the personal level requires close examination in order to understand it on the nodal level. This could however not be accomplished by this research, as the emerging of this circumstance only became clear during the data analysis stage. However, further future research could dedicate sole focus to this detail in order to create better visibility regarding the determinants of 'relationship' as a local context factor in an international IKT setting.

6.2.4.4. Time as a critical component for relationship-building.

As a last major relevant determinant to 'relationship', the topic of on-site support emerged from both the expert and shop floor interviews. This topic was already identified in the literature review. However, the specific impacts on relationship in the process of an IKT process could have not been derived just from the identified relevant literature alone. From the interviews it could be seen that, overall, longer on-site support of knowledge experts in the locations in set-up was asked for, because It was argued that longer on-site support shows higher evaluation by the new shop floor employees. This would make the shop floor employees feel more welcome and valued, which in turn would result in a higher motivation and also stronger relationship with the knowledge sender. The statement by the Expert China Case supports this statement: "What is really good about … sending someone to a plant … for half a year, ... these employees ... then have a very close relationship to some

employees on that site …. Which means, … they [(the local shop floor employee at the new location)] are not shy about calling and asking questions." (2017).

From the Chinese shop floor interviews it could be deduced that shop floor employees in China require more time to establish a relationship with a foreigner. Therefore, short on-site visits, e.g. for 1 week, would not be sufficient to establish a relationship with a Chinese shop floor employee. This is backed up by the following statement: "… when he asked the questions to the trainer, the reaction of the trainer is different from what he thinks. It's different and he asks again, again and again to confirm, so the trainer maybe gets a little bit angry." (China Shop Floor Employee 10, 2018). Based on the statement, it could be even argued that short-term visits bring the sender under a certain time pressure to accomplish their set tasks. This could lead to less time for deep questions and explanations and ultimately to an angry sender resulting in a possible negative impact on the IKT process, because shop floor employees start becoming anxious asking questions. This anxiety would consequently further disturb the relationship between the receiver and the sender and so influence the IKT process. On the other hand, if the sender stays for longer terms on-site, it is more likely that deep questions are answered. Even time for exchanges on a more personal level could happen, because more time would be available. This could benefit the relationship and positively influence the IKT process. Through this, even with having communication problems, stronger relationships could form, similar to the befriendment discussed in the prior argument.

For China specifically, it has to be considered that Chinese "… do not like to ask questions, because it shows weakness. … If they have a very close relationship, … they are much more likely to pick up the phone and ask. If that relationship is not so close then they just send an Email. And if they just heard a name, they might not do anything." (Expert China Case, 2017). Having troubles getting in touch or starting a conversation with a foreigner could have further implications on the relationship between the receiver and the sender. If the sender is, as described by the case expert, cautious getting in touch or starting a conversation with other people, this could hinder the establishment of a relationship, because the sender might construe this local behaviour as non-interest in the IKT. Depending on the sender, this could lead to different outcomes. The sender just might not focus on this specific receiver anymore, give him less knowledge available, or may react annoyed, frustrated or angry. In any of those cases, it is clear that it demotivates the sender to perform the IKT process. Determined by the reaction of the sender, the receiver consequently reacts as well. This negative receiver reaction could in the worst-case also result in further demotivation. Finally, it could be argued that both sender and receiver are unable to establish a relationship, because the sender was not aware of local context in form of relationship characteristics. However, through longer on-site support, it may be possible to

overcome the initial distance. This could positively benefit the IKT process, because both participants would not end up becoming demotivated. It could result in a mutual relationship that aids the IKT process to thrive.

6.2.4.5. The influence of an appropriately-chosen communication channel.

Depending on the relationship, the appropriate communication channel has to be chosen. Statements by all experts back this up:

> "I think you need to understand the local context to prepare the best communication, for example, if you are transfer the information in paper and the people is not to read. … [I]f you had made some pictures and arrows: do this, do this, do this, … would be more efficient." (Expert Brazil Case, 2017),
> "So, that you have to do the whole step of translating the document with another technician, processing it into a format a Chinese colleague later can do." (Expert China Case, 2017), and
> "The knowledge transfer was realized with practical information, that they were receiving when they were operating or learning how to operate the machines … with videos and with some presentations explainings …" (Expert Mexico Case, 2017).

Although, these statements were made, it is curious that also all experts stated that, for the shop floor employee, only on-site training by the sender works. See the following statements as confirmation:

> "We can do it by, I have video conference, you can do it personal that is better, or can send someone …" (Expert Brazil Case, 2017) and
> "Shop floor workers, I think the only thing you really can do: on-site. So, personal. You cannot work with email, you cannot work with video conferencing, because usually the things you want to train them is on-site knowledge." (Expert China Case, 2017).

It could be deduced that in general the experts could see potential in using different types of media. As stated above, this depends on the relationship status of the knowledge transfer couple. From the arguments above it could be said that for the two cases – Brazil and Mexico – before trying to transfer knowledge via video conferencing, a personal meeting had to take place. It was identified that both countries are 'feeling' countries, where a relationship is mainly influenced by the presence of and direct communication with each

other. Thus, it could be understood that starting in both countries a training with a foreign sender using video conferencing would leave the shop floor employees with a feeling of less value, because they are used to having close relationships with people they can interact with. This feeling of being undervalued could lead to a weaker relationship, leading to less motivation, which finally could end up in individuals not absorbing the provided knowledge, which has the ill effects on operational and financial results of the new location which have been already stated.

For the Chinese case, similar implications could be argued, however from a different background. It was identified that opening a relationship with foreigners is a cultural barrier for Chinese:

> "If they have a very close relationship, maybe even to some extent a personal relationship, if they had some beers in the bar in the evening, they are much more likely to pick up the phone and ask. If that relationship is not so close then they just send an Email. And if they just heard a name, they might not do anything." (Expert China Case, 2017).

Consequently, the first meeting would be required to be in person in order to reduce this barrier. This could help to form a stronger relationship, because the personal interaction could be much higher than using e.g. video conferencing for a KTP. Although it would be also possible to see the body language and the reaction of both sides via a video conference in comparison to a telephone conference, nonetheless it could be argued to be less personal than a face-to-face meeting.

Lastly on communication, it could be stated for all cases that new shop floor employees might never before have experienced a telephone or video conference. The following statement exemplifies this: "… you could not do a training via video conference [for the shop floor employees]. … We trained the higher level and they then cascaded down to technicians and shop floor employees." (Expert China Case, 2017). They might be reluctant or nervous to participate in this kind of conference, because it is unfamiliar. This could lead to high anxiety before and during the training, leaving the new shop floor employees with less focus on the provided knowledge because they are dealing with their own personal feelings throughout the conference. Furthermore, the new technology might frighten them off raising questions or giving comments, as they would be unused to this kind of communication. Although some implications indicate that 'relationship' as a local context factor affects the IKT process, the usage of a telephone or video conference could be seen as a relatively small impact that should be easier to manage compared to the impact on the sender's and receiver's willingness, as analysed before.

6.2.4.6. Influences of 'relationship' on 'content'.

The local context factor 'relationship' has an influence on 'content' as well. As already identified during the literature review a strong relationship positively influences the transfer of complex knowledge. From the expert and shop floor interview findings this was, as already shown in the discussion of the other two local context factors, verified. A similar argument could be made for 'tacitness' and 'specificity'. For all three determinants of content characteristics, it should be understood that relationship could be influenced by the ability of the receiver to absorb the provided knowledge. In a situation where the receiver does not have the required prior knowledge to absorb the provided knowledge, it could be highly likely that the sender would become demotivated and/or angry. The following statement could be seen as a basis for this argument: "… I saw the guys from process engineering arrive with the machines and expect us to have some knowledge about the same level they have. … [T]hey arrive and say: "Ey, the operator is not doing right. In this way you will never achieve the point."" (Expert Brazil Case, 2017). This is because the sender would either have to establish the required prior knowledge in the receiver or the sender would have to change plans and postpone the IKT until the required basics were established by e.g. local training institutions. It follows that this would lead to a similar cycle of negative relationship influence as discussed above. Therefore, 'relationship' has an impact also on the content part of an IKT. However, it could be stated that this influence mainly would be triggered through missing prior education, resulting in a receiver without the required ability to absorb the provided knowledge, leading to the discussed implications before. (See subsection "Impacts of 'education' on the IKT process.")

The discussion identified that, due to shared backgrounds, the relationship building with a local trainer is easier than with a foreign subject expert. Especially direct communication and an understanding of how to communicate to local standards were shown to be elemental characteristics that could influence the relationship between the sender and receiver and so influence the IKT process. Throughout the subsection, the discussion often came to the understanding that on the nodal level, the sender and receiver influence each other in either a positive or negative motivation-and-relationship cycle. It was argued that shortfalls on one side automatically would influence the other side accordingly. For 'feeling countries', Mexico and Brazil were considered as such, it was identified that *how* the communication takes place is especially important, because otherwise local shop floor employees could feel easily offended. In China on the other hand, it was shown to be harder to establish a relationship with a local shop floor employee, due to a more distant relationship understanding. To overcome this, the potential of long-term on-site support was named by all expert interviewees as a requirement to establish a strong relationship that positively influences the IKT process.

An exceptional case was reported in the Mexican case where some Mexican shop floor employees were able to befriend German shop floor employees, even though no shared language for verbal communication was available. Despite findings from the literature review that provided evidence that better verbal communication leads to a better relationship, in such a case, it was possible without better communication. So, it was argued that further factors would influence the relationship building. However, it was not possible to identify those influencing factors further as nothing more was retrievable from the interview findings. Lastly, this subsection showed that 'relationship' also has an impact on the communication channel and on the content that is being transferred. In both cases the findings did not show that they were of as high an importance as the others provided before.

6.3. Summarizing the Key Take Aways from the Analysis and Discussion

All interviews identified 'knowledge transfer' as a very important – or as the most important – topic for a new subsidiary in set-up. However, when reviewing basic conceptual understanding and processual or business plan integration, the findings showed that this in fact was not provable, because these fundamentals were not available. Only the Training Manager was able to define some of the concepts in detail and in the same manner of the literature available. In addition to missing theoretical basics in practice, literature showed a lack of a detailed processual understanding of the IKT process. Hence, an independent work stream for IKT – with appropriately defined and discussed work items – was identified, based on the input of the interviews.

From all inputs there emerged a manifold of different local context factors which had an impact on the IKT. However, only 'education', 'language', and 'relationship' were identified as those factors within the IKT process with the greatest influence. The local context factor 'education' – formed mainly by the local educational system – was found to define the new employee entry level with the organization. This has to be considered by the organization when planning for IKT. If not taken into consideration, trainings will, as shown in the discussion, remain ineffective and even increase the likelihood of a poor operational performance during the new subsidiary set-up. In particular, the understanding of local job titles has to be examined. Same job titles in different countries do not necessarily entail the same educational background. Not accounting for the linking point of the available local employee knowledge within the planned transferred knowledge may lead to a knowledge gap, which could result in a lower absorption and retention of the provided knowledge.

Insufficient language skills were shown to increase the risk of missunderstandings during the IKT process. A proper level of understanding was identified as important – on the one hand – in order correctly to transfer the provided knowledge, however – and more importantly – on the other hand also to enable a condusive question and answer

environment. Without the open opportunity to ask questions, the shop floor employee interview results showed less buy-in by the new shop floor employees. This again was identified negatively to influence the operational performance of the new subsidiary during set-up. Furthermore, it was found that the supposed/so-called [??] “magic bullet” for language barriers – the translator – was not in fact considered a suitable solution. A lack of expert vocabulary decreased the viability of the translator, which resulted in distrust on the receiver’s side. Additionally, the shortfall in technical understanding required discussions of the translator with the sender in order to clarify the content, which further weakened the trust of the new shop floor employees in the translator and that which is translated.

For the context factor ‘relationship’, *time* and *proper communication to local standards* were identified as the most important triggers. Depending on the context, relationship building requires time. Either, in the cases of Brazil and Mexico, to establish a personal foundation or, in the case of China, to overcome distrust. It was argued that longer periods of time at the new subsidiary in set-up of a sender improves the relationship building and thereby positively influences the IKT. Furthermore, it was identified that a relationship was positively influenced if the sender was capable of communicating in line with local standards. It was shown that, “feeling countries” in particular – here the cases Brazil and Mexico – do not handle direct negative feedback well. This counter-productively influences the required relationship building for IKT and ultimately also the operational performance of the new subsidiary during set-up. Curiously enough, it was seen in the Mexican Case that shop floor employees from two countries befriended each other, even though there was no shared language. On top of that, personal attributes were found to be different. Despite these potential hindrances, they successfully shared their operational knowledge with each other.

As a commonality shared between each of the three context factors, it was identified that each has a direct influence on the IKT process characteristics. However, it was also identified that context factors exert influence upon themselves/one other [???] and in this way indirectly influence the IKT process characteristics as well. The comprehensive understanding of the influence of local context factors on the IKT process is improved by changing the viewpoint from a one-dimensional influence – that the local context factor has a certain influence on an IKT characteristic – to an influence network – that context factors influence each other and in this way additionally influence IKT characteristics.

7. Conclusion

7.1. Answers to the Research Questions

Three research questions were posed to guide this research purposefully. For Research Question 1: ‘What is the nature of ‘International Knowledge Transfer’ at the shopfloor level to the subsidiaries in the set-up process of an MBE?’, the thesis comprehended the *conceptual nature* in the IKCT model. (See Figure 40, on page 147.) Primary parts of the IKT were identified to be: ‘sender’, ‘communication channel’, ‘content’, and ‘receiver’. For each part, associated characteristics were recognized. It verified that a solid understanding of each part and its characteristic was already available in literature. However, not much literature dealt with the parts and characteristics within an international setting.

The SECI model by Nonaka & Takeuchi (1995) provided a suitable basis upon which to link the separate IKT parts processual . However, under the definitions for ‘knowledge’ and ‘information’ in this thesis, the SECI model had to be adjusted to the ECI model. ‘Externalization’, ‘Combination’, and ‘Internalization’ proved to be the required processual steps by which to link the four IKT parts together.

Based on the ECI model, the nature of the IKT showed a knowledge-information interconnectivity. Only by making knowledge (which was held by the sender), available externally, whilst also combining it with other information, would the receiver have a chance to internalize the information and thus transform it to personal knowledge. During the literature review, it further emerged that ‘information’ had to be considered in a broader sense: hand movements or explanations – in fact anything that externalizes the knowledge held by the sender – was identified to resemble ‘information’. This particular understanding of the conceptual nature of the IKT was argued to be a significant step, as many research works seemed to miss the conceptual differentiation of ‘knowledge’ and ‘information’ and thereby lost credibility.

To finalize the conceptual understanding of IKT for this research, context was added. In contrast to Minbaeva (2007), this thesis proposed that IKT to the shop floor should remain on the nodal level and so separate contexts for ‘receiver’ and ‘sender’ had to be considered. By the interaction of the ‘sender’ and ‘receiver’ in an IKT, both contexts conflict with each other. This results in further influences on the IKT process.

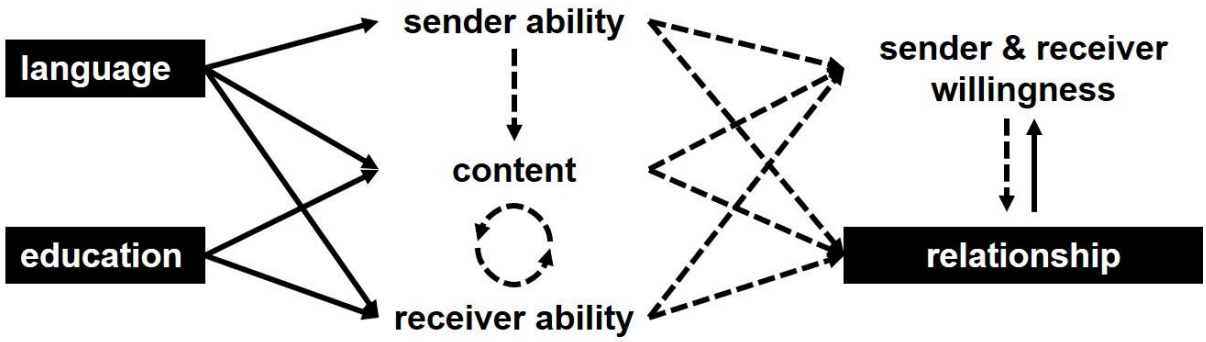
From a *processual* perspective, the nature of the IKT was little researched to necessitate consideration in subsidiary set-up plans. Available reference models proved to neglect IKT completely, or at least only briefly considered it in a cursory manner under the workstream of ‘human resources’. (See subsection “The set-up process in greenfield manufacturing FDIs and its challenges.”, on page 12, Figure 4, on page 14, Figure 5, on page 17, Appendix 1, on page 223, and also Appendix 2, on page 224.) The expert interview

findings provided great detail about an IKT within a new subsidiary set-up project. Eight work items were identified to be relevant when planning for an IKT process. These work items were, in timely consideration to other required work items, implemented in the EIRMSP. (See Figure 39, on page 137.)

These findings verified that the nature of the IKT on the shop floor has to be considered as quite complex and diverse. By integrating different available models, a comprehensive and overarching understanding of the nature of the IKT was gained. The results were arranged, for the purpose of better understanding and usage, in the IKCT model for a *conceptual* (and in the EIRMSP also for a *processual*) understanding of the nature of the IKT on the shop floor level. (For the IKCT model, see Figure 25, on page 61, and for the EIRMSP model, see Figure 39, on page 137.)

For Research Question 2 'How do local context factors impact the 'International Knowledge Transfer' process, in terms of process, actors and critical events, during the set-up of a subsidiary?', it can be seen that for local context factors, 'education', 'language', and 'relationship', both a *direct* and an *indirect* influence network on the IKCT characteristics existed. This network is pictured in Figure 44. Direct influences were identified to exist because of the sender's and receiver's ability, and also due to content characteristics. Influences on the sender's and receiver's willingness were identified to be of an indirect nature.

Figure 44 Possible impacts of local context on the IKT characteristics.



Note: continuous arrows = direct influence, dotted arrows = indirect influence

From the discussion, it can be deduced that non-consideration of the three key context factors, as displayed in Figure 44, leads to the consequences displayed Table 14. If the three key context factors are not dealt with appropriately, the ultimate consequences could be: equipment crashes, scrap, failures, poor quality, low OEEs, and low productivity. Ultimately, this could delay the set-up process and thereby also the customer supply.

Table 14 Specific influences of context on the IKT.

#	consequence(s)
1	Peer translation during training sessions, which influences the qualification level.
2	Usage of translators being a less-accepted measure to overcome language barriers.
3	Limited possibility to go into any depth with the content and thus clarify receiver questions.
4	Limited possibility of the receiver to absorb or retain the provided information.
5	Dysfunctional sender-receiver IKT relationships.

Note: list is in increasing order, list is not exhaustive

In order to absorb and retain the provided information, it came to light that the receiver has to have a certain level of prior education. A lack of proper educational preparation would lead to an unstable foundation upon which to build the provided content. This is important, because, without the possibility of relating to the provided content, no internalization, no absorption, and no retention could happen. It follows that the new shop floor employees would not know how to operate the production equipment properly. Ultimately, this could lead to the above-mentioned negative consequences. In order to ensure basic educational congruency, certain job titles were employed. It came to light that a similar educational background for near-identical job titles was assumed. However, the educational background was seen to differ from country to country. It followed that employees with the right job title – but with a deviating educational basis compared to the expectation of the job title – were often hired. In the specific case of China, it came out that, for the job title, supervisor bachelor degree students have to be hired. In Germany, this job title is considered to have a vocational training and thus does not necessarily require a bachelor degree. The resulting negative implications and consequences can be compared with the above.

During certain shop floor interviews, peer translation during IKT was mentioned. Depending on the sender's language abilities, the IKT had to be performed in a language which was known to both sides. However, it came to light that, for bigger training sessions, not every new shop floor employee would necessarily be capable of understanding the used language, e.g. English. This required *capable* shop floor employees to translate for the *non-capable* peers. However, this thesis identified that this practice could lead to an overall lesser qualification level, because the shop floor employee who was translating might not be able to fully focus on internalizing the provided content for himself, as his focus would be divided. This proved that the sender's missing local language skills, or a lack of foreign language skills on the part of the local shop floor employees, did certainly impact the IKT

process. For this reason, content could be incompletely or wrongly transferred, potentially leading to the negative impacts and consequences described above.

Besides peer translation, lacking language skills were also identified to lead to missing out on opportunities to provide deeper content and ask questions. Without a common sender-receiver language basis, the new shop floor employees criticized that it was not possible to go into depth on certain content aspects, nor to ask questions. In certain cases, the shop floor employees helped themselves by indicating to the sender at the equipment what they wanted to understand. Although this provided at least some opportunity to cover questions, it didn't give the sender the chance to properly explain the backgrounds to the receiver. It showed that missing local language skills creates communication channel barriers, which are hard to overcome. This impaired communication indicated that the IKT might more productively result in a 'learning-by-observation' program. This was neglected as an option from the Training Manager's side, as learning preferences are different and require consideration accordingly. Ultimately, knowledge could be wrongly or even not completely, transferred, which could negatively impact the IKT as described before.

In order to overcome language barriers, an anticipated and also implemented measure was the usage of translators. Interestingly though, it was identified from the expert and shop floor findings that translators were not well-accepted. Neither side was convinced that everything would be translated correctly. In particular, a lack of technical knowledge hindered a smooth-running of the training, as the translator had to reassure technical understandings with the sender. Furthermore, misunderstandings were mentioned, leading to wrongly transferred content. This created a level of uncertainty on the receiver side, who may not be completely convinced that the provided translation was totally accurate. Here again, we can see that missing language skills and prior education had an influence on the IKT process.

The first four implications so far identified above, displayed the direct influences of context factors 'education' and 'language' on the IKT process. Although they individually undoubtedly have some *direct* influence, they could as well *indirectly* create a dysfunctional sender-receiver relationship. The literature review has already showed that 'relationship' is an integral and important part of the IKT. This was verified by the expert and shop floor interview findings. As can be seen in Figure 44, 'relationship' is being influenced not only by context factors 'education' and 'language', but also iteratively by the sender's and receiver's willingness. In conclusion, a functional relationship proved to be the most important linchpin for the IKT. If one side were not motivated to participate in the IKT, the consequence could be the unwanted sender-receiver demotivation-cycle mentioned above.

'Relationship', as a context factor, takes a central role, because it does not only influence the sender-and-receiver cyclic, but also the mechanics of other context factors

impacting the relationship which come into the equation, e.g. a lack of awareness of local communication standards and only limited, short-term visits with not enough possibility to establish proper personal relationships. Each above-mentioned influence could result in a negative impact on the motivation of the sender or on the receiver, which again could in turn initiate the unwanted negative sender-receiver demotivation-cycle. For this reason, the impact of a positive, functional relationship on the IKT was identified as a majorly significant outcome of this thesis and thus needs to be managed appropriately by the subsidiary set-up team. Available options with which to manage these influences, which have been identified above, are provided in the following section.

7.2. Managerial Implications

Based on the nature of IKT and the impacts on the IKT mentioned above, this section provides suggestions as pro-active measures towards improvements, and counter-measurements against negative influences. In this way, Research Question 3 ‘How can an MBE manage the impact of the local context factors of an ‘International Knowledge Transfer’ during the set-up process of a subsidiary in order to ensure output congruity?’ is answered.

Generally, it emerged that IKT didn’t receive the required priority. A first step towards a high priority could be to implement the suggested EIRMSP in the overall subsidiary set-up project plan. In this way, specific work items would be added to the highest aggregation level possible, which would also require a certain project reporting. This reporting would show work item progress and could also be used to pinpoint deferrals, discrepancies and barriers. Having proposed the EIRMSP in this thesis, the implementation for the organization could be done quite quickly without requiring any further resources. The visibility and priority created could provide momentum and benefit by providing transparency and focus.

Because basic definitions were missing, a lack of conceptual understanding, and also a lack of an overall IKT goal aligned IKT to subsidiaries in set-up, these factors all caused certain hindrances. Implementing the proposed work item ‘structure’ of the EIRMSP in the project plan includes as a first step ‘IKT strategy’. This meeting could serve as a basis upon which to align the whole project team involved with IKT. Here, subordinate project teams, work-break-down structures, etc. could be defined. The models provided in this thesis could be adapted by the organization to their own particular framework, which could serve as a start for detailing work items. The work item ‘IKT strategy’ should require little time, effort, and financials in order to implement. This might positively impact the IKT with a higher priority of all project participants, which could result in positive, proactive measures with which to manage influences on the IKT process.

Becoming specific, items one to three of Table 14 mainly stem from the impact of the local context factor ‘language’. As the seemingly obvious solution – using a translator – was

found to be a less-accepted measure to overcome language barriers, an alternative solution could be to qualify knowledge senders in the local language. In this way, the sender would be able to perform the IKT directly in the local language. Besides eliminating the language barrier, an easier relationship building would also potentially be achieved. However, this measure does depend on whether or not the sender would be willing to learn a new, foreign language. Furthermore, it is also questionable, whether it is indeed at all possible to learn this language within the available timeline from when the decision to build up a new location was taken until the start of the IKT.

Another option could be to hire local engineers very early on, who then could be brought to the headquarters and to existing locations for an extended period of time. During this time, these engineers could be trained to become knowledge experts, who then would be responsible for training the new shop floor employees locally. In this way, a lot potential barriers would be eliminated, e.g. language, local communication standards, time on-site, relationship building, etc. Additionally, efforts and resources required for IKT would be reduced. Furthermore, the local knowledge experts could also serve as ‘network hubs’ for the headquarters and other locations in order to ensure IKT.

If both of these options are not possible and a translator is chosen as the applied measure, then a translator with the right technical capabilities should be found. Similarly, to in a job interview, the translator should be able to demonstrate to easily translate technical contents. Having a translator capable of dealing with technical contents could generate some more confidence on both the sender and receiver side that the translated content is correct and complete. It would be only if the IKT participants trust the translator in being capable of translating the provided content correctly and entirely, that the sender and receiver would be both motivated to fully participate in the IKT.

All the suggestions of course require a significant amount of resources and effort in order to be implemented, but the potential benefit therefrom would be very high. Communication would be nearly entirely of direct nature, ‘filters’ in form of translators would be eliminated, and IKT barriers would be reduced tremendously. For this reason, it should be in the interest of any international subsidiary set-up project to contemplate these measures I have pinpointed, in order to manage IKT implications based on ‘language’ as a local context factor.

Concerning the specific influences given as an answer to RQ2, the fourth item “Limited possibility of the receiver to absorb or retain the provided information” could be managed by implementing a job title matrix. (Appendix 32, on page 291, offers a draft for a potential job title matrix.) Within the job title matrix, the required educational skill levels would be defined. Adjacent to this, for each country, the respective job title could be stated. In this way, an alignment throughout different countries concerning skill levels, apart from job titles, could be

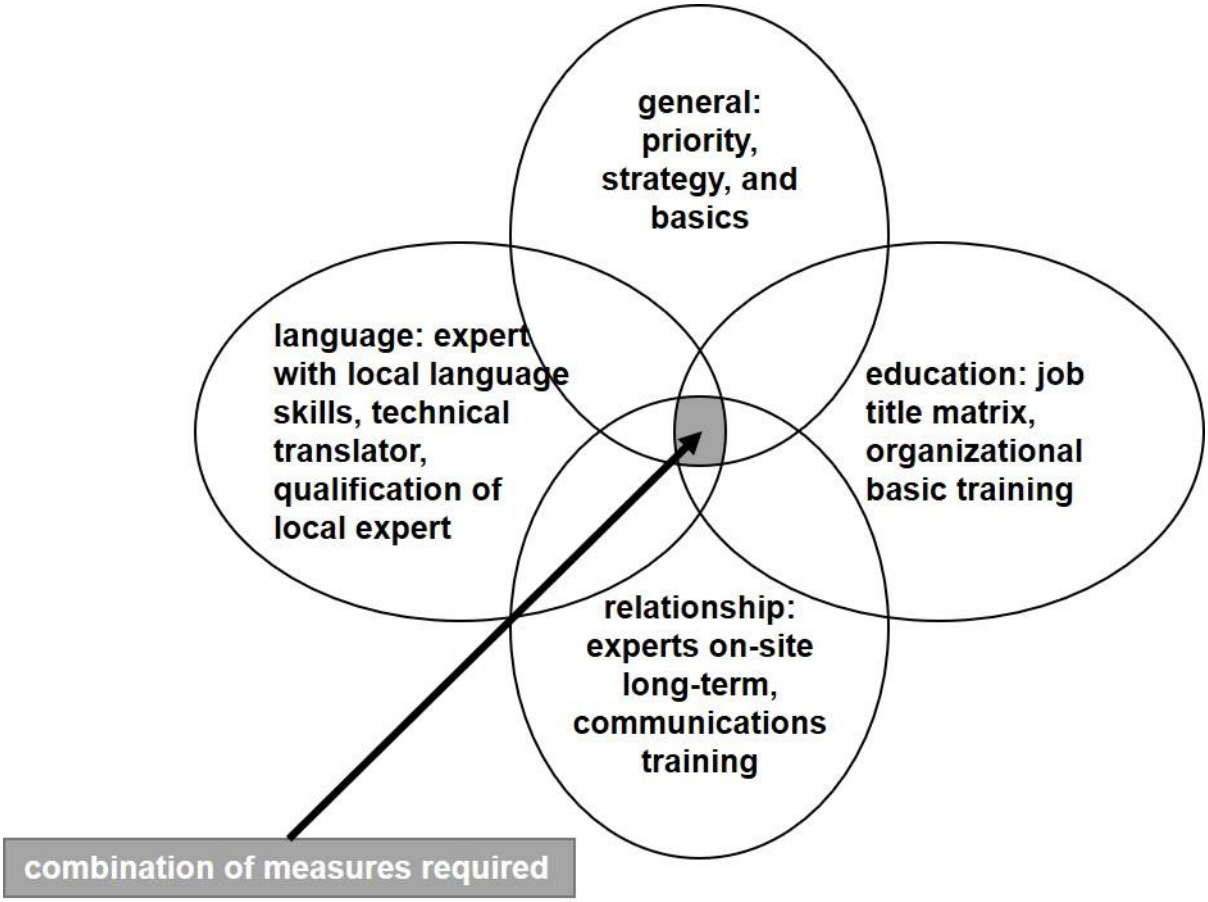
achieved. The effort which would be required in order to implement this kind of job matrix could, however, be quite high. A thorough analysis would require either input by a local who is accustomed to the local educational system, or an employee doing an analysis in the target country. In addition to the job title matrix, the organization could arrange basic preparation training independently. This suggests that there would be high benefits in terms of targeted preparation of the new shop floor employees in order to allow them to do their future jobs. However, it would require a high input for the preparing of training materials, the performing of the qualifications themselves, and the systematic checking of the learning achievements.

Another possible option could be to use external training institutions. In this case, efforts for e.g. generating training target congruency, training possibilities, and curriculum contents, need to be considered. Overall, it could be stated that the proper educational preparation is essential. Without it, the new shop floor employees might not be able to absorb and retain the provided content from the IKT and so might not achieve better set-up performance. However, in order to manage this influence, a certain amount of resources and effort does need to be considered.

Fifthly and most importantly in Table 14, dysfunctional sender-receiver IKT relationships have to be managed. As already identified, ‘relationship’ could be influenced by the other identified context factors and mutually links sender’s and receiver’s willingness. In this circumstance, it was difficult to identify managerial implications that could make this context factor manageable. Hence, a higher sensitivity towards management of IKT implications up front becomes even more important. For ‘language’ and ‘education’, several suggestions have already been made above. These should be considered basic necessities to foster a functional IKT relationship. In addition, the findings of the shop floor employee interviews suggested that there was little time to establish relationships with the senders, because of their short-term business trips. It is quite clear that the obvious solution would be to have experts stay longer on-site. However, the preferences and the willingness of the sender also have to be considered too.

Depending on the personal circumstances of the sender, a longer on-site visit cannot always be an option. Here perhaps modern information technology could provide support in the form of video conferences and virtual reality. Through video conferences, a personal interaction would be possible, which was identified as important for ‘feeling’ countries. The implementation of virtual reality could also make possible a shop floor training at the equipment face, without the expert necessarily being on-site too. This, however, requires the appropriate IT framework and software, which, if not available already, is not easily implemented. So, this is a suggestion on how future subsidiary set-ups could be supported with central knowledge locally.

Figure 45 Different managerial implications required to positively influence IKT.



Besides this and perhaps more importantly, it was often mentioned that relationships were dysfunctional, because senders did not know how to communicate according to local standards. Theoretically, intercultural training sessions could be used to prepare the sender for the IKT. However, this does not mean that the sender will necessarily stick to the provided intercultural training suggestions. To adequately prepare the sender for an IKT, the sender should have had multiple encounters with the local environment beforehand. In order to generate reflection cycles and thus create a substantial understanding of the local communication pattern, an intercultural coach should be provided. Both multiple trips to the new location and the coach require financial and appropriately timed resources, but are comparatively easy to be implemented. Nonetheless, the overall balance, as suggested in Figure 45, has to be achieved. Just sending employees for a longer support on-site, does not necessarily guarantee a better IKT.

Furthermore, by having the receivers also interculturally trained about the communication and behavioural patterns of the sender, an increased understanding and respect of differing communication and behaviour patterns according to local standards will be created on the receiver's side. However, this is done for the shop floor level quite rarely,

as was identified from the shop floor interviews. As already identified, the sender and receiver cyclically influence each other concerning their willingness to participate in an IKT. For this reason, both sides have to be prepared for a communicational clash. Without preparing both sides for the divergence, it could happen that the unwanted sender-receiver demotivation-cycle could be initiated, despite the fact that the sender was properly prepared for the local situation. As the new local shop floor employees will have to deal with the foreign culture for a short period of time, the intercultural training could be kept to a minimum and on a more superficial level. Nonetheless, it is understood as paramount to also prepare them for the coming situation, so as to reduce the impacts of 'relationship' as a local context factor on the IKT. So, it is the notion of balance and preparation for the IKT relationship of both sides, though the nature and extent of the training might be different.

By suggesting the *toolbox* displayed in Table 15, managerial implications identified in Figure 45 become manageable. The category lines clusters the managerial implications according to the four leaves of the VENN diagram in Figure 45. Column "managerial implications" lists all managerial implications identified. Following, in column two "description" deeper descriptions of the managerial implications are mentioned. Column three "possible measures" offers potential measures for managing the specific managerial implication. This offers for organizations a manageable framework, with which IKT can be optimized in a subsidiary set-up process.

However, the above mentioned contributes little for management of local context factor influences on the IKT. Hence, the *toolbox* further requires in column four "project milestone" the input of the project milestone, until which the managerial implication has to be accomplished. (See the grey rectangles on top of the project plan in Appendix 30, on page 288, which identify the project plan milestones.) In combination with the managerial implication's KPI[3], integrated in column eight "KPI", it is possible to transparently identify the IKT preparation advancement along the project plan. By using a 'Pivot analysis', the data can easily be managed and displayed in the form of a *dashboard*, as proposed in Figure 46 on page 186.

[3] Column five "KPI description" describes the KPI in detail; column six "KPI target" requires the input of the 'KPI target'; column seven "KPI actual" requires the input of the 'KPI actual' assessment

Table 15 *Toolbox* for assessment of IKT managerial implications.

managerial implication	description	possible measures	project milestone	KPI description	KPI target	KPI actual	KPI
		general					
basics	concepts of knowledge, information, knowledge transfer, and context are understood by each IKT involved employee for the specific subsidiary set-up	- presentation - self-study - self-group-learning - group case studies - Q&A session - expert flashlight	2 PD	# of employees aware of IKT basics vs. # of IKT involved employees	50	50	100%
strategy	create understanding of the importance of IKT within the project and for the operational and financial success of the new subsidiary	- review of IKT work items within the project plan - alignment with all functional leaders on IKT requirements - focus group(s) on IKT	5 AP	Qualitative evaluation of the implementation of strategy, e.g. 100% equals "IKT fully considered in the project plan and shared with all project members"	5	5	100%
priority	put IKT in the focus of the project team, project leader, and the steering committee	- review IKT readiness in each project meeting - make IKT readiness dashboard part of the steering committee	1 PA	# of ITK readiness *dashboard* reviews within project team and steering committee meetings vs. Held project	10	9	90%

		meetings - incentivise project team based on IKT DB target achievement		team and steering committee meetings			
		relationship					
experts on-site long-term	long-term stays of operational knowledge experts on-site of the new subsidiary	- special contracting - favourable incentives - consideration of expat contracts	4 AC	average number of days on-site of operational knowledge experts	60	21	35%
commincations training	reduce cultural prejudices and IKT barriers, enable easier establishment of IKT relationships	- training of sender and receiver - expectation management	8 SP	# of persons trained vs. # of persons requiring training	80	56	70%
		language					
expert with local language skills	easier and better communication on-site with the local shop floor employees, enable IKT relationship	- hire operational knowledge expert with according language skills - train existing knowledge expert in foreign language	3 LD	evaluation of expert foreign (local) language skills (e.g. official language qualification levels)	13	n/a	

technical translator	use a capable translator to translate the highly technical content	- assessment of translators by knowledge experts - usage of translators, which had other manufacturing assignments beforehand	5 AP	assessment of translator, e.g. by % or by defined characteristics or prior experiences	100	n/a	
qualification of local experts	hire local technician and train him or her at existing sites in the organization specifics, to serve afterwards as a local knowledge expert	- frontloading of technicians - bring them for a longer time to existing sites and/or the headquarters	6 SOP	# of local experts qualified at existing sites or the headquarters vs. the planned # of experts to be qualified at existing sites or the headquarters	5	5	100%
		education					
job title matrix	understand local job titles and their associated skill levels	- define required job titles and their associated skill levels at the headquarters and at the new location - review the required job skills with local educational institutions or job centers to identify required job titles - establish job title matrix	3 LD	# of different job titles vs. # of according local job titles identified	100	25	25%

organizational basic training	establish required basic educational niveau on the local receivers side to enable IKT participation, knowledge absorption, and knowledge retention	- send organizational internal trainer to the new location - use local qualification institutions to perform an aligned basic training	7 SOD	# of new shop floor employees trained vs. # of new shop floor employees requiring training	60	34	57%
Total status							**72%**

The *toolbox* in combination with the *dashboard* functionality offer *practice* transparency, oversight, ideas in how to manage the local context influences, and traceability. Additionally, it ensures, when thoroughly used through-out the set-up project, a higher focus on the IKT.

Figure 46 KPI *dashboard* to follow the category and process advancement.

overall IKT readiness
72%

	education	general	language	relationship
IKT readiness by category	41%	97%	100%	53%

	1 PA	2 PD	3 LD	4 AC	5 AP	6 SOP	7 SOD	8 SP
IKT readiness by project m	90%	100%	25%	35%	100%	100%	57%	70%

As identified in Figure 44, the influences on the IKT stem from a ‘context network’, which indicates that influences cannot be understood as singularities. Hence, Figure 45 displays that a variety of different actions have to be implemented in order to positively influence the IKT and therefore the new foreign subsidiary set-up performance on the shop floor. Furthermore, the set of applied measures has to be evaluated for each IKT independently, which is supported by the proposed *toolbox*. This *toolbox* links together the suggested EIRMSP and the ‘context network’. (See for the EIRMSP Figure 39 on page 137 and for the ‘context network’ Figure 44 on page 175.) The ‘context network’ identifies possible implications on the IKT process, which builds the basis for the measures displayed in the *toolbox*. It is, however, not only necessary to understand *what* needs to be done, it is also crucial to evalute *when* in the process of IKT measures have to be implemented to be both fully and opportunely effective. Hence, each measure has to be assigned a project milestone, by which time the action item has to be accomplished. In this way, the *toolbox* links Figure 39 and Figure 44 with each other. This offers a novel approach in linking the contextual considerations of IKT into the overall project plan of a new subsidiary in set-up. As argued throughout the thesis, context is time- and case-specific. Consequently, the required managerial implications change, and with them also change the set of measures to be implemented.

7.3. Contributions to Practice and Theory

This thesis adds to *practice* by addressing four integral topics in order to best optimize the IKT. These are: focus, basic employee preparation, usage of technical translators, and relationship building through communication according to local standards. By highlighting the “International Knowledge Transfer” as a separate workstream within the project plan – and not just as a single work item within the workstream “Human Resources” – focus is increased. The eight suggested work items within the “International Knowledge Transfer” workstream guide organizations from strategy right up to implementation in how to conduct an IKT to new subsidiaries in set-up. (See Appendix 30, on page 288, for the EIRMSP.) Together with the *toolbox* and *dashboard feature* created in this work, transparency and traceability of action items are optimized and focus during project review sessions is better directed towards IKT. (See Table 15, on page 183, for the suggested *toolbox* and Figure 46, on page 186, for the proposed *dashboard*.)

All researched cases showed that the basic preparation of the local educational system is insufficient to prepare shop floor employees to work in highly advanced manufacturing environments. Hence, if a subsidiary should be set-up in China, Brazil, or Mexico, it is essential for organizations to plan for additional basic training before starting the IKT. By preparing employees with basic training beforehand, a possible knowledge gap can

be avoided, and this enables new shop floor employees to relate better to the provided specific shop floor knowledge which they face. This adds positively to the overall motivation of both the knowledge expert and the shop floor employees, because the knowledge transferred falls on fertile ground. This in turn helps shop floor employees to increase their absorptive and retentive capacity. Ultimately, this leads to a better performance of the shop floor employees in production, which increases productivity, reduces costs, and thereby this optimizes the overall operational set-up performance of a new subsidiary.

To overcome language barriers using a translator was anticipated to be an accepted measure. However, neither the senders nor the receivers of all three cases researched were fully convinced of the translators instituted. When translators are utilized to overcome language barriers, organizations have to critically select translators according to the content requirements. Only by showing mastery of the technical terms, senders and receivers gain trust in the translated content and do not question, whether or not the translation is done correctly. A capable translator achieves trust in the translation and by this directs the senders and receivers attention to the transfer of knowledge. Corretly transferred knowledge adds to the motivation of the sender and receiver, because the transferred knowledge can be correctly applied at the shop floor, which positively influences the operational performance of a new foreign subsidiary in set-up.

In the cases of Mexico and Brazil, appropriate communication to local standards was identified as a further major impact factor on the IKT process. By preparing the sender and the receiver appropriately in their counterpart colleagues' communication patterns, a greater understanding for communication preferences is generated. This leads to less misperception of the counterpart's communication style, which minimizes the potential for hurt feelings and improves the motivation to participate in an IKT. Increased motivation was shown to positively influence an IKT process, which resulted in an improved operational subsidiary set-up performance.

Lastly and most importantly, a functional IKT relationship was identified as the most major context factor to positively influence the IKT, when correctly managed. It was identified that longer on-site assignments by the knowledge sender positively influence the sender-receiver relationship. Especially for China, employees tend to be culturally distant towards foreigners. It takes time to overcome this tendency towards cultural distance displayed by Chinese employees. It is through long-term personal interaction at work that Chinese employees gain trust and become open-minded, and thereby receptive towards an IKT. For Mexico and Brazil, on the other hand, trust in the foreign knowledge sender can be achieved by also spending time with each other outside work, where the personal interaction supports relationship creation. In all three cases, the right relationship was important to make local

shop floor employees receptive to the provided knowledge. It was demonstrated that an open-minded, trustful IKT relationship positively influenced the IKT process.

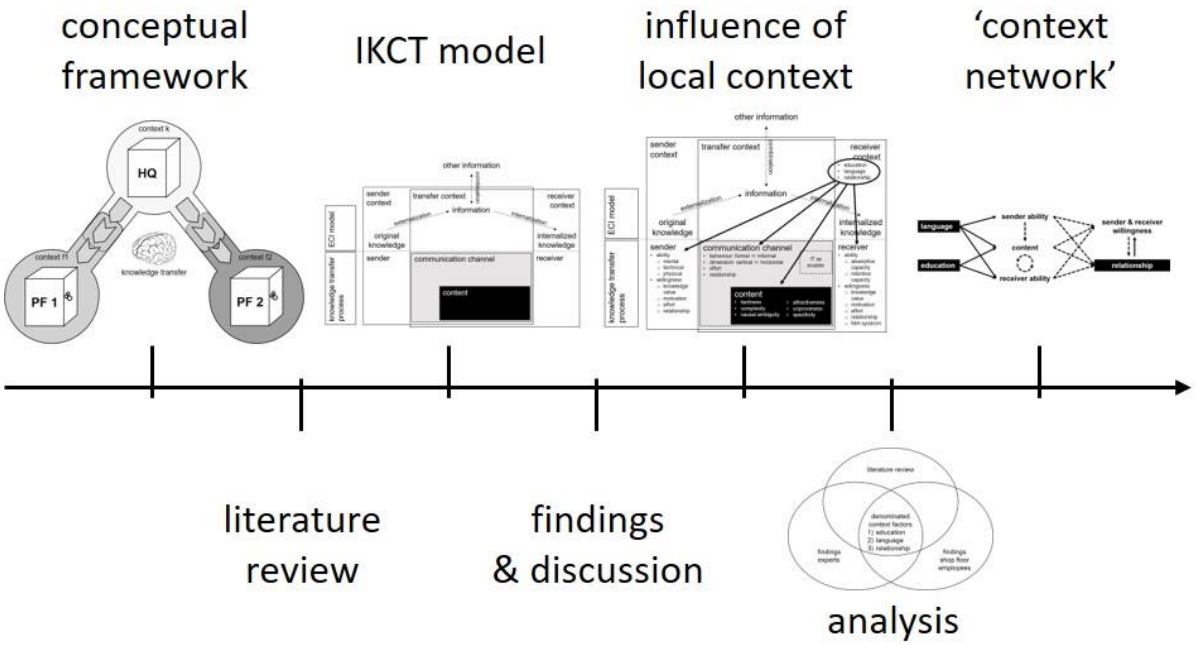
This thesis' findings enable organizations to generate both short-term and long-term benefits. During the subsidiary set-up – considered to be short-term – organizations achieve higher productivity and OEE, better motivated employees, a more highly qualified workforce, more stable production processes, and less operational turmoil, less scrap, less rework, and less effort for replanning of the production program. This helps organizations to ease the fuzzy set-up situation. (See subsection "The set-up process in greenfield manufacturing FDIs and its challenges." for details on the challenges of set-up projects.) Furthermore, a stable production with less scrap, fewer operational inefficiencies, and less operational turmoil positively influences the financial performance of the subsidiary in set-up.

Long-term, a thorough, less fuzzy set-up project will gain customer trust and satisfaction. By showing mastery of a complex set-up process, suppliers prove themselves to be a reliable partner. Depending on the customer, this might be of paramount importance for future business decisions. Consequently, this could mean that, due to proven reliability, an organization could still be awarded a new business despite the existence of cheaper competitors. Considering the local context factor's influence on the IKT early enough enables a higher profitability and a trustful 'customer-supplier business relationship' in the long run. Hence, this thesis provides a *contribution to practice* **short**-term *and* **long**-term for the cases researched.

Concerning the *contribution to theory*: The initial review of the definitions of 'knowledge' and 'information', which the thesis identified in *literature*, demonstrated mixed usage of both terms. It was argued that this could stem from a lack of one single, unified definition of 'knowledge'. By tracing back broadly- accepted concepts, e.g. 'tacitness' of 'knowledge', a clear distinction between 'knowledge' and 'information' was provided for this thesis. This adds to *theory*, as the definition and distinction given could serve as a basis for future research. It was argued that research failing to do so loses credibility, due to blurring of the concepts.

Although having accomplished a clear distinction of both terms, the conceptual framework development of this thesis showed that, within an IKT setting, an inter-relation of 'knowledge' and 'information' does in fact exist. The IKCT model was developed based on the ECI model, the knowledge transfer parts, and the nodal context understanding. By this method, it was possible to conceive the IKT from a holistic and integrated position. A comprehensive model in this form had up until now not been available. It not only adds to the conceptual understanding of IKT, but to KT in general. (See in Figure 47 the development stages of the IKCT model throughout this thesis.)

Figure 47 Conceptual development within this thesis.



By further integrating the identified local context factors in the IKCT model, their influence was illustrated. (See Figure 40, on page 147.) Based on the critical review and comparison of all sources used for this thesis, three key influencing local context factors were identified. This discussion resulted in a completely new understanding of the influence of context factors on the IKT process. Rather than having only simple direct influences of certain context factors on certain characteristics, an influence *network* with both direct **and** indirect influences of context factors emerged. (See Figure 41, on page 149, Figure 42, on page 155, and Figure 44, on page 175.)

This adds a new understanding as to how the influence of local context should be comprehended in general. In the identified literature, primarily direct influences of single context factors were considered. By reviewing the influences in detail, however, it became clear that the understanding, influences, and associated consequences are more diversified than was previously anticipated until now. The achieved greater level of detail accomplished by this thesis sheds a different light on the consideration of IKT within new subsidiary set-up in relation to the local context. Hence, theory now understands the influences of the local context on the IKT process better, which advances the current *theoretical* state-of-the-art status quo.

7.4. Limitations and Future Research Recommendations

A review of the last seven years of my doctoral journey showed certain gaps or *limitations*, which I will try to be more attentive to in potential further research endeavours.

Due resource constraints, the thesis clearly missed the Brazilian shop floor perspective. Business trips to China and Mexico made interviews with the shop floor employees there possible. Without these opportunities, these interviews too would have been almost impossible to accomplish. The shop floor information that was gathered, however, did provide enough insights and depth. Furthermore, again given the limited resource issues, translators were employees from within the organization researched. As identified in section "Axiological Stance", this might have had some influence on the answers given by the shop floor employees. If additional resources had been acquired, the scale and scope of the research could have considered additional situations to extend the depth and the level of insights.

It also showed that it was tough to interpret the interviewees' feedbacks from the context of their perspective afterwards. Adding a local standpoint by, e.g. a local independent researcher, would have added a different perspective on the interview statements. If there had been better local understanding, interview feedbacks would have been interpreted differently to my own interpretations only. This 'researcher triangulation' was not possible to accomplish, due to me being just a single researcher.

Concerning the case studies, in quite a late stage of the research it became evident that the point of view of the trainers was missing. The management side was represented through the project experts and the shop floor by the new shop floor employees. However, the *trainers* as 'knowledge senders' were not interviewed. From a case study perspective this would have made the cases in their entirety more compelling. Additionally, a further triangulation possibility could have been used to further add credibility and thorough detail to the analysis and findings.

Lastly, the research was limited by having a retrospective approach. Interviewees had to give their impressions of instances that were at times more than one year ago. It was evident that details of the actual trainings were missing. Especially on the shop floor level, thick descriptions were not available.

As planned, this research identified local context factors influencing IKT to subsidiaries in set-up. However, this was merely a first approach towards understanding the subject. Based on this, a first *recommendation* is to apply a variety of research approaches and methods, which could be useful to gain a more comprehensive view of the IKT to subsidiaries in set-up. Primarily, it would benefit the research of a subsidiary in set-up applying IKT. This adds actuality to the results and therefore might include more depth in identifying influences on the IKT.

Researching current case would also enable the application of *observation* as a research method, but, as argued before, due to the retrospective approach of this thesis, observation was not applicable. However, it was apparent that – for the purpose of

triangulation and verification of interview statements – observation *would* have been a helpful complementary method if it had been applicable.

Also identified as another limitation is that local researchers within the specific case countries could have added further understanding to the interviews. This *research team* approach would enable the implementation of a 'researcher triangulation' approach. Hence, an even deeper understanding of the feedbacks would be possible, which could lead to further interesting findings.

Ultimately, investigating a current case could also enable the research to also apply an 'action research strategy'. Being part of the IKT project team could give great insights into how planning and execution of the IKT, local context analysis, and influence management would be applied. Furthermore, the recommended managerial implications of this research could be verified and tested for usefulness, whilst also further measures for managing influences could be added.

It also would add to the understanding of the topic to research of the IKT process to subsidiaries in set-up for shop floor employees in industries other than the automotive one too. This could pinpoint whether the identified influences apply to the automotive industry only or could be generalizable. Here also different research approaches, e.g. quantitative methods, could be applied. Additionally, IKT's to subsidiaries in set-up in different countries other than the three researched in this thesis could further help distinguish overarching influencing context factors and country-specific context factors.

From a thematic point of view, this thesis showed that processual understanding of IKT to subsidiaries in set-up is limited. This research was able to argue a high-level processual integration in an overall subsidiary set-up project plan. Future research could build on this basis and specify the processual understanding further. A more detailed reference model could be established.

The lack of an aligned definition of 'knowledge' and 'context' calls for further conceptual and hermeneutic research. Achieving a unified understanding of knowledge and context would advance research into the respective fields. Without a common definition, research remains scattered, which leads to different schools of thought, which hinders any constructive discussion between the two.

Based on the above, it could be concluded that little is known about IKT to new subsidiaries in set-up and that this thesis takes a first step along a new research path. As very little research exists up till now, this whole form of research could be applied to different aspects and benefit state-of-the-art practice and theory.

7.5. Final Statement

The thesis showed that IKT to subsidiaries in set-up is of great importance for manufacturing organizations. In these current times of Covid-19, globalization seems to have slowed. However, due to the pressure of further standardization, cost, and shorter development cycles, globalization activities will rally and regain speed and importance. In order to cope with these pressures, set-up processes were – and will further become – crucial for any foreign business success. The identified influence of local context factors on the IKT process calls for closer attention to the management of local context. To sum up, during subsidiary set-up processes, local context influences show make-or-break potential.

By offering new conceptual and processual models, by the identification of three key context factors to be managed during an IKT, and by offering actionable managerial implications in the form of a *toolbox*, this thesis contributes to *theory* as well as to *practice*. Due to the nature of this thesis, it does not claim to have identified how to live up to Cresby's aspiration, "It is always cheaper to do the job right the first time." (G. H. Watson, 2005, p. 65); nor does it claim to totally eliminate the influences of local context factors on the IKT and so make any foreign new subsidiary set-up completely unproblematic. However, by using the proposed *toolbox* proactively to assess the organization's IKT situation, and by then implementing suggested action items, organizations *do at least* become better prepared to reduce negative local context factor influences on the IKT. In this way, both short-term subsidiary set-up performance and long-term overall operational and financial performance will improve, which supports the organization in gaining customers' trust and in being on the forefront of mastering the challenges of the competitive globalization game.

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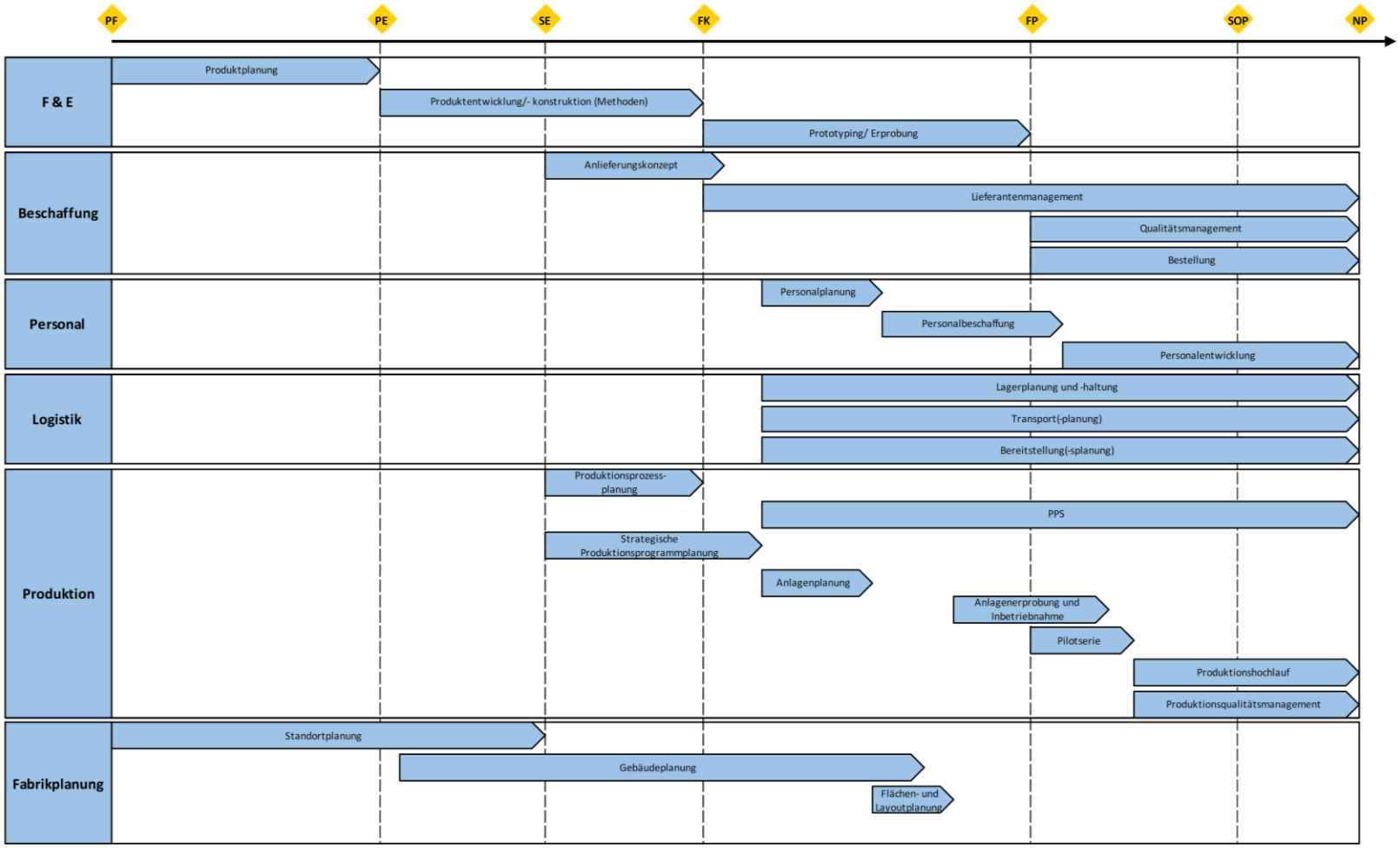
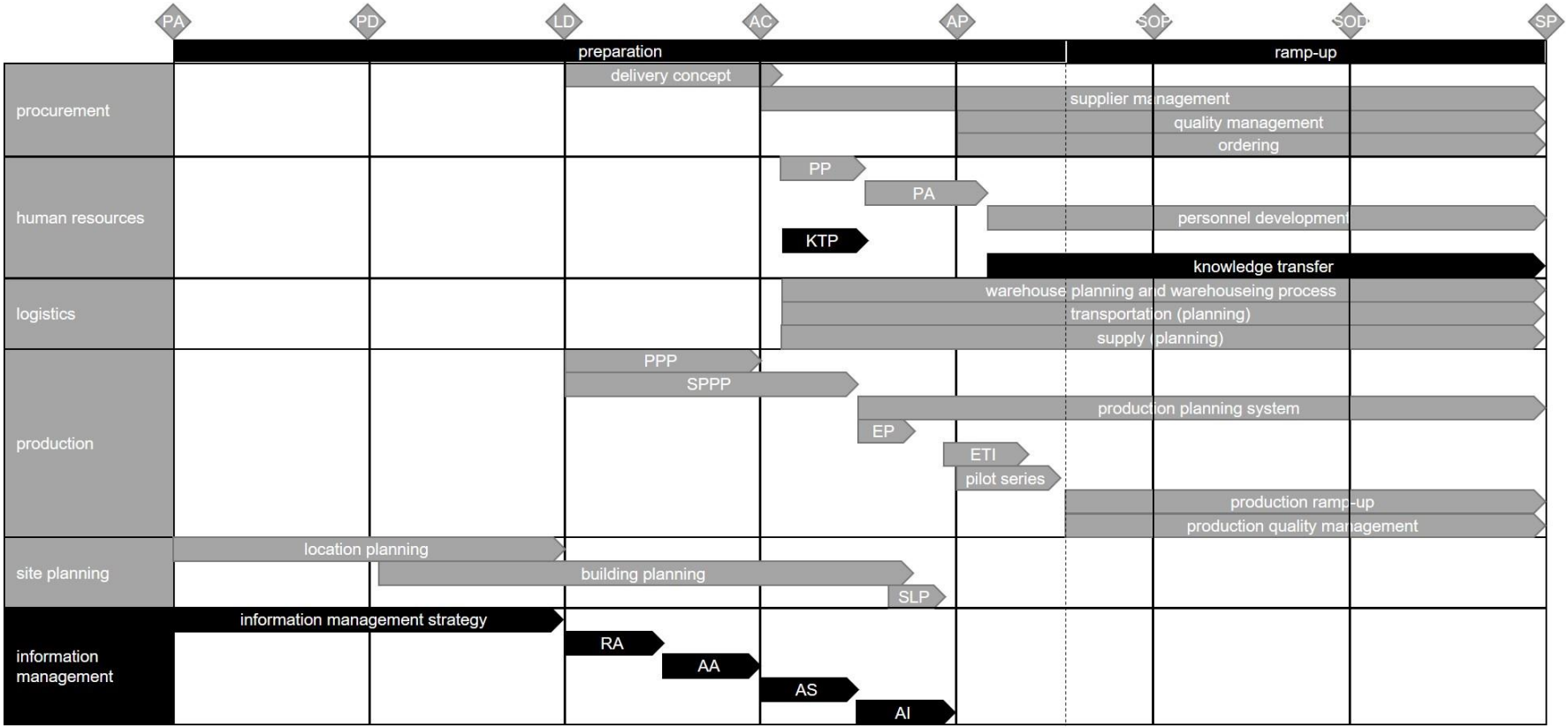
Appendices

Appendix 1 Reference set-up process model.



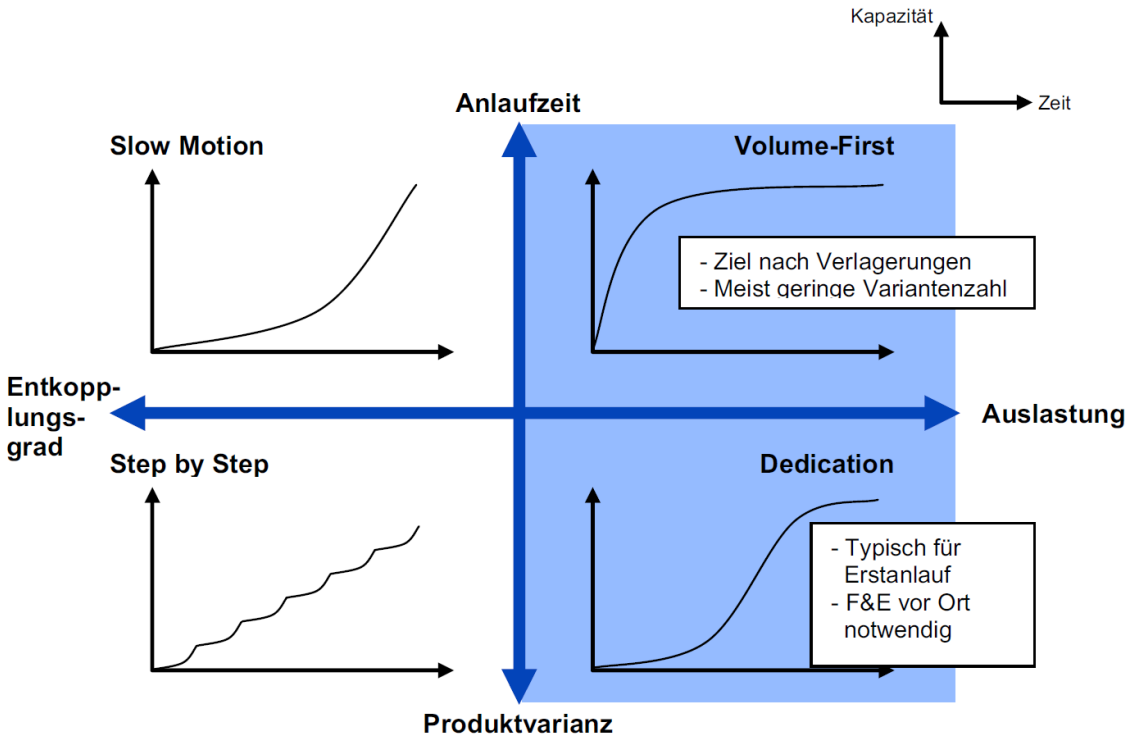
Source: Adapted from "Reifegradplanung und -überwachung für den Anlauf zusätzlicher Produktionskapazitäten an neuen Standorten als Entscheidungsbasis für Optimierungsschritte (Ramp-up Maturity)" by Böning & Sejdic, 2015, p.14. Copyright n.a.

Appendix 2 Integrated subsidiary set-up process model.



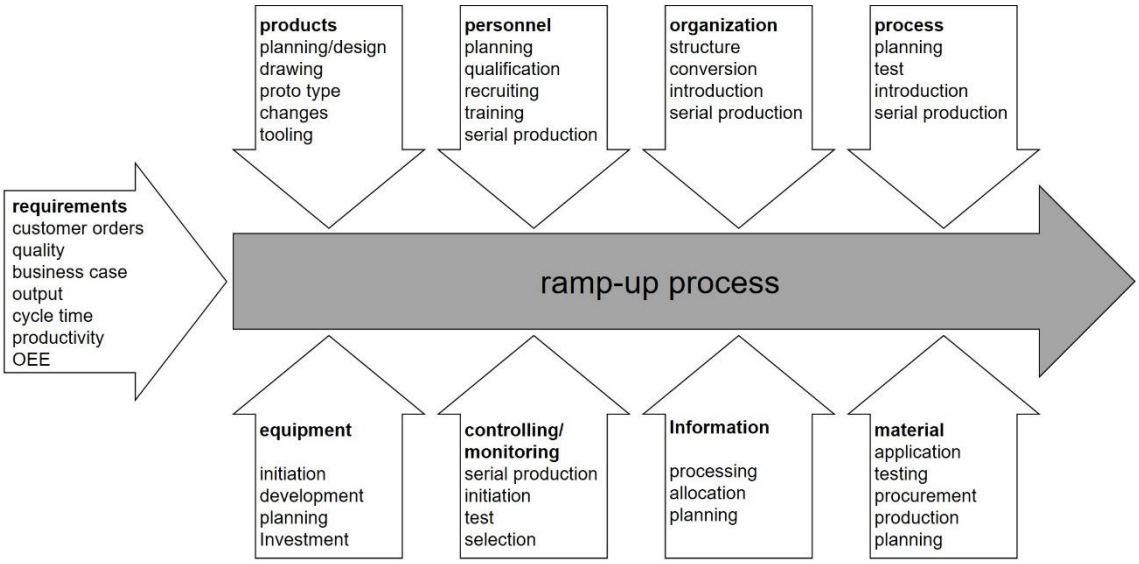
Note: PA = Production Approval, PD = Product Decision, LD = Location Decision, AC = Approval Construction Drawing, AP = Approval Pilot Series, SOP = Start of Production, SOD = Start of Delivery, SP = Series Production, PP = Personnel Planning, PA = Personnel Acquisition, KTP = Knowledge Transfer Process, PPP = Production Process Planning; SPPP = Strategic Production Program Planning, EP = Equipment Planning, ETI = Equipment Testing and Industrialization, SLP = Space and Layout Planning, RA = Requirements Analysis, AA = Application Architecture, AS = Application Selection, AI = Application Implementation. Grey areas indicate processes as stated by Böning & Sejdic (2015). Black areas indicate processes as stated by Ammer (n.d.).
Source: Adapted from “Reifegradplanung und -überwachung für den Anlauf zusätzlicher Produktionskapazitäten an neuen Standorten als Entscheidungsbasis für Optimierungsschritte (Ramp-up Maturity)“ by Böning & Sejdic, 2015, p.16. Copyright n.d. by n.a. & Adapted from “White Paper Ramp-Up Management” by Ammer, n.d., p. 6. Copyright n.d. by T-Systems Enterprice Services GmbH.

Appendix 3 Development of generic ramp-up strategies.



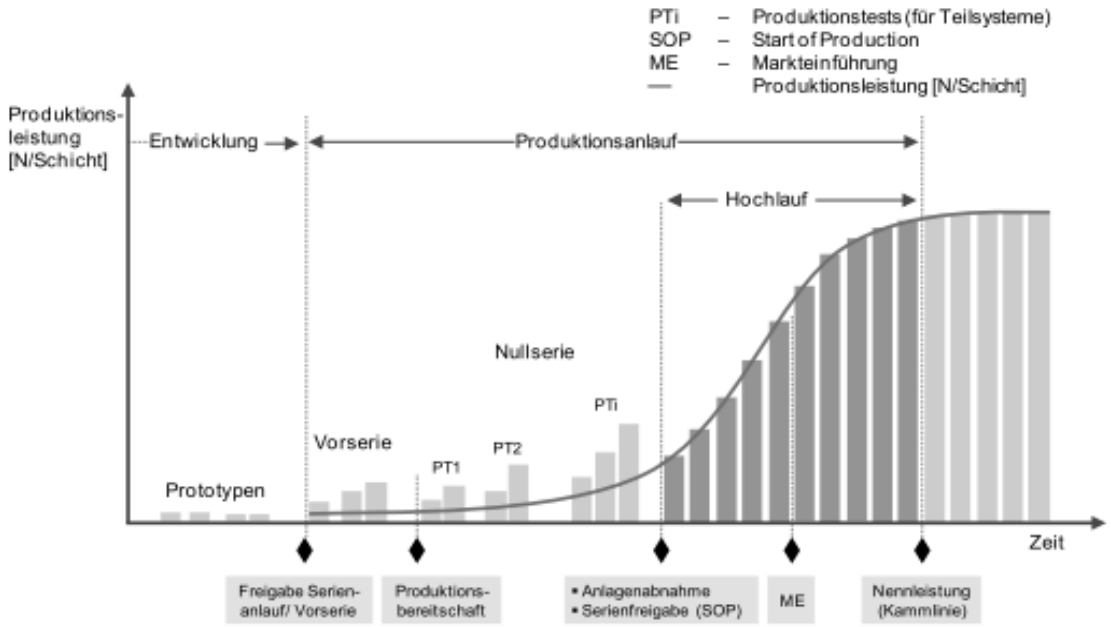
Source: Adapted from “Untersuchung “fast ramp-up“, Schneller Anlauf von Serienprodukten“ by Schuh, 2002, as cited in “Einfluss von standortspezifischen Faktoren auf den Produktionsanlauf am Beispiel der Kfz-Zulieferindustrie“ by Rüstig, 2007, p. 33. Copyright 2007 by Shaker Verlag.

Appendix 4 Factors influencing the ramp-up process.



Source: Adapted from “Bewertung und Verkürzung von Anlaufprozessen für Betriebsmittel“ by Fritsche & Uhlmann, 1997, as cited in “Einfluss von standortspezifischen Faktoren auf den Produktionsanlauf am Beispiel der Kfz-Zulieferindustrie“ by Rüstig, 2007, p. 29. Copyright 2007 by Shaker Verlag.

Appendix 5 General process model for a ramp-up in the automotive industry.



Source: Adapted from “Performance Management im Produktionsanlauf” by Renner, 2012, p.4. Published 2012 by Universitätsbibliothek RWTH Aachen.

Appendix 6 Communication channels and their characteristics.

communication channel	formality	distance			costs	IT
		organizational	relationship	mobility		
staff transfer	formal	horizontal/ vertical	strong	high	high	n/a
seminars, courses, educations	formal/ informal	horizontal/ vertical	weak	medium	medium	webinars
conferences	formal/ informal	horizontal/ vertical	weak	medium	medium	web conferences
workshops	formal/ informal	horizontal/ vertical	weak	medium/high	medium/high	interactive meeting rooms
E-learning	formal	n/a	weak	low	low/medium	web learning
consultants	formal	horizontal/ vertical	weak	medium	medium/high	n/a; video conferencing
publications	formal	n/a	weak	low	low/medium	E-journals
research projects	formal/ informal	horizontal/ vertical	strong	low	medium/high	video or phone conferences; cloud
instruction materials	formal	n/a	weak	low	low/medium	E-journals
‘learning-by-doing’	formal/ informal	horizontal	strong	low/medium	medium/high	n/a
instructed ‘learning-by-doing’	formal	horizontal	strong	low/medium	medium/high	augmented reality
networks	formal/ informal	horizontal/ vertical	strong	medium/high	medium/high	video or phone calls, instant messaging
IVF model						

Appendix 7 Research paradigms in comparison.

Ontological position	Assigned ontological characteristics	Assigned epistemological characteristics	Assigned methodological characteristics
Guba (1990)			
Positivism	*Realist* One truth exists, cause-effect reasoning, immutable natural laws exist, no consideration of time and context	*Dualist/objectivist* Distance to research object, no interaction, biasing factors are excluded, objectivity	*Experimental/manipulative* Hypotheses testing, empirical testing, falsification, control of conditions
Postpositivist	*Critical realist* One truth exists, cannot be fully understood, natural laws can only be partially understood	*Modified objectivist* Objectivity can be strived for but hardly reached	*Modified experimental/manipulative* Critical multiplism, grounded theory, acknowledging discovery during research process
Critical Theory	*Critical realist* See postpositivist	*Subjectivist* Values are the basis for the type of inquiry	*Dialogic, transformative* Advocate transformation
Constructivism	*Relativist* Multiple realities exist, is a mental construction, local and specific, dependent on persons	*Subjectivist* Inquiry of a single entity, findings are co-created by researcher and research subject	*Hermeneutic, dialectic* Individual constructions, generate one outcome with shared, substantial consensus

Appendix 7 continued

Ontological position	Assigned ontological characteristics	Assigned epistemological characteristics	Assigned methodological characteristics
Arbnor & Bjerke (2008)			
Analytical view	Truth is in reality, generalizable results, reality build by laws, cause and effect	Objective, analyse small entities, explain dependencies	Conforming through large(r) samples, starting with hypothesis, well defined, controllable research steps, testing and falsification
Systems view	Objective reality subjectively interpreted, reality is not summative, different wholes and patterns, not isolated, part of a system	Need to understand influencing parts, be specific, sense comes from understanding the context, knowledge is created together with the interview partner	Rather pragmatic attitude, extensive and more complicated data gathering and analysis processes, get a comprehensive in-depth picture of a single situation
Actors view	Reality is a social construction, is chaotic, specific and unique, actors anchor relatively stable structures, dependent on persons, "…taken-for-granted concepts may become obstacles…" (p. 41)	Interpretation of individual uniqueness, seek understanding, include context, dialogue	Mixed methods, create something new, improve the current state-of-the-art, innovative knowledge

Appendix 7 continued

Ontological position	Assigned ontological characteristics	Assigned epistemological characteristics	Assigned methodological characteristics
Creswell (2013a)			
Positivist/Postpositivist	Deterministic, cause probably determines effects, reality exists out there	Reductionistic to only small controllable test set, be objective	Experimental, testing of theories, falsification of hypothesises
Constructivism	"…make sense of the meaning others have about the world." (p. 8), reality is individually constructed based on personal values, background, context, perspectives and culture	Rely on participants view as much as possible, negotiate subjective meaning with the participant, interaction with individuals	Seek understanding, subjective meaning from applied methods, look for complexity, account for own subjectivity, inductively develop theories or patterns
Transformative	Critical theorists, individual lives are intertwined with politics, need for a political change, social oppression of minority groups	Collaborative research approach with participant(s), united statement for change for the specific circumstances of the participant(s)	Change of existing social settings
Pragmatism	Truth and reality are what works, "…external world independent of the mind as well as that lodged in the mind." (p. 11)	All kinds of knowledge sources work	Mixed methods that support the researchers needs and purposes

Appendix 7 continued

Ontological position	Assigned ontological characteristics	Assigned epistemological characteristics	Assigned methodological characteristics
Saunders et al., p. (2016, p. 136f.)			
Positivism	Real, external, independent, one true reality (universalism), granular (things), ordered	Scientific method, observable and measurable facts, law-like generalisations, numbers, causal explanation and prediction as contribution	Typically, deductive, highly structured, large samples, measurement, typically quantitative methods for analysis, but a range of data can be analysed
Critical realism	Stratified (layered (the empirical, the actual and the real), external, independent, intransient, objective structures, causal mechanisms	Epistemological relativism, knowledge historically situated and transient, facts are social constructions, historical causal explanation as contribution	Retroductive, in-depth historically situated analysis of pre-existing structures and emerging agency. Range of methods and data types to fit subject matter
Interpretivism	Complex, rich, socially constructed through culture and language, multiple meanings, interpretations, realities, flux of processes, experiences, practices	Theories and concepts too simplistic, focus on narratives, stories, perceptions and interpretations, new understandings and worldviews as contribution	Typically, inductive, small samples, in-depth investigations, qualitative methods of analysis, but a range of data can be interpreted

Appendix 7 continued

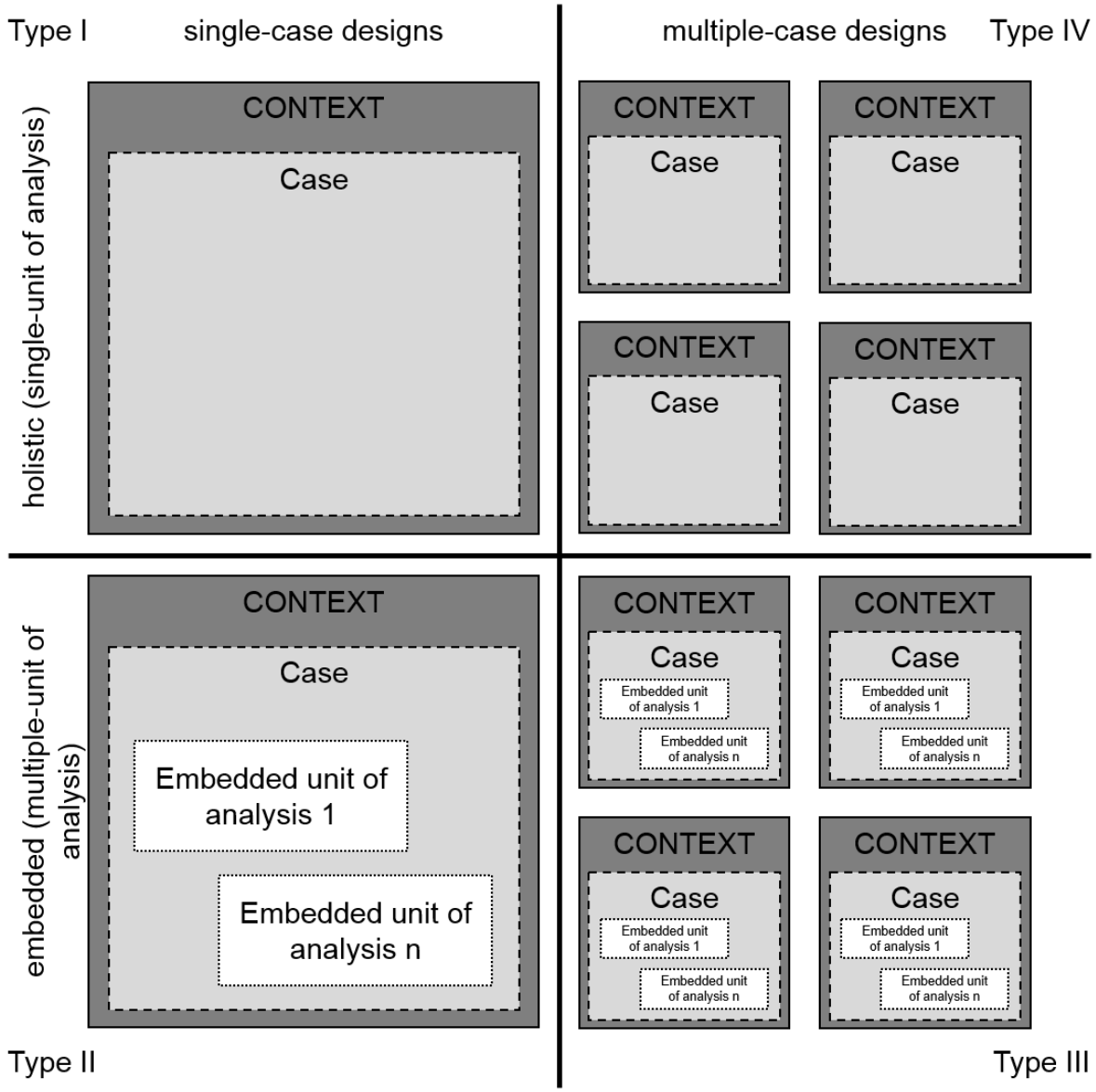
Ontological position	Assigned ontological characteristics	Assigned epistemological characteristics	Assigned methodological characteristics
Postmodernism	Nominal, complex, rich, socially constructed through power relations, some meanings, interpretations, realities are dominated and silenced by others, flux of processes, experiences, practices	What counts as 'truth' and 'knowledge' is decided by dominant ideologies, focus on absences, silences and oppressed/repressed meanings, interpretations and voices, exposure of power relations and challenge of dominant views as contribution	Typically, deconstructive – reading texts and realities against themselves, in-depth investigations of anomalies, silences and absences, range of data types, typically qualitative methods of analysis
Pragmatism	Complex, rich, external, 'reality' is the practical consequences of ideas, flux of processes, experiences and practices	Practical meaning of knowledge in specific contexts, 'true' theories and knowledge are those that enable action, focus on problems, practices and relevance, problem solving and informed future practice as contribution	Following research problem and research question, range of methods: mixed, multiple, qualitative, quantitative, action research, emphasis on practical solutions and outcomes

Appendix 8 Deduction, induction and abduction: from reason to research.

	Deduction	Induction	Abduction
Logic	In a deductive inference, when the premises are true, the conclusion must also be true	In an inductive inference, known premises are used to generate untested conclusions	In an abductive inference, known premises are used to generate testable conclusions
Generalisability	Generalising from the general to the specific	Generalising from the specific to the general	Generalising from the interactions between the specific and the general
Use of data	Data collection is used to evaluate propositions or hypotheses related to an existing theory	Data collection is used to explore a phenomenon, identify themes and patterns and create a conceptual framework	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual framework and test this through subsequent data collection and so forth
Theory	Theory falsification or verification	Theory generation and building	Theory generation or modification; incorporating existing theory where appropriate, to build new theory or modify existing theory

Source: Adapted from “Research Methods for Business Students” by Saunders et al., 2015, p. 145.

Appendix 9 Basic Types of Designs for Case Studies.



Source: Adapted from “Case Study Research: Design and Methods” by Yin, 2013, p. 50. Copyright 2013 by SAGE Publications.

Appendix 10 Cover letter used for informing the interviewee about the upcoming interview.

DBACL

Cover Letter

Dear [name of the participant],

I highly appreciate that you have decided to participate in my research: “International knowledge transfer in setting up subsidiaries: the role of context”. Your participation is completely voluntarily. You can stop the process at any time.

Global customers and platforms in the automotive industry often require manufacturing suppliers to have a worldwide presence as well. This leads to the need for new locations. Depending on the internationalization strategy organizations might chose a foreign direct investment greenfield approach. Within the set-up process the knowledge transfer is one of the key elements to get the newly created subsidiary running. The success of the intended knowledge transfer process is influenced by local context factors. These cannot be altered, however managed, if known.

The upcoming expert interview with you is going to build the basis for my research. Your experiences concerning the knowledge transfer process to your location in the set-up process are the initial start of the interview. Within the process of the interview another focus is going to be the local context factors faced. Lastly, some time will be spent on how those local context factors influencing the knowledge transfer process have been managed by you and/or your team.

Expert interviews build the core of my research. Additionally, other data such as documentation, brief questionnaires, as well as academic / theoretical analysis. My research aims to identify local context factors that have an influence on the knowledge transfer process during the set-up of your foreign greenfield subsidiary. In the following step, it is the goal to come up with suggestions for how to manage these influences. Ultimately, everything evolving from this analysis results in some kind of framework that can be used to plan and operate knowledge transfer processes for subsidiaries in the set-up process successfully.

Please be assured that all data gathered from you in the process is treated in a highly-classified way. All commencing steps are going to involve your information in an anonymised form only. Please also note that this study is completely funded by myself. This means that there is no conflict of interest of any kind. In general, this research is being conducted under the guidelines of the University of Gloucestershire’s Handbook of Research Ethics.

page 1 of 3 21.03.2017

Appendix 10 continued

DBACL

The brief overview of the main interview sections shows you what to expect in the interview. This gives you the chance to at least prepare a little bit for the interview.

Again, I would like to express my gratitude that you are willing to participate in this research and thank you upfront for a deep routing interview.

Kind regards,

Christian Bechtle

Section	Topic	Description
I	Getting involved	This section is going to focus on the basic understanding of knowledge, information, and set-up. This builds the basis for a better understanding of the arguments made later in the interview by the interviewee.
II	Knowledge transfer process components	This section is used to deepen the discussion into the direction of the knowledge transfer process. On the one hand this section intends to grasp the interviewees understanding of the single process parts of the international knowledge transfer process to new subsidiaries in the set-up phase. On the other hand, this section wants to uncover the actual knowledge transfer process used within the project, lessons learned, best practices, etc. from the investigated project.
III	Local context factors	This section is about the understanding of the impact of local context on the international knowledge transfer process. It gives the opportunity to identify relevant context factors and gives room for the review of possible methods how to handle them.

Appendix 10 continued

DBACL

IV	Organizational considerations in the light of local context	This section focuses on organizational considerations that might also have an influence on the international knowledge transfer process for subsidiaries in set-up.

Appendix 11 Interview guide that serves as an interview process manual.

DBAIG

Interview guide

For participant _____

1 Initial personal call/meeting with the participant ☐

2 Send cover letter DBACL to the interviewee ☐

3 General comments / ideas / things to consider

a. Use Open questions: how, why, what do you think?, how have you experienced…?, please describe..., etc.
b. One idea per question only
c. Be specific, less generic
d. Focus on analysability => can you make something from what is being answered?
e. Keep in mind your research questions => it is the goal to answer them afterwards.
f. Anticipate answers and be prepared to dig deeper
g. Courtroom procedure: first open, narrative questions, afterwards become more specific
h. Use presenter cards to be more interactive than with piles of paper
i. Research goal, questions, and -objectives:

Research goal

The goal of the research is to understand how contextual factors impact an IKT process at the shop floor level during the subsidiary establishment process. Thus, the focus is laid on the impact of local context factors on the IKT and how this can be managed.

Research questions and objectives

#	Research question	Research objective
1	What is the nature of international knowledge transfer at the shop floor level to the subsidiaries in the set-up process of a multinational company (MNC)?	Carve out the characteristics of a cross border knowledge transfer process at the shop floor level. Identification of general principles, methods, models, frameworks, etc. available. Analysis if different principles, methods, models,

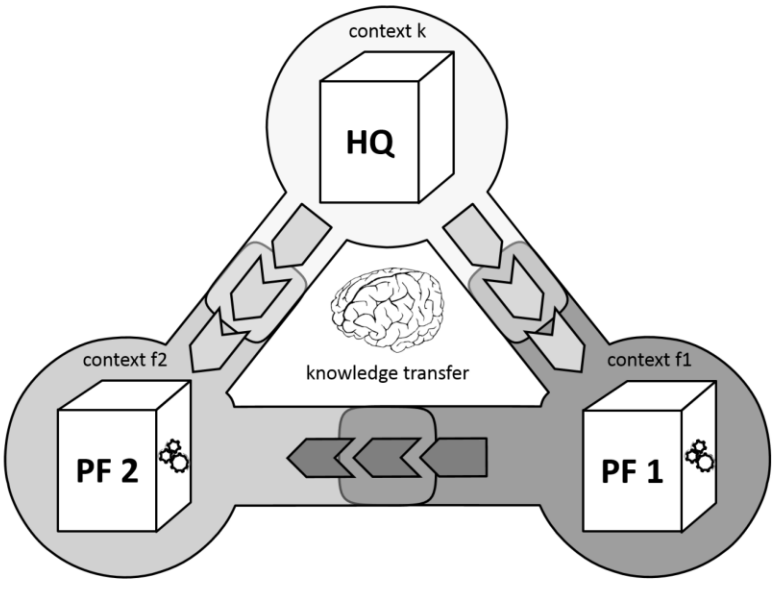
page 1 of 8 27.03.2017

Appendix 11 continued

DBAIG

		frameworks, etc. for the focus countries are published.
2	How do local context factors impact the international knowledge transfer process, in terms of process, actors and critical events, during the set-up of a subsidiary?	Identification of the local context factors that impact the international knowledge transfer process, the related actors and the critical events during the set-up of a subsidiary at the shop floor level. Focus on the similarities and the differences between the focus countries.
3	How can a MNC manage the impact of the local context factors of an international knowledge transfer during the set-up process of a subsidiary to ensure output congruity?	Definition of measures that make the impact of local context factors on the knowledge transfer process in setting up manufacturing subsidiaries across borders manageable.

j. Conceptual framework:



HQ: head quarter; PF: production facility; k = known; f= foreign

page 2 of 8 27.03.2017

Appendix 11 continued

DBAIG

4 The interview

a. Introduction, small talk, etc.

b. Points to be discussed prior to the interview with the participant:

- introduce goal/target of the research ☐
- purpose of the research / research problem ☐
- voluntariness of the participation ☐
- interview and analysis process ☐
- confidentiality ☐
- anonymity => NDA ☐
- taping the interview ok? ☐
- further questions? ☐

c. Sign document DBANDA ☐

d. General questions

- What is your name?
- Where do you work?
- What is your work?
- What is your job title?
- How long to you work for the company?
- Leadership / # of subordinates?
- Function in the project we are discussing?
- Phases involved in the project?
- Comparable projects done prior to the current one?

e. Section I: Getting involved

Description

This section is going to focus on the basic understanding of knowledge, information, and set-up. This builds the basis for a better understanding of the arguments made later in the interview by the interviewee.

Questions/Probes

Basic understanding of knowledge and information

1) What do you understand under the term knowledge?
2) What do you understand under the term information?
3) How would you distinguish knowledge and information from each other? Could you give examples?

The set-up process

Appendix 11 continued

DBAIG

4) What do you understand as the set-up process of a new foreign greenfield subsidiary?
5) Please describe the different process steps. / Please describe the different process steps from the project that you have been involved.
6) Who else was involved in the set-up process? Please indicate in which stage.
7) Would you say that this process you described is specific for the automotive supplier industry?
8) How would you distinguish between ramp-up and set-up of a manufacturing organization?
9) Which process step do you think is the most critical? What were your experiences in your project?
10) How would you evaluate the role of knowledge transfer in the set-up phase of a new foreign greenfield subsidiary?

f. Section II: Knowledge transfer process components

Description

This section is used to deepen the discussion into the direction of the knowledge transfer process. On the one hand this section intends to grasp the interviewees understanding of the single process parts of the international knowledge transfer process to new subsidiaries in the set-up phase. On the other hand, this section wants to uncover the actual knowledge transfer process used within the project, lessons learned, best practices, etc. from the investigated project.

Questions/Probes

11) Please describe the knowledge transfer process.
12) What would say are the components of a knowledge transfer process.
13) Which of the knowledge transfer process components identified before would you say to be the most critical? Why do you think so?
14) Please describe how you have experienced the knowledge transfer process in your project.
15) Who was involved in the knowledge transfer process?
16) How was the planning of the knowledge transfer process done?
17) Who participated in the planning of the knowledge transfer process?

page 4 of 8 27.03.2017

Appendix 11 continued

18) Please describe the models that have been used to plan/organize the knowledge transfer process. [e.g. knowledge maps, etc.] – Why do you think these/none have been/are used? Which models do you know?
19) How was/is the knowledge transfer process realized in your project?
20) Who participated in the implementation of the planned knowledge transfer process?
21) Which hindrances have you encountered during the performance of the knowledge transfer process to the shop floor level?
22) How have you dealt with these hindrances?
23) Is there any participant that you would describe as most critical? If yes, who and why?
24) What do you think was critical for a successful international knowledge transfer in this stage of the new foreign subsidiary?
25) What would make different the next time?
26) What would you say worked exceptionally well? / What would you do the same way?

g. Section III: Local context factors

Description

This section is about the understanding of the impact of local context on the international knowledge transfer process. It gives the opportunity to identify relevant context factors and gives room for the review of possible methods how to handle them.

Questions/Probes

27) What would you generally understand under a context factor?
28) How would you rate the importance of the local context in the set-up phase of a new foreign subsidiary like your project?
29) How would you describe the impact of the local context on the knowledge transfer process? [in general, on the different component]
30) Please evaluate the impact of local context factors on the sender-receiver relationship. [in general; within the project specifically; sender & receiver: value of knowledge, ability to share, willingness to share, motivation to share; receiver only: absorptive capacity, retentive capacity]

Appendix 11 continued

DBAIG

31) Which local context factors would you name that could have had impacted the sender-receiver relationship?
32) Please evaluate the impact of local context factors on the communication channels used in the project. [in general, within the project specifically, effort, costs, distance]
33) Which local context factors would you name that could have had an impact on the communication channels used?
34) Please evaluate the impact of local context factors on the content transferred. [in general, within the project specifically, tacitness, complexity, attractiveness, specificy]
35) Which local context factors would you name that could have had an impact on the content transferred?

h. Section IV: Organizational considerations in the light of local context

Description

This section focuses on organizational considerations that might also have an influence on the international knowledge transfer process for subsidiaries in set-up.

Questions

36) Please describe the subsidiary-headquarter relationship in this project.
37) How would you evaluate the importance of the subsidiary-headquarter relationship on a successful international knowledge transfer process?
38) What role do you think do local context factors play in the subsidiary-headquarter relationship? Please describe these local context factors.
39) How would you try to/did you manage this impact of the local context factors on the subsidiary-headquarter relationship?
40) How would you evaluate the importance of organizational embeddedness for a successful international knowledge transfer process?
41) How would you describe the influence of local context factors on the organizational embeddedness of a foreign subsidiary in set-up? Please describe these local context factors.

page 6 of 8 27.03.2017

Appendix 11 continued

DBAIG

42) How would you try to/did you manage this impact of the local context factors on the organizational embeddedness of a foreign subsidiary in set-up?
43) Please evaluate the importance of local embeddedness for a successful international knowledge transfer process. [liability of foreignness, liability of outsidership]
44) How would you describe the influence of local context factors on the local embeddedness? Please describe these local context factors.
45) How would you try to/did you manage this impact of the local context factors on the local embeddedness of a foreign subsidiary in set-up?
46) How would you evaluate the level of control on the knowledge transfer process in your project? [gut feeling, actual actions by the headquarter]
47) What do you think about the influence of the level of control in contrast to local context factors? Please describe these local context factors.
48) How would you try to/did you manage this impact of the local context factors on the level of control?
49) How would you deal with local context factors, if you were to plan the knowledge transfer process at the shop floor level for a similar project? [wishes, needs, requirements, support]

i. Section V: Any other topics

50) Do you have any other topic that was not covered but you think is of importance for the research?
51) What would you recommend me for my next interview?
52) Any further remarks or tips for the study?
53) What would be your expectation of a toolbox / method / framework for the management of the impact of local context factors on the international knowledge transfer process?
54) Do you have any questions you would like to ask me?

5 Thank you for your time and answers. ☐

Next steps

6 Transcription process is following the interview ☐

page 7 of 8 27.03.2017

Appendix 11 continued

DBAIG

(Transcript can be made available)

7 Fill out document DBAIP (interviewer only) ☐

8 Sign document DBATA ☐

Appendix 12 Non-disclosure agreement ensures confidentiality and anonymity for the interviewee.

DBANDA

Non-disclosure agreement

1 Goal and purpose of the research
   a. The participant has been informed about the goal of the research. Target, objectives and research problem have been explicitly communicated.
   b. Purpose of the research has been communicated sufficiently.

2 Voluntary participation
   The participant has been informed by the researcher that the participation in this research is voluntarily. It further has been explained that the participant has at all times the right to request the deletion of information from the further research process.

3 Interview process and data analysis
   The researcher is allowed to follow the following research process:
   a. Interview: tape recording of the interview is granted.
   b. Transcription: the researcher is allowed to hand the gathered information to a certified transcription service, under the consideration of points 4 and 5 of this agreement.
   c. Transcription approval: the researcher commits himself to only use transcribed information after a written approval by the participant through document DBATA.
   d. The approved transcribed information can be used by the researcher for the following analysis process.

4 Confidentiality
   a. All data concerning the research, in any form, is stored on a dedicated, password secured external hard drive. Access is only possible for the researcher.
   b. After finishing the research, the data will be kept confidential on the same hard drive in a secure location.

5 Anonymity
   At no time names or clues to participants are going to be stated in any official document (e.g. paper, doctoral thesis). The anonymity of the participants is of the utmost interest for the researcher.

Researcher			Participant		
Christian Bechtle					
Name	Date	Signature	Name	Date	Signature

page 1 of 1 21.03.2017

Appendix 13 Interview protocol: used to recapture the interview.

DBAIP

Interview protocol

For participant _____

1 Date of the interview: _____

2 Duration of the interview: _____

3 Technical commentary

4 Interferences if applicable (e.g. were there 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 (e.g. how was the willingness of the interviewee to answer the questions? Were emotions involved and visible?)

6 Categorisation of answers (e.g. how can the answers of the interview be categorised: reliable throughout; less reliable questions were the following…, has perceived reliability changed over the course of the interview?)

page 1 of 1 21.03.2017

Appendix 14 Transcript approval: the interviewee allows the interviewer to use the aligned transcript content for analysis purposes.

DBATA

Transcript approval

I hereby declare that the researcher, Christian Bechtle, is allowed to use the provided interview transcript _____ (name of the file) on _____ (date) for the intended further research process. All points of agreement DBANDA remain valid.

Participant

_____

Name Date Signature

page 1 of 1 21.03.2017

Appendix 15 Example (3 of 14 pages) of the Mexico expert interview transcript.

Caption

Text in **bold** => spoken part of the interviewer

Text in standard => spoken part of the interviewee

Text in *italics* => technical or environmental factors, interruptions, breaks, etc.

Transcript

Interview with Raul Mendez-Otero – plant manager at thyssenkrupp Mexico. Interview done on 16.06.2017.

So, as just describe first general part, I would like you to introduce yourself very quickly. Your name, where do you work, what's your current work, your job title and the company you work for.

Yes. Yah, than, so my name is Raul Alberto Mendez Otero. So, I am the CEO of the plant Camshafts in San Miguel de Allende in Mexico. So, I am an Industrial Engineer and also have an MBA. And this is since we are working here and getting everything ready for our start-up production in November for one of our customer in Mexico. 1.02

Ok. So, your position is a leadership position and how many subordinates do you have ?

Yah. So the total number of persons working in the company at the moment is 35, working every reaching the 40 persons this year and of course have a role plan according to the demands of our customer. But at the moment we are 35. 1.32

Ok. And during the setup of the, of the Mexico plant, what was your function when you entered the project until now ?

Well, since I entered the project I was from the beginning the CEO and of course, since there was no team, what's however, in Mexico so one of the responsibilities was of course to bring the team together and organize and follow up the construction plan that were decided before. I started with the company and hired the rest of the team because at the moment that I entered the organization there were only two person, and so we were a kind of compromise in the issues with the Human Resources, the hiring of the team and also organizing, as I said the building construction and also the machine transfer and installation of the machines and release of the machines before they were transferred to Mexico. 2.43

Ok, and have you done any comparable project before ?

No. So I have an experience in the automotive industry for almost 22 years. I was involved in different projects, new lounges of vehicle with another German organization, an OEM, but a new plant as the one that we have here, I was never involved, although I did participate in the lounge of the new engine plant of Volkswagen in Silao. 3.23

Ok, so thanks for that. This was the general questions part and I would now start with the first section of the actual interview witch I titled "Getting involved in my interview guide". And this is, as I said before, is to create a basic understanding of some basic terms that we gonna dig deeper into later. And first I would like to now from you what you understand of the term knowledge. What is knowledge for you ?

Knowledge is the combination of a theoretical background and also some practical implementation of this theoretical background. This is for me knowledge.

1 of 14

Appendix 15 continued

And on the contrary. What do you understand of the term information ?

Yah. Information is for me, ahm, is data, yah, that is provided with a certain purpose. 4.37

What I forgot to mention Raul. If I am not speaking, I am either reading through my question from the interview guide or I am taking notes, so , despair with me.
And, how do you distinguish knowledge and information ?

Of course, information is, is a component that say of the knowledges, that a person can be carrying. So, since I define knowledge as a theoretical background in the practical implementation, so that is called background needs to be supported by information. And of course there are different resources of information and quality of information. But the information is part of a knowledge process. 5.43

Ok. Now I would switch to the set up process and the basic understanding of that, so. What do you understand of a set up process of a new foreign greenfield subsidiary ?

A new set up, well. This is the complete process that is start with the investigation of a location, yah, and will the implications involve in these, which are a comparison of different locations based on parameters such as benefits provided by the government, labour by availability, availability of plan, labour, qualification, safety and all those other things. This is how the start up process starts and from there than, there are many different steps that come behind these selection process and than, of course we have the situation of selecting them right and the team to work in this greenfield and also ensuring at the same time that the materials, the machines, all the resources are going to be available to produce what the facility is there, too, or for. 7.29

And could you please describe me the different process steps that you didn't named now after, after the side-selection process. Can you give me your understanding, what a different process-step-seller required to get the plant to the complete to or to serial production.

Yes. So, as I said, of course the selection process is crucial, because this is how all starts, but of course this selection processes starts, because a customer has a really decided to award a certain business to the facility or to the organization. And this also starts in parallel a serious of processes. They are related to investing in their only own resources but also to nominating suppliers or sub-suppliers to invest and produce subcomponents or services to us to complete a good. There is going to be the lever at the end to the customer. But also this is like a parallel, lets say purchasing management project, that runs in parallel. But also there are a selection, human resources selection process to build up the team. There are also a process, that is related with the, to deal with the government in regard to follow-up of intensives and also to get them there. There must be some achievements and some rules in requirements that we need to achieve in order to get these incentives from the government. And also there is a process in parallel running to or see ecology and environment in the area, because, of cause the facility is going to be having some impact, positive or negative, I don't know, depending on the process in the company. But also we need to prove to the, to the government and the ecological authority and the environmental authority, that we are also friendly with the environment and, of course we need to start following, following up on the machines and lines, that will be installing in the future in parallel. Yah. 10.20

Ok. Who from the organization was involved in the set up process of Mexico project ?

In our organization we have, of course two crucial parties involved in the setup of this plant. In the beginning of course, and this is why the organization hired an architect, was the the the project manager, which was related with the construction and on the land requirements here and related to the building and so on. And also there was another person which is the operations director. The two are persons are for me are very crucial members in this set up process. One, because was in charge

Appendix 15 continued

of the building and plant that we have now from the beginning with the construction company in the engineering companies, yah. And the other one because, was related with the line, the capacity, the processes and everything that was going to be installed in Mexico. So those are the persons that were in the beginning hired to start working in this project. 11.45

Ok. So, sorry.

And of course after them, than the human resources person is started and myself. So this is a very logical step because, as I said architect and operations person and than the human resources and the plant director. So, I think it was very intelligent to conceive these hiring steps according to the needs of the future plan here in Mexico. 12.16

And who from the existing organization supported you further ?

Yah. This is a very important and interesting question, because this organization is focused on internationalization. So this is why we have opened several plants around the globe in the last years. So we have plants in China, we have plants in Brazil, we have plants in the US, in Hungary and so. So the whole organization has been participated until now, supporting our facilities. So we have had manufacturing engineering supporting us, process engineering, operations, quality. Also human resources and the board of Camshafts have been involved in the area results and the needs that we have here. So I can practically say, that every single member in the organisation in Europe is aware of the company opening a plant in Mexico and in specifically they had the parameters of the area that I just mentioned, have been involved and have been sending people to Mexico, visiting us to follow up on the different installations and challenges that we are faced also here with the customer. 13.45

Great. And would you say this process is specific to the automotive industry ?

Yes. You mean the process that we will be installing or how. What do you mean ?

Yah. The set up process that you just described here.

The set up process that I described is is common in the automotive industry and I think is similar to some other industries. Not only automotive. But is very common in the automotive industry. 14.25

Ok. Ahm, how from your understanding, yah, there two terms there is ramp up and set up. What is the different station between the two terms for you ?

The set up is for my understanding what I described previously, that is the nomination from the customer and than the project administration, the site selection and so on. This is the script until we have the start of production. And the rump up is for me the curve that we have to follow according to the demands that I provided by the customers. So this is the ramp up. So is like we are restarting in November prior to November, we have to proof, get some up proofers of prototypes and some small production cards and than start with the ramp up until we reach the capacity that we were contracted to the labour. This is for me the ramp up. It is the curve how we will be achieving the volumes of the customer nominated to us. 15.49

And is this initial ramp up, is this part of the set up process for you, or is this occasion, or is this coming subsequently ?

No. I think the ramp up can also be seen as a part of a set up, because the purpose of a set up is to install the contracted capacity. And this is for why I say the ramp up is part of a set up. 16.19

Great. Thanks. And, what of those process steps of the set up, that you described me, which one do you think is the most critical ?

3 of 14

Appendix 16 Small-scale open-ended questionnaire.

DBAIG-Ops

Interview guide

For Operators: #_____; Date_____; Location_____

1 Personal introduction to the interviewee
2 Create understanding what and why the interview is done with him/her
3 Go through DBAIL to ensure confidentiality, voluntarity, and to accept usage of the interview contents in an anonym form in my thesis ☐

4 General comments / ideas / things to consider
   a. Use Open questions: how, why, what do you think?, how have you experienced…?, please describe..., etc.
   b. One idea per question only
   c. Be specific, less generic

Appendix 16 continued

5 Interview questions and comments

a. General questions

- What is your name?
- What is your job title?
- What is your work?
- How long to you work for the company?

b. Question I: Interviewees personal experience and view on their training process

Description

Get an open feedback from the interviewee about how he or she experienced their training process. Create an open atmosphere to get the participant into talking. Dig a little bit deeper concerning how the training was done (e.g. job shadowing, manuals, theoretical preparation)

Questions/Probes

- What happened, when you entered the company / on your first days in the job?
- How have you experienced your onboarding/training process?
- How was the preparation for your job?
- What did you have to learn in order to perform your job properly?

Comments/Notes

Appendix 16 continued

c. Question II: Details about the training process

Description

Understand what kind of methods and materials were used to train the interviewee for this or her job. Analyse which job functions, from which country and which hierarchical levels were involved in the training process.

Questions/Probes

- Who showed you how to do your job?
- Where were they from? / Which language did they speak? / What job level did they have?
- What did this/these person/s do to show you how to do your future job?
- Which kind of instructions/manuals did they use?

Comments/Notes

Appendix 16 continued

d. Question III: Personal interviewee evaluation of the training process

Description

Receive feedback on what was good about the onboarding/training process and what could have been done better/different to meet the needs of the worker better. Uncover whether the interviewee had the feeling that the training was designed to his or her needs and whether they have been involved in the process by any means or not.

Questions/Probes

- What was good about your training process?
- Did you miss anything? / What further training / information / knowledge would you have needed to perform your job even better from the start?
- How would the perfect training have looked like for you?
- How was your personal situation considered to design the training process?

Comments/Notes

Appendix 16 continued

6 Thank you for your time and answers

Next steps

7 Transcription process is following the interview

8 Use findings in the analysis and presentation of my doctoral thesis

Appendix 17 Interview guide for shop floor employees.

DBAIG-Ops

Interview guide

For Operators: #_____; Date_____; Location_____

1 Personal introduction to the interviewee
2 Create understanding what and why the interview is done with him/her
3 Go through DBAIL to ensure confidentiality, voluntarity, and to accept usage of the interview contents in an anonym form in my thesis ☐

4 General comments / ideas / things to consider
   a. Use Open questions: how, why, what do you think?, how have you experienced…?, please describe..., etc.
   b. One idea per question only
   c. Be specific, less generic

page 1 of 5 18.06.2018

Appendix 17 continued

5 Interview questions and comments

a. General questions

- What is your name?
- What is your job title?
- What is your work?
- How long to you work for the company?

b. Question I: Interviewees personal experience and view on their training process

Description

Get an open feedback from the interviewee about how he or she experienced their training process. Create an open atmosphere to get the participant into talking. Dig a little bit deeper concerning how the training was done (e.g. job shadowing, manuals, theoretical preparation)

Questions/Probes

- What happened, when you entered the company / on your first days in the job?
- How have you experienced your onboarding/training process?
- How was the preparation for your job?
- What did you have to learn in order to perform your job properly?

Comments/Notes

Appendix 17 continued

c. Question II: Details about the training process

Description

Understand what kind of methods and materials were used to train the interviewee for this or her job. Analyse which job functions, from which country and which hierarchical levels were involved in the training process.

Questions/Probes

- Who showed you how to do your job?
- Where were they from? / Which language did they speak? / What job level did they have?
- What did this/these person/s do to show you how to do your future job?
- Which kind of instructions/manuals did they use?

Comments/Notes

Appendix 17 continued

d. Question III: Personal interviewee evaluation of the training process

Description

Receive feedback on what was good about the onboarding/training process and what could have been done better/different to meet the needs of the worker better. Uncover whether the interviewee had the feeling that the training was designed to his or her needs and whether they have been involved in the process by any means or not.

Questions/Probes

- What was good about your training process?
- Did you miss anything? / What further training / information / knowledge would you have needed to perform your job even better from the start?
- How would the perfect training have looked like for you?
- How was your personal situation considered to design the training process?

Comments/Notes

Appendix 17 continued

6 Thank you for your time and answers

Next steps

7 Transcription process is following the interview

8 Use findings in the analysis and presentation of my doctoral thesis

Appendix 18 Introduction letter and non-disclosure agreement for shop floor participants.

DBAIL

Introduction letter

1 Goal and purpose of the research
   a. The participant has been informed about the goal of the research. Target, objectives and research problem have been explicitly communicated.
   b. Purpose of the research has been communicated sufficiently.

2 Voluntary participation
   The participant has been informed by the researcher that the participation in this research is voluntarily. It further has been explained that the participant has at all times the right to request the deletion of information from the further research process.

3 Interview process and data analysis
   The researcher is allowed to follow the following research process:
   a. Interview: tape recording of the interview is granted.
   b. Transcription: the researcher is allowed to hand the gathered information to a certified transcription service, under the consideration of points 4 and 5 of this agreement.
   c. The interviewee herewith approves the usage of the interview content in anonymised form by the researcher.

4 Confidentiality
   a. All data concerning the research, in any form, is stored on a dedicated, password secured external hard drive. Access is only possible for the researcher.
   b. After finishing the research, the data will be kept confidential on the same hard drive in a secure location.

5 Anonymity
   At no time names or clues to participants are going to be stated in any official document (e.g. paper, doctoral thesis). The anonymity of the participants is of the utmost interest for the researcher.

Researcher			Participant		
Christian Bechtle					
Name	Date	Signature	Name	Date	Signature

page 1 of 1 18.06.2018

Appendix 19 Example of a shop floor interview transcript.

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: He joined our company in November 2015, and he is operator in our company now.

Interviewer: Okay. Great. If he then can explain what he remembers from his first training on boarding process.

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: He received the training about the safety and the system from our quality colleague, and the production introduction from the production manager, at that time was Christian, and some other training from human resource.

Interviewer: How was the training done?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: Mostly, I used a presentation documents.

Interviewer: Did he like it in this way?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: It is really normal but not so good, he thinks, to give some presentation directly through the PPT PowePoint files and the presenters shows and they sit down to see something.

Interviewer: What would be better, in his opinion?

Interpreter: [foreign language]

Interviewee: [foreign language] Sorry.

Interpreter: He cannot think of any better solution but only the presentation cannot solve problem on site.

Interviewer: How was he introduced to solve problems on site?

Interpreter: [foreign language]

Interviewee: [foreign language]

File name: Operator 9.m4a

1

Appendix 19 continued

Interpreter: The training methods could be, first, the old employees instructs the new employees. Second, the engineers train the operators on site, in workshop. The third, now we have 5S training, so the trainees could ask questions and they solve together.

Interviewer: This is what has happened, right?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: Yes.

Interviewer: This process was better than the presentation?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: The practicals operations on site is better than presentation in a room.

Interviewer: Why is that?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: The presentations is only about listen and see, but the practical operation training is about the "do". It will also enhance the training feeling-

Interviewer: Okay.

Interpreter: -and up through the simulation.

Interviewer: He said that, for instance, Christian **[unintelligible 00:07:31]** did the production training, right? Did he do it in Chinese or in English?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: At that time, there were the translator for Christian.

Interviewer: Does he think that having all the trainings in Chinese is important?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: It is relatively important to have training in Chinese. Currently, we have a training by a German colleague, but it is always not so smooth in the communication. No matter if there's a translator or not, always not so smooth.

File name: Operator 9.m4a

2

Appendix 19 continued

Interviewer: What is not so smooth?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: It is not so smooth mainly about the communication. For example, when you have a translator in the training, but there're always some-- but he could fear. There are some misunderstandings from the trainer and the trainees with the translator. Another example with that, when he asked the questions to the trainer, the reaction of the trainer is different from what he thinks. It's different and he asks again, again and again to confirm, so the trainer maybe gets a little bit angry.

Interviewer: Does he think the trainer getting angry is only because you wanted to confirm his question, or could this also be a cultural issue?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: The main reason to get a little bit angry could be the time limit. Because they only have their business trip or for a determined time period. Also, it is normal to do things repeatedly, several times. The repeating could make a person a little bit feel not so good.

Interviewer: Yes, pretty good points. I think then, if he would have to design his training process, how would it look like? If he has all the time and budget, whatever he needs, how would he design his training process?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: They'd actually let a Chinese engineer to do the training.

Interviewer: Would it makes sense, from his opinion, also to receive training in Dalian **[unintelligible 00:14:20]**, traveling to Dalian?

Interpreter: [foreign language] He never went to Dalian.

Interviewer: Yes, but would this be an option for him, to get training there.

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: Training content? What is the training content in Dalian?

Interviewer: No, I mean, if he would join the company, and if it would then send him to Dalian to get the basic training, everything he already got basically to show him

File name: Operator 9.m4a

3

Appendix 19 continued

there. In the beginning, when he joined the company, if that would have been a good process from his point of view.

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: It might be better if he travelled to Dalian for training, but he's never been in Dalian, so it is hard to say. But from another point, it might be not so necessary to travel to Dalian for training because he joined our company in 2015. At that time, our company business is relatively stable, so, maybe no need to go to Dalian especially.

Interviewer: Does he have any questions?

Interpreter: [foreign language]

Interviewee: [foreign language]

Interpreter: Your doctor says-- Doctor Abait?

Interviewer: Yes.

Interpreter: Doctor Abait talked about the training, the main topic?

Interviewer: Yes, it's basically the knowledge transfer to new locations in ramp up, when they get to build up. I want to see how the training is then structured because we had some starting problems with scrap rate, getting operations up and running, and I want to see whether there could be an issue and see how perhaps you can solve that. He is one part perhaps of answering this question.

Interpreter: [foreign language] Will you design a solution after your doctor?

Interviewer: Hopefully.

Interpreter: [foreign language]

Interviewer: That's the big call, but I don't know yet.

Interpreter: [foreign language]

Interviewee: [foreign language]

Interviewer: Thank you very much.

[00:18:26] [END OF AUDIO]

File name: Operator 9.m4a

4

Appendix 20 Features to consider when comparing qualitative data analysis software.

Ease of integration in using the program

- Is it easy to use in getting started?
- Can you easily work through a document?

Type of Data the Program Will Accept

- Will it handle text data?
- Will it handle multimedia (image) data?

Reading and Reviewing Text

- Can it highlight and connect quotations?
- Can it search for specific text passages?

Memo Writing

- Does it have the capability for you to add notes or memos?
- Can you easily access the memos you write?

Categorization

- Can you develop codes?
- Can you easily apply codes to text or images?
- Can you easily display codes?
- Can you easily review and make changes in the codes?

Analysis Inventory and Assessment

- Can you sort for specific codes?
- Can you combine codes in a search?
- Can you develop a concept map with the codes?
- Can you make demographic comparisons with the codes?

Quantitative Data

- Can you import a quantitative database (e.g., SPSS)?
- Can you export a word or image qualitative database to a quantitative program?

Merging Project

- Can two or more researchers analyse the data, and can these analyses be merged?

Source: Adapted from Creswell & Maietta, 2002, pp.143-184, as cited in “Qualitative Inquiry and Research Design: Choosing Among Five Approaches” by Creswell, 2012, p. 210. Copyright 2012 by SAGE Publications.

Appendix 21 Coding methods offered by Saldana (2012).

Category	Coding method
	First cycle coding
Grammatical methods	Attribute coding Magnitude coding Subcoding Simultaneous coding
Elemental methods	Structural coding Descriptive coding In Vivo coding Process coding Initial coding
Affective methods	Emotion coding Values coding Versus coding Evaluation coding
Literary and language methods	Dramaturgical coding Mtif coding Narrative coding Verbal exchange coding
Exploratory methods	Holistic coding Provisional coding Hypothesis coding
Procedural methods	Protocol coding OCM (Outline of Cultural Materials) coding Domain and Taxonomic coding Causation coding
Theming the Data	
	First to second cycle coding method
Eclectic Coding	
	Second cycle coding methods
Pattern coding Focused coding Axial coding Theoretical coding Elaborative coding Longitudinal coding	

Source: Adapted from “The coding manual for qualitative researchers” by Saldaña, 2013, p. 59 Copyright 2013 by Johnny Saldaña.

Appendix 22 Findings matrix based on the 4 expert interviews.

level 1 node	overall level 1	BR level 1	CF level 1	CN level 1	MX level 1
content	Content is information that is: cumulable, stackable, available in written format, easy to transfer, provided for a specific purpose, and can be part of the knowledge a person is carrying. In the format of technical information, content is: very specific, distinct, requires time to acquire, and is not randomly available. The availability for new locations in set-up depend on the personal relationships. Although being easily shared, transferring content to knowledge requires time and consideration of the local context. Group wide standards support a faster implementation locally. Nonetheless, an appropriate amount of time for successfully transferring content into knowledge to a new location in set-up is required. However, not accordingly considered in the set-up planning.	Content is collected knowledge that is provided in form of information and as such available to be transferred. This information is important and required for the new locations in set-up as the technical knowledge for the production equipment is complex and very specific. To transfer it properly a thorough communication plan needs to be in place, which was in the case of Brazil not prepared.	Information serves as a basis to create knowledge in another location. Copying equipment and their information is easy. However, transferring this information to the newly hired shop floor employees and implement it as knowledge requires training. Training however needs to start from the very basics, due to different context factors, e.g. educational standard compared to Germany.	Global definitions, standards, and the availability of theoretical content in form of information increase the speed of setting-up a new foreign location. Availability of information however, depends on personal relationships throughout the organization. For the transfer of the content an appropriate amount of time is required and further time to build up experience on the shop floor level. Although this is known, not enough time or budget is accounted for in the set-up plan of the new location.	Information is gathered data and prepared for a specific purpose. The complexity of their content is high during a set-up, because multiple process start in parallel.
context	Local belief system, mental models, way of feeling, family, spoken and written language, style of communication, and educational system are context factors that need to be considered when planning for IKT. Besides: goals, expectations, and objectives have to be clearly defined for all participating parties in the IKT. Professional translating capacities and appropriate time for training have to be accounted for in the budget and set-up planning. This is not done so far, although known.	Brazil as a sentimental country requires appropriate communication skills. Foreigners need to learn the country language and new personnel needs to learn the internal, organizational language. Public school system is very bad. Theory is taught to a very limited level only and practical experience is not gathered at all.	The local belief system and mental models need to be understood to accordingly define how communication goals and expectations towards IKT can be reached. Integration needs to be bidirectionally accomplished: locally and organizational. Locally, the educational system needs to be understood in detail to understand the educational standard of shop floor emplyoees and the required qualification measures the organization needs to prepare for on.boarding of these new shop floor employees. For IKT a certain budget for translations and onsite translators is required. Further, trainers from abroad need to be able to communicate appropriatelly locally.	Chinese do not like to ask questions nor like to share their knowledge. Further, poor language capabilities result in written communication leaving understanding gaps open. For IKT high technical translation capabilities for manuals but als onsite trainings is required. Due to budget restrictions these options are not considered. Lastly, educational background for new shop floor employees can be very divers. For this, it is crucial to undertand the local eductional standards. The organization has to prepare accordingly for bottom-up trainings.	If not communicated in an apprciative manner, shop floor employees feel offended. For better communication local personnel has to learn the organizational language. The local educaitonal standard needs to be understoof to identify relevant shop floor employees qualification measures requred to be arranged by the organization. As educational level is rather low a longer periode for shop floor personnel qualification needs to be considered. Although this is known, it is not considered accordingly in any planning.
definitions	Information is input or part of a persons knowledge. It can or cannot be helpful to perform the required job role. Information is the transfer process between two participants. Ist quality and accessibility depends on relationship(s). Knowledge is a repository of information and experiences acquired by a person on a specific topic. It is developing through the input of further information and made experiences by application. Knowledge is required to reach the goal of any process or project. However, there is no clear differentiation between knowledge and information.	Information is a flow used to transfer information from one side to another. Information is part of the knowlegde a person has. Knowledge is information, which was accumulated by a single person. This knowledge is developing by the input of information and by application of the knowledge already held. There is no clear differentiation between the terms information and knowledge.	Information is the awareness that something exists, which can or cannot be helpful for performing your job role. Information further is input for knowledge. Knowledge is a repository of information about a certain subject combined with a process of experiences. Knowledge can be of technically (learned) and/or experientially acquired.	Information can or cannot be useful. If it is not useful it is rather recognized as background noice and does not support someone in performing their job. It is knowledge if a person knows how to do something. Further knowledge is information required to reach the goal of any project or any process that a person wants to do.	Information is part of someones knowledge. Information comes from different sources and has various qualities. Knowledge is information that is carried by a person. It builds the theoretical background for the practical implementation of any task. However, needs to be supported by information.
employee	New shop floor employees are not well prepared by the available educational system. The organization is required to build-up basic production knowledge. For relationship building direct personal contact with the shop floor employees over a longer period of time by foreign experts is required. The experts are further required to understand, respect, behave appropriately to according local standards, and use simple media for knowledge transfer. At the moment the IKT process is not a planned process. Especially, because involved persons do not know their role, which leads to a loss in productivity during the set-up phase. For the central training function it is however clear that a process planning and preparation of everyone involved in the	Shop floor personnel in Brazil is not well educated, which hinders new shop floor employees to even perform simple tasks. Participation in IKT is also not possible, as basics are missing for a proper understanding. For this, motivation for employees to participate in IKT requires prior basic training. Experts that train locally need to understand and respect local habits and way of living and need to be able to communicate and behave appropriately according to local manners. Further, for a good relationship building personal meetings on-site are required for Brazilians. For trainings simple and easy media should be used to increase acceptance and knowledge stickability by the new shop floor employees.	New shop floor employees need to be mentally prepared for training, especially for training abroad. Excitement for participation in IKT can be created through linking the IKT to the future organizational success of the shop floor employees. In order to understand what IKT is required the local educational system needs to be understood in detail prior, e.g. by involving a subject matter specialist with experience in dealing with this kind of situations. Internally, the whole organization and especially acting persons, e.g. knowledge experts, within the IKT process need to be prepared. Especially in appropriate local communication through a communication strategy including communication trainings. For the local entity it is crucial to have access to relationships	Chinese employees are not used to ask for help, are reluctant to share their knowledge and experience, are reluctant to get in touch with colleagues, and are not necessarily behaving respectfully towards each other, when required to share their knowledge with each other. For a successful IKT lasting and stable personal relationships are required. These can be achieved by on-site trainings, which generate trust and motivation. Knowledge holders from established locations or from a central function are accepted more and more the longer they remain at the new location and with the new shop floor employees. As a preparation for IKT, fundamental basics need to be created through appropriate frontloading with enough time for basic training.	Shop floor employees are challenged during a set-up process as multiple tasks are started in parallel. Motivation of local workforce remains high through long-term, local participation of central functions or experts from existing plants to support the set-up process. Local shop floor employees then feel valued from the organization. However, freedom and trust in the new location are created by a balanced control taking by central functions in the new location. Required IKT needs to be thoroughly prepared beforehand by the central functions and missing educational standards and missing experience of the new shop floor employees needs to be considered accordingly. Time is required to build up required basic skills, especially for shop floor employees.

Appendix 22 continued

level 1 node	overall level 1	BR level 1	CF level 1	CN level 1	MX level 1
	IKT process is required. Employees can be motivated by linking the IKT process with the impact of the shop floor employee to the local organizational success in the future. Chinese shop floor employees do not like to ask for help, are reluctant to share their knowledge, and are reluctant to get in touch with each other without a proper and stable relationship existing.		within the organization in order to get IKT going. If these relationships are not available, knowledge holders cannot be identified, thus knowledge not shared, which leads to a loss in productivity as the local unit invents available knowledge for themselves.	IKT is a not planned process, which leads to inefficient IKT, transfer of wrong knowledge, requirement for retraining, and in a loss in productivity. Not only the process is not planned, also acting employees within the IKT do not know or understand their role(s).	Knowledge experts that should train local shop floor employees need to understand local communication standards, need to be methodologically equipped, use appropriate media, and need to get in direct contact with the shop floor employees to build up a required, trustful relationship for IKT. If shop floor employees are trained abroad in an existing location they require the full service arrangement, as for most of them it is probably the first and last time for this kind of travels.
organization	Before IKT can take place a thorough site selection to identify the best location to supply the customer needs to be conducted considering: official incentives, labour availability and qualification, and safety standards. The adjacent site planning needs to be done very thoroughly as failures here might result in huge problems in later stages of the set-up process. To ensure as little failures in the planning as possible prior experiences from former greenfield projects should be reviewed and the findings appropriately considered. During the following set-up multiple processes are performed simultaneously with sometimes interfering goals. The initial ramp-up of production to the required volume concludes the set-up process. The IKT process needs a clear strategy and a planning beforehand: skill level, abilities, and talent of local potential new shop floor employees; definition of required skill levels; resulting in preparation of basic training with hands-on orientation; on-site support by functions; identification of relevant knowledge holders; planning and reservation of relevant resources concerning personnel and budget; definition of proper timing within the set-up process for IKT; consideration of employee feedback during the IKT; usage of appropriate media; training material needs to be available in local language; translator(s) need to be available for IKT; and consideration of local learning preferences. For organizing the planning, execution, controlling the IKT process a dedicated full time equivalent would be required. At the moment there is no standard process for IKT available. Leadership has to give clear vision, directions, and objectives to ensure priority of the IKT process. By instituting an expat in the new local top management, leadership ensures that the new location is embedded in the overall existing organization. This is important to ensure contact with relevant experts and functional leaders to initiate IKT. IKT purchased from equipment suppliers requires clear definition of tasks and duties, target achievement control, and is not possible if not purchased to do it besides equipment installtion. In order to receive official incentives, the applicable requirements to obtain these incentives need to be fulfilled.	The organization has to ensure a thorough site selection process incl. benefits/incentives negotiation, check labour availability and qualification, and safety standards. During the construction of the new location the organization has to be prepared that multiple processes run in parallel with interfering goals. For the IKT process a plan needs to be prepared beforehand considering: creation of shop floor knowledge basis as local new shop floor employees are not prepared to receive high tech knowledge, clear definition of skill levels required on the shop floor, enough time for training at the equipment, long term on-site support of functional experts, money considered in the budget planning, proper timing for IKT, integration of employee feedback concerning IKT, and the usage of appropriate media for IKT – video conferencing is not an appropriate media. In order to identify relevant knowledge within the organizational group the new location needs to be well embedded in the organization to trigger needed IKT. Group leadership has to define a clear vision and direction resulting in strong functional support during the set-up process. Regional headquarterss in Brazil was too far away from the day-to-day business in order to support. They ended up in raising more demands than actually supporting the set-up process. Training purchased from the equipment supplier needs to be clearly defined and target achievement needs to be controlled and managed. If a training is not purchased from the supplier it is not possible to receive this knowledge “on the go” during the implementation of the equipment. Supplier is then focusing to get the machine running and not on the knowledge transfer.	The IKT process needs a clear strategy. This needs to be communicated, shared, and applicable goals need to be aligned throughout the existing organization. Nonetheless, the new location needs to be well embedded into the organization to identify relevant knowledge holders and prevent initial productivity losses and potential unnecessary costs due to reinventing available knowledge. In order to identify relevant knowledge and choosing the right training approach skill level, abilities, and talent of the new shop floor employees at the new location need to be considered and evaluated. Learning material needs to be available in local language, especially for shop floor employees. Further, a translator during IKT for shop floor topics is required. A well prepared IKT makes new employees feel welcome and motives them to engage in the new location. Local and overall leadership needs to set clear directives, objectives, and priority of IKT for all parties involved. This requires as well to free up the relevant resources on both sides of the IKT process. Financial requirements need to be considered in the budget planning. The new location has to pay special attention to official requirements to receive incentives for IKT.	During the site selection process, the best option to supply the customer needs to be identified as a future location. Mistakes made during the parallel prepared site planning could result in huge impacts in a later stage and need to be as low as possible. Nonetheless, during construction and equipment installation tasks and goals of both work streams might interfere with each other. A new greenfield should have in the top local management an expat, which is connected excellent in the existing organization network. Through these relationships relevant knowledge can be identified and IKT processes can be arranged easier. Nonetheless, a dedicated full time equivalent responsible for planning and overseeing the execution of the IKT would be required. However, so far this position is not available. The further required resources should be considered in the set-up planning. Costs for IKT should play a minor role and enough time for building required technical basics as well as for IKT on the shop floor should be considered. For the training plan preparation, the functional leadership should be responsible. Currently not done in this way. In China for IKT to be successful a personal relationship is required. In order to build a personal relationship knowledge expert, need to stay longer periods of time at the new location. With the creation of strong personal relationships cultural boundaries are overcome and Chinese people open up to ask questions or start asking for help. Before the actual training at the shop floor can take place basic training has to be considered as new shop floor employees have only limited practical and only rudimentary theoretical knowledge when entering the organization. IKT for shop floor employees further needs to be hands-on, required knowledge to be transferred should be prepared to local standards to be absorbed better, and should be planned with a supervised learning by doing approach. There was no preparation at the existing location to train new shop floor employees from the new location. Neither the existing location nor the new location felt responsible to plan the 6months on-site training.	For a new location a thorough site selection, layout and budget planning needs to be done. Mistakes during one of these processes could result in huge costs and problems later on. In order to avoid this, prior experiences from other greenfield projects should be considered and reviewed beforehand. The initial ramp-up of production to the required volume concludes the set-up process. For IKT leadership needs to set clear goals and objectives. The whole organization needs to know about the set-up plan in order to support appropriately. To get everyone aligned one kick-off meeting with all stakeholders in the IKT process should be held to explain the IKT process. Afterwards, the respective functional leaders need to ensure preparation, execution, and iterative checks for IKT. Although these requirements are known, there is no standard process for IKT available. For Mexico, it has to be considered that the receiving side needs prior preparation to receive knowledge in an IKT process. In order to receive incentives from official institutions the respective rules for documentation need to be followed.

Appendix 23 Findings matrix based on the shop floor interviews.

level 1 node	overall level 1	CN level 1	MX level 1
content	Before equipment was installed locally trainings at existing locations were realized and more theoretical training was provided than afterwards. With equipment available the new shop floor employees were trained theoretically in the first week using technical descriptions, training, and instruction manuals focusing on safety, quality, and production processes. The second week commenced with practical training at the equipment using guided learning by doing as methodology. New shop floor employees reported that the information provided in the first week was not enough and that they require more details on production processes and failure solving, as they struggled with these topics the most during the practical training. In the Mexican case it got clear that the practical training content depended on the equipment supervisor being responsible for the training of the new shop floor personnel.	During the first week theoretical information in form of training and instruction manuals on safety, quality, and production process are transferred. More information is wished for by the new shop floor employees, especially details on the production process and in problem solving. Understanding of technical terms requires English as not all terms can be translated to Chinese. The second week focuses on practical training, which is seen as more important by the new shop floor employees, as then the required knowledge for serial production is passed. However, it is also stated that it is not possible to let new shop floor employees work directly at the production equipment from the very start without any theoretical preparation. Approach for practical training is guided learning by doing.	During the very initial phase of the first shop floor employees entering the organization no production equipment was yet installed on the shop floor. This required to train the shop floor employees longer theoretically. This was not seen as optimal, however accepted. With equipment on-site new shop floor employees were equipped in the first week with theoretical basics. Prior knowledge provided by external, official qualification institutions was not sufficient, why additional basics had to be trained internally. Practical learning with guided learning by doing approach commenced in the second week of new shop floor employees entering the organization. Although theoretical basics were trained in the first week not the real required knowledge was available and new shop floor personnel struggled in dealing with failure solutions. Quality and details of the practical training process depended on the equipment supervisor responsible for the practical training of the new shop floor personnel.
context	In both cases external or official preparation of the shop floor employees is done in an only very basic manner. For this, the organization has to invest in basic and further training to become the new shop floor employees ready for working in highly automated production environments. For the trainings, in both cases time available for IKT, language and proper communication were hindrances and left understanding gaps. Chinese new shop floor employees felt not able to work fully independently, as they had to ask others for support in cases of failures or problems and they felt watched constantly by the supervisor and/or trainer. Mexican new shop floor employees felt offended by not proper ways of local communication.	New shop floor employees feel less independent, because they: are not able to solve equipment problems by themselves, but have to ask for help from others, and feel watched constantly by their supervisor or trainer. New shop floor employees entering the organization are prepared only very limitedly by official training institutions. They are not accustomed nor prepared to work in highly automated production process. For this, the local organization has to invest in the beginning in basic training. Although trainings by foreigners are technically and methodologically better, trainings done by local trainers is more successful. Trainings with foreigners are good to learn English. However, could be more practically oriented, timely not limited, under less pressure, and leave more room to ask questions.	In the IKT realized the communication was done in English. For both sides not their mother tongue. Resulting in problems in understanding after the IKT. Additional, communication in a not proper local way further lead to wrong understandings. New shop floor employees entering the organization require basic training as external or official training institutions only prepared the shop floor employees with the very basics. The required specific, operational knowledge needed to be transferred on the shop floor at the production equipment.
definitions	n/a	n/a	n/a
employee	Relationship building was easier and more successful with	New shop floor employees establish faster and better	Communication issues on the local shop floor during

Appendix 23 continued

level 1 node	overall level 1	CN level 1	MX level 1
	local trainers, as communication in the same language was possible. With foreign experts establishing a good relationship was tougher, due to experts being on-site a limited time only, language barriers, and local shop floor employees feel afraid to ask questions. With equipment suppliers in Mexico a relationship building was very hard, as no proper communication to local standards led to operational crashes at the machines. Curiously enough, equipment suppliers used German personnel for training of the new local shop floor employees, although, the equipment supplier has as well local personnel available. Awarding at the end of the training processes in China were remembered positively. However, different amount of trainings resulted in envy between the different employees. In general in both cases new shop floor employees wished for more time for training and for dedicated resources.	relationships with Chinese trainers, due to easier communication in the same language. Relationships to foreign trainers are hard to accomplish, due to limited time of the foreign trainers on-site and language barriers. Due to this, new shop floor employees are afraid to ask questions. Awarding after the trainings are remembered positively. Different amount of trainings leads to envy between the new shop floor employees.	equipment installation with equipment suppliers leads to uproar between supplier personnel and local production personnel. Reasons for this are no proper way of communication by the equipment supplier personnel and them acting as superior knowledge holder without involving the local workforce during production installation. Training provided by the supplier is seen ambivalent: one stated that enough time was available and good explanations were given. Others stated that not enough time was considered and only very limited and not detailed enough explanations were given. Training by the equipment supplier was done by German supplier personnel. Although, there was local supplier personnel available. Local operations training was not seen as successful, as the new shop floor employees had not reached the required skill level. Senior operators responsible for the practical training would leave the new shop floor employees alone without task to perform, in order to take care of another production process. More time for explanations on a lower production speed and dedicated training personnel is wished for by the new shop floor employees.
organization	Strategy for knowledge transfer was using internal existing locations, on-site trainings at the new location, external official institutions, and on-site trainings by equipment suppliers. The very first shop floor employees hired for the new local organization were qualified as multi-skill operators.	The overall strategy for IKT was using internal and external training possibilities. For internal possibilities trainings at existing sites as well as on-site trainings at the new location were realized. With individual trainings in the beginning, the goal was to train multi-skill operators. This changed to single	For training purposes existing locations as well as local internal and local external possibilities were used. Local external institutions build the very basic knowledge requirements. Specific training was given inter-organizationally. However, local training was preferred inter-

Appendix 23 continued

level 1 node	overall level 1	CN level 1	MX level 1
	This changed with the advancement of the set-up process of the new location to single process step experts. The training process was very similar reported: 1 on- boarding training in meeting room, 2 theoretical training in meeting room, 3 instructions at the machine; in the beginning put on and off parts from the machine, 4 do for themselves with instructor besides the operator, 5 do for themselves. China offered further steps for the shop floor employees to qualify for different production steps: 6 perform for roughly 1 year, 7 option to change production step for 3months, 8 evaluation form needs to be filled out by superior, 9 if positive, change to the other production step can be made; if negative, go back to their initial production step. In Mexico the details and content of the process described was depending on the supervisor responsible for the practical training part. In both locations the following functions were involved in the training of the shop floor employees: process engineering, quality, technicians, and experienced operators. Depending on the situation and the availability, the functions supported with personnel from existing sites or the headquarters. There was no timing plan provided to the shop floor employees. Shop floor employees in both locations reported to wish for more detailed training in the production processes and solving failures, dedication of resources for training, and to do training not in parallel to serial production. Supervisors in Mexico focused on production results rather than on training goals, leaving new shop floor employees with periods where they had nothing to do as the supervisor responsible for their training had to operate other machines.	production step expert training with the advancement of the set-up process. Training process looked as follows: 1 on-boarding training in meeting room, 2 theoretical training in meeting room, 3 instructions at the machine; in the beginning put on and off parts from the machine, 4 do for themselves with instructor besides the operator, 5 do for themselves and ask, if anything goes wrong, 6 perform for roughly 1 year, 7 option to change production step for 3months, 8 evaluation form needs to be filled out by superior, 9 if positive, change to the other production step can be made; if negative, go back to their initial production step. Involved functions in the shop floor IKT: process engineering, quality, technicians, and experienced operators. These functions either came as experts from existing locations or from central functions from the headquarterss. For all the trainings the new shop floor employees were never given a timing plan. Trainings by foreign internal experts were seen ambivalent at the shop floor: on the one hand as timely enough on the other hand not. Generally, new shop floor employees wished for more detailed training.	organizationally. By this, they train the local shop floor personnel on the serial production equipment, they can check during the training the set-up of the equipment and can make optimizations and the colleagues from the headquarterss get to know the new equipment that has been installed at the new location. Although stated training processes slightly differed from each other, the following process steps were identified as the main training steps: 1) senior operator shows and explains the necessary process steps, 2) the new employee has to perform under the instruction by the supervisor, 3) the new employee has to perform by himself with the supervision of the supervisor - only interfering if wrong handling or failures occur, 4) new employee operate by himself. The new shop floor employees wished for more time and that the trainer and themselves would be made completely available for training purposes. IKT at the equipment however, took place under serial production conditions. Senior operators, who were responsible for the training, focused on production results over training goals. Resulting in waiting time for the new shop floor personnel without any operational tasks.

Appendix 24 The eight "Big-Tent" criteria.

Criteria for quality (end goal)	Various means, practices and methods through which to achieve
Worthy topic	The topic of the research is: • Relevant • Timely • Significant • Interesting
Rich rigor	The study uses a sufficient, abundant, appropriate, and complex: • Set of theoretical constructs • Data and time in the field • Sample(s) • Context(s) • Data collection and analysis processes
Sincerity	The study is characterized by: • Self-reflexivity about subjective values, biases, and inclinations of the researcher(s) • Transparency about the methods and challenges
Credibility	The research is marked by: • Thick description, concrete detail, explication of tacit (non-textual) knowledge and showing rather than telling • Triangulation or crystallization • Multivocality • Member reflections
Resonance	The research influences, impacts, or moves particular readers or a variety of audiences through: • Aesthetic, evocative representation • Naturalistic generalizations • Transferable findings
Significant contribution	The research provides a significant contribution: • Conceptually/theoretically • Practically • Morally

Appendix 24 continued

	• Methodologically • Heuristically
Ethics	The research considers • Procedural ethics (such as human subjects) • Situational and culturally specific ethics • Relational ethics • Exiting ethics (leaving the scene and sharing the research)
Meaningful coherence	The study • Achieves what it purports to be about • Uses methods and procedures that fit its stated goals. • Meaningfully interconnects literature, research questions/foci, findings, and interpretations with each other

Source: Copied from "Qualitative Quality: Eight "Big-Tent" Criteria for Excellent Qualitative Research" by Tracy, 2010, p. 3-4. Copyright 2010 by SAGE Publications.

Appendix 25 Nodes in NVivo deriving from the first cycle coding of expert interviews.

Name	Memo Link	Files	References	Created On	Created By	Modified On	Modified By	
absorbe and apply issue		4	8	29.01.2018 20:48	CB	31.12.2018 11:31	CB	
administrative support		4	14	30.01.2018 20:36	CB	14.07.2019 10:51	CB	
approach superiors		2	3	05.02.2018 16:18	CB	11.03.2018 15:53	CB	
belief system		2	2	08.02.2018 17:20	CB	11.03.2018 15:49	CB	
benchmark		2	5	18.02.2018 11:09	CB	31.12.2018 11:30	CB	
business need		4	11	29.01.2018 20:31	CB	31.12.2018 11:31	CB	
challenge		3	5	11.02.2018 14:36	CB	31.12.2018 11:31	CB	
common goal		4	14	30.01.2018 23:16	CB	31.12.2018 11:31	CB	
communication		4	19	05.02.2018 16:58	CB	31.12.2018 11:30	CB	
community		1	2	08.02.2018 17:19	CB	11.03.2018 13:05	CB	
complexity		3	5	29.01.2018 20:33	CB	14.07.2019 10:51	CB	
construction		3	8	11.02.2018 14:55	CB	31.12.2018 11:30	CB	
consultant		3	3	08.02.2018 17:14	CB	31.12.2018 11:31	CB	
content		2	3	29.01.2018 20:53	CB	11.03.2018 13:05	CB	
copy process easy		1	2	29.01.2018 20:46	CB	31.12.2018 11:31	CB	
culture		4	10	05.02.2018 16:48	CB	31.12.2018 11:30	CB	
decision making		2	3	11.02.2018 14:52	CB	31.12.2018 11:30	CB	
definition of context		3	7	05.02.2018 16:48	CB	18.08.2018 17:41	CB	
desk research		1	1	29.01.2018 20:34	CB	11.03.2018 13:05	CB	
employee qualification		3	9	29.01.2018 20:38	CB	31.12.2018 11:31	CB	
equipment		3	9	11.02.2018 14:55	CB	31.12.2018 11:31	CB	
excitement		1	1	08.02.2018 17:03	CB	31.12.2018 11:31	CB	
expatriates		1	2	02.04.2018 18:46	CB	31.12.2018 11:30	CB	
expectation management		4	17	05.02.2018 16:41	CB	31.12.2018 11:30	CB	
expectations		3	19	05.02.2018 16:48	CB	02.04.2018 12:22	CB	
experience		4	20	29.01.2018 20:50	CB	31.12.2018 11:31	CB	
expert		4	18	29.01.2018 20:55	CB	31.12.2018 11:31	CB	
exporting		1	2	29.01.2018 20:43	CB	11.03.2018 13:05	CB	
family		1	4	11.03.2018 15:59	CB	02.04.2018 12:12	CB	
fear		2	2	08.02.2018 16:59	CB	11.03.2018 13:05	CB	
feedback		2	6	05.02.2018 15:58	CB	11.03.2018 15:56	CB	
financial		3	7	05.02.2018 15:51	CB	31.12.2018 11:31	CB	
freedom		1	1	02.04.2018 12:17	CB	02.04.2018 12:17	CB	
governmental affairs		1	1	11.03.2018 15:31	CB	31.12.2018 11:31	CB	
human factor		3	9	29.01.2018 20:43	CB	02.04.2018 11:59	CB	
incentives		1	3	29.01.2018 20:41	CB	11.11.2018 20:32	CB	
information		4	12	14.05.2017 21:09	CB	31.12.2018 11:31	CB	
interaction with customer		2	2	29.01.2018 20:32	CB	11.03.2018 13:05	CB	
job role		4	16	05.02.2018 16:49	CB	31.12.2018 11:31	CB	

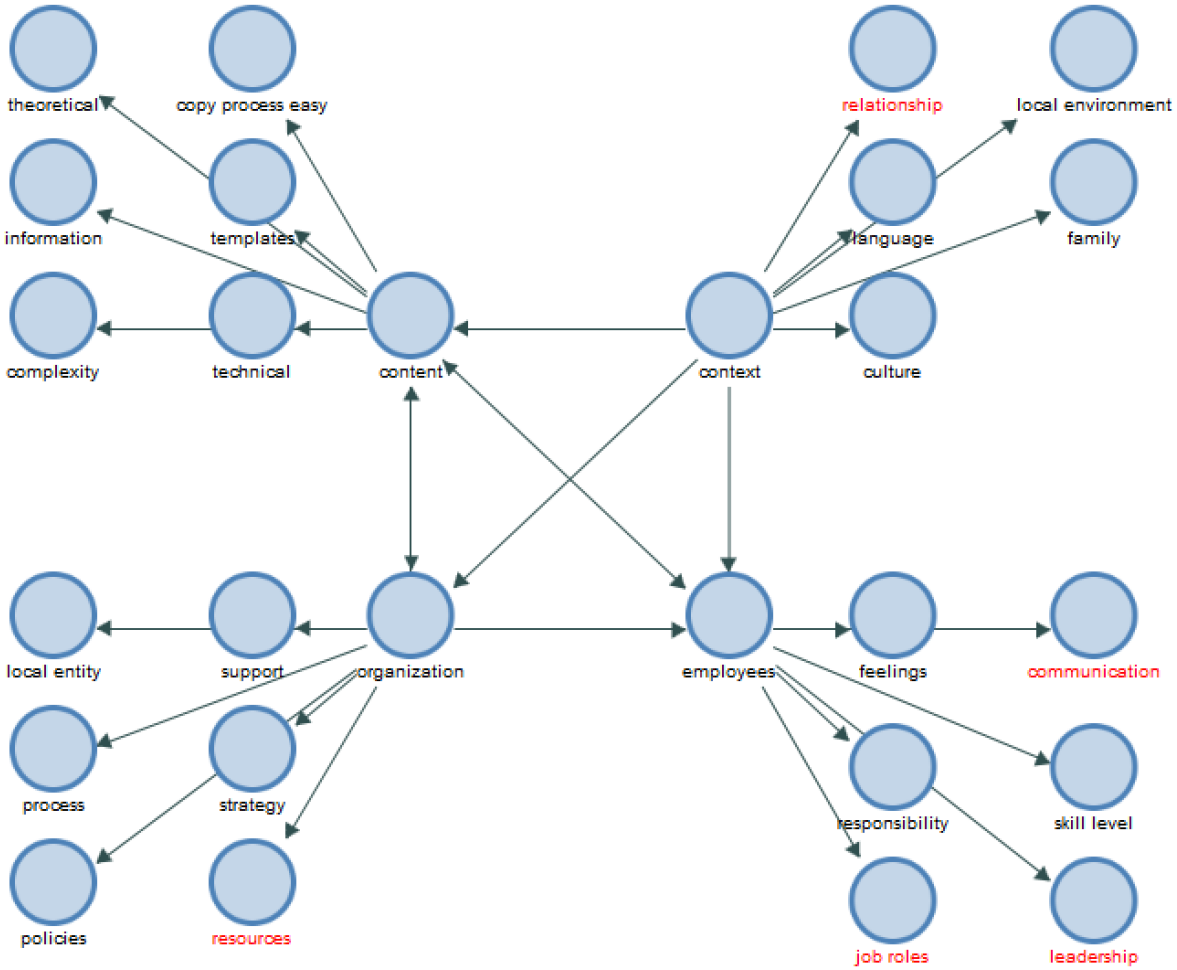
Appendix 25 continued

knowledge		4	8	14.05.2017 21:29	CB	31.12.2018 11:31	CB	
knowledge transfer		2	2	29.01.2018 20:53	CB	05.03.2018 20:20	CB	
lack of interest		3	8	18.02.2018 11:22	CB	31.12.2018 11:30	CB	
language		4	26	29.01.2018 20:51	CB	02.04.2018 18:43	CB	
law		1	1	18.02.2018 13:34	CB	18.02.2018 13:34	CB	
leadership support		4	33	29.01.2018 20:56	CB	31.12.2018 11:30	CB	
learning by chance		2	4	29.01.2018 21:01	CB	02.04.2018 18:42	CB	
learning by observation		3	3	05.02.2018 16:25	CB	31.12.2018 11:30	CB	
level		2	6	18.02.2018 11:10	CB	02.04.2018 15:13	CB	
limited time capacity		4	10	29.01.2018 20:55	CB	02.04.2018 18:42	CB	
local conditions		4	14	29.01.2018 20:35	CB	31.12.2018 11:31	CB	
local market focus		1	1	29.01.2018 20:40	CB	11.03.2018 13:05	CB	
local mediator_translator		2	4	18.02.2018 13:50	CB	31.12.2018 11:31	CB	
local school system		4	17	29.01.2018 20:36	CB	31.12.2018 11:31	CB	
media		4	8	29.01.2018 20:53	CB	31.12.2018 11:31	CB	
mental models		3	5	05.02.2018 16:51	CB	11.03.2018 15:49	CB	
mind-set of the people		4	14	05.02.2018 16:48	CB	31.12.2018 11:30	CB	
motivation		3	13	18.02.2018 11:41	CB	31.12.2018 11:30	CB	
no clear strategy		4	11	08.02.2018 17:14	CB	31.12.2018 11:31	CB	
organizational framework		2	5	08.02.2018 17:04	CB	31.12.2018 11:31	CB	
organizational integration		4	22	08.02.2018 17:23	CB	14.07.2019 10:51	CB	
physical environment		3	5	05.02.2018 16:50	CB	02.04.2018 15:04	CB	
prejudices		4	5	05.02.2018 16:43	CB	02.04.2018 14:57	CB	
preparation as mentor		4	15	29.01.2018 20:59	CB	31.12.2018 11:31	CB	
prepare own learning material		1	3	29.01.2018 21:00	CB	11.03.2018 13:05	CB	
prior experience		4	12	05.02.2018 16:48	CB	31.12.2018 11:30	CB	
priority		3	5	05.02.2018 16:11	CB	31.12.2018 11:30	CB	
proactive		2	4	02.04.2018 12:07	CB	02.04.2018 18:40	CB	
process		4	32	05.02.2018 16:28	CB	31.12.2018 11:31	CB	
ramp-up		1	2	11.03.2018 15:36	CB	31.12.2018 11:30	CB	
receiver		2	2	29.01.2018 20:53	CB	31.12.2018 11:31	CB	
reduce risk for failure		2	2	29.01.2018 20:49	CB	02.04.2018 18:41	CB	
reflection		3	3	05.02.2018 16:46	CB	02.04.2018 18:43	CB	
relationship		4	17	08.02.2018 17:21	CB	31.12.2018 11:31	CB	
resources		2	3	05.02.2018 15:51	CB	31.12.2018 11:30	CB	
sender		1	1	29.01.2018 20:53	CB	11.03.2018 13:05	CB	
set-up		1	3	11.03.2018 15:35	CB	31.12.2018 11:30	CB	
site planning		2	11	05.03.2018 20:09	CB	31.12.2018 11:31	CB	
site selection		3	6	11.02.2018 14:53	CB	31.12.2018 11:31	CB	

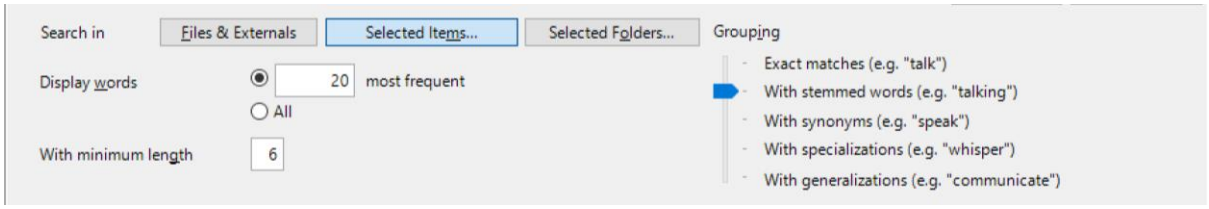
Appendix 25 continued

specific		1	1	02.04.2018 15:09	CB	02.04.2018 15:09	CB	
staffing		2	5	11.03.2018 15:27	CB	31.12.2018 11:30	CB	
supplier		1	2	18.02.2018 11:17	CB	31.12.2018 11:30	CB	
supporting functions		3	7	14.02.2018 19:43	CB	31.12.2018 11:31	CB	
task description		2	4	29.01.2018 20:58	CB	11.03.2018 15:47	CB	
technical knowledge		4	17	30.01.2018 20:37	CB	31.12.2018 11:31	CB	
templates		1	2	05.03.2018 20:16	CB	31.12.2018 11:31	CB	
theoretical		3	4	11.02.2018 14:30	CB	31.12.2018 11:31	CB	
time		4	20	05.02.2018 15:51	CB	31.12.2018 11:31	CB	
transparency		1	2	05.02.2018 16:08	CB	11.03.2018 13:05	CB	
trust		2	3	02.04.2018 12:17	CB	31.12.2018 11:30	CB	
uncertainty		1	1	05.02.2018 17:24	CB	11.03.2018 13:05	CB	
understanding of role		4	21	05.02.2018 16:59	CB	31.12.2018 11:31	CB	
workforce not valued		2	2	29.01.2018 20:33	CB	02.04.2018 18:29	CB	
workforce valued		3	8	29.01.2018 20:57	CB	02.04.2018 12:09	CB	

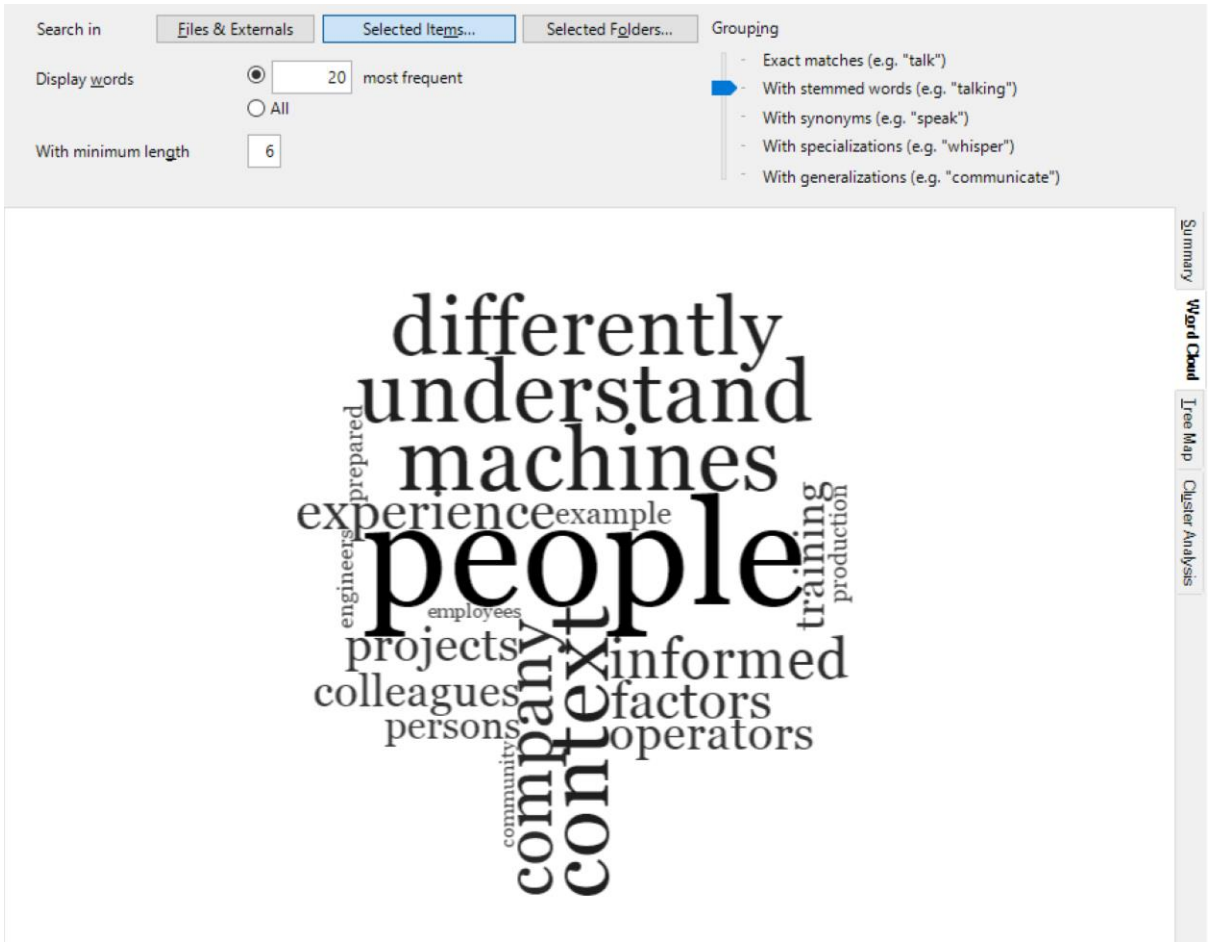
Appendix 26 *Level 1* and *Level 2* preliminary nodes hierarchy.



Appendix 27 Settings and results for word cloud analysis using 20, 30, and 50 most used words.

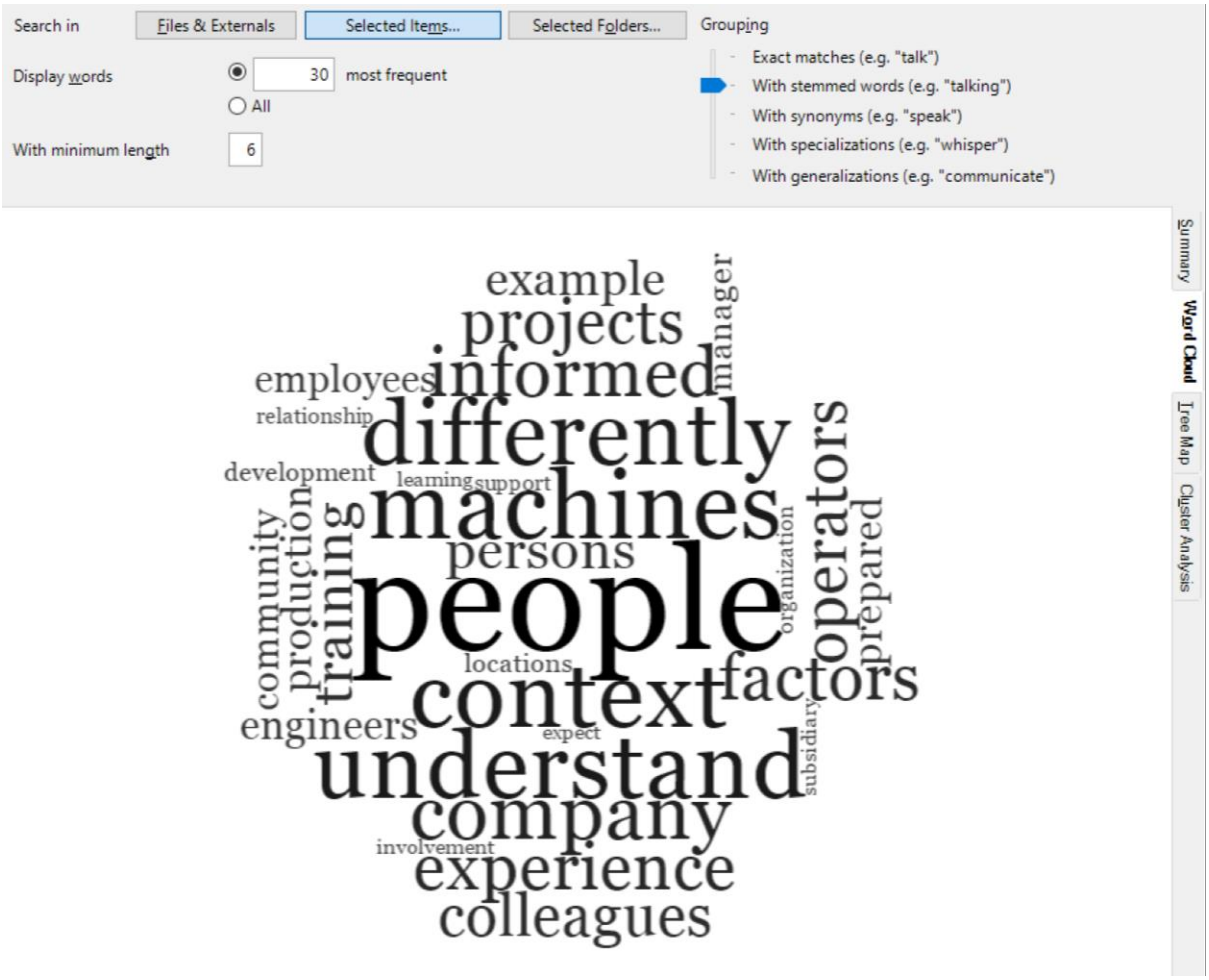


Note: Settings used for the following 'word could analysis' in NVivo. Changing factor for the different word clouds: "Display words". Basis for analysis were four expert interviews including the interviewer's passages.



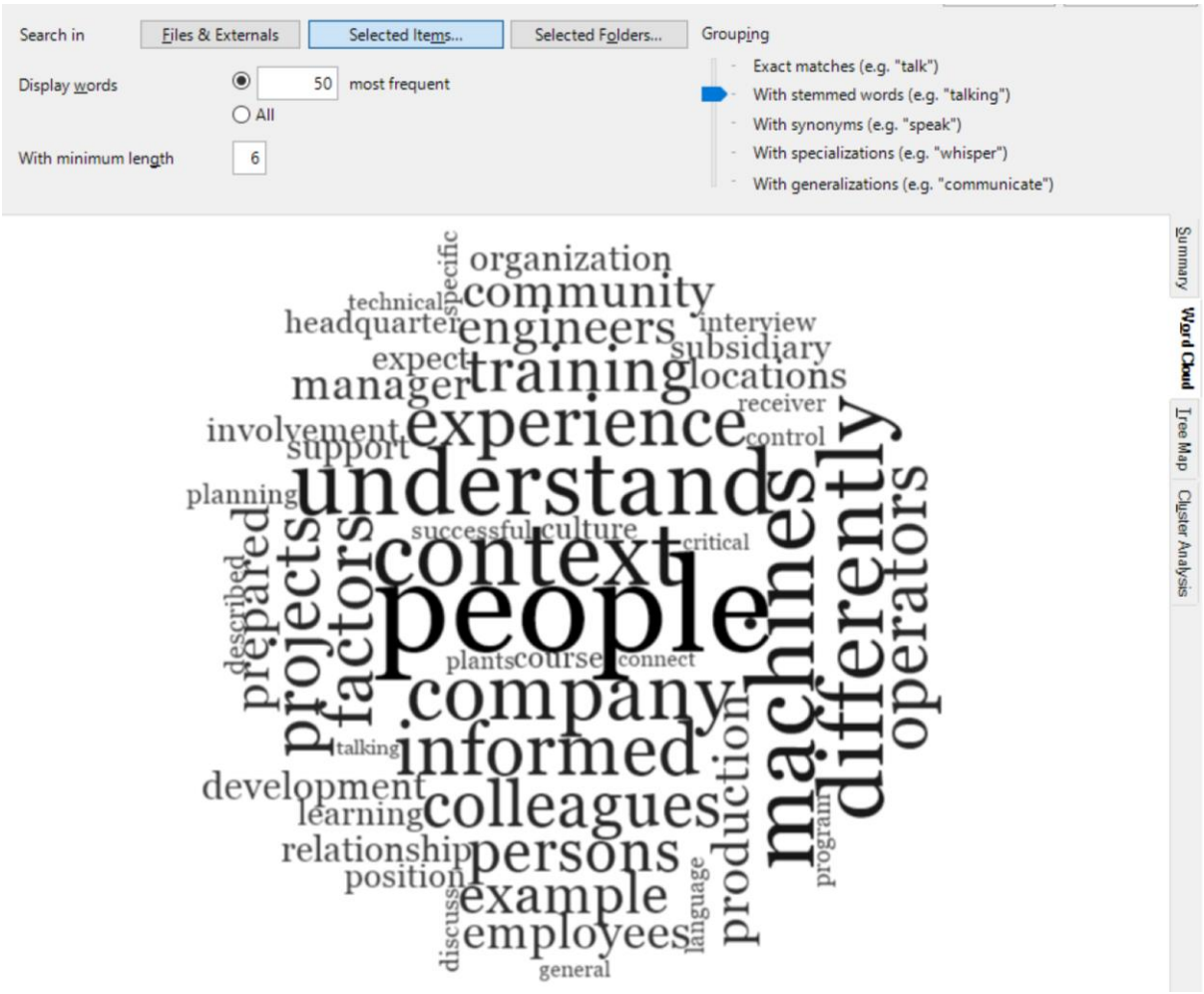
Note: "Display words" = 20.

Appendix 27 continued



Note: "Display words" = 30.

Appendix 27 continued



Note: “Display words” = 50.

Appendix 28 Categorizing themes using code landscaping implemented in Excel.

Word	Similar Words				
people	people				
machines	machine, machines				
company	companies, company				
differently	differ, differed, difference, differences, different, differently, differs				
understand	understand, understandable, understanding, understands				
experiences	experience, experiences				
colleagues	colleague, colleagues				
informed	inform, informally, information, informations, informed, informing				
training	trained, training, trainings				
persons	person, personable, personal, persons				
operators	operate, operating, operation, operational, operations, operator, operators				
example	example, examples				
context	context, contexts				
production	product, production, productive, productivity, products				
engineers	engine, engineer, engineering, engineers				
preparing	preparation, prepare, prepared, preparing				
employees	employee, employees				
community	communal, communicate, communicates, communicating, communication, communicative, communities, community				
development	develop, developed, developing, development				
locations	located, location, locations				
			RQ1	RQ2	RQ3	# sub-notes
people	people		x	x		6
organization	organization		x	x		4
context	context			x	x	3
experience	experience		x	x	x	4
preparation	preparation		x	x	x	2
understanding	understanding			x	x	1
						20

Note: “Display words” = 20.

Word	Similar Words				
people	people				
machines	machine, machines				
company	companies, company				
differently	differ, differed, difference, differences, different, differently, differs				
understand	understand, understandable, understanding, understands				
experiences	experience, experiences				
colleagues	colleague, colleagues				
informed	inform, informally, information, informations, informed, informing				
training	trained, training, trainings				
persons	person, personable, personal, persons				
operators	operate, operating, operation, operational, operations, operator, operators				
example	example, examples				
context	context, contexts				
production	product, production, productive, productivity, products				
engineers	engine, engineer, engineering, engineers				
preparing	preparation, prepare, prepared, preparing				
employees	employee, employees				
community	communal, communicate, communicates, communicating, communication, communicative, communities, community				
development	develop, developed, developing, development				
locations	located, location, locations				
managers	manage, managed, management, manager, managers				
projects	project, projects				
support	support, supported, supporting, supports				
learning	learned, learning, learns				
course	course				
culture	cultural, culture, cultures				
factor	factor, factors				
expect	expect, expectation, expectations, expected, expecting				
organization	organization, organizations, organize, organized, organizing				
position	position, positions, positive				
			RQ1	RQ2	RQ3	# sub-notes
people	people		x	x		8
organization	organization		x	x		6
context	context			x	x	5
experience	experience		x	x	x	4
preparation	preparation		x	x	x	5
understanding	understanding			x	x	1
support	support				x	1
						30

Note: “Display words” = 30.

Appendix 28 continued

Word	Similar Words
people	people
machines	machine, machines
company	companies, company
differently	differ, differed, difference, differences, different, differently, differs
understand	understand, understandable, understanding, understands
experiences	experience, experiences
colleagues	colleague, colleagues
informed	inform, informally, information, informations, informed, informing
training	trained, training, trainings
persons	person, personable, personal, persons
operators	operate, operating, operation, operational, operations, operator, operators
example	example, examples
context	context, contexts
production	product, production, productive, productivity, products
engineers	engine, engineer, engineering, engineers
preparing	preparation, prepare, prepared, preparing
employees	employee, employees
community	communal, communicate, communicates, communicating, communication, communicative, communities, community
development	develop, developed, developing, development
locations	located, location, locations
managers	manage, managed, management, manager, managers
projects	project, projects
support	support, supported, supporting, supports
learning	learned, learning, learns
course	course
culture	cultural, culture, cultures
factor	factor, factors
expect	expect, expectation, expectations, expected, expecting
organization	organization, organizations, organize, organized, organizing
position	position, positions, positive
plants	plants
program	program, programs
planning	planned, planning
language	language, languages
involvement	involve, involved, involvement
relationship	relationship, relationships
technical	technical, technically
construction	construct, construction, constructions
helped	helped, helpful, helping
resources	resource, resources
discussion	discuss, discussed, discussing, discussion, discussions
system	system, systems
leadership	leadership
quality	quality
successful	success, successful, successfully
connect	connect, connected, connection, connections
supervisors	supervisor, supervisors
education	educated, education, educational
critical	critical
customer	customer, customers, customs

		RQ1	RQ2	RQ3	# sub-nodes
people	people	x	x		12
organization	organization	x	x		10
context	context		x	x	6
experience	experience	x	x	x	5
preparation	preparation	x	x	x	9
understanding	understanding		x	x	1
support	support			x	4
content	content	x			1
success	success		x		2
					50

Note: “Display words” = 50.

Appendix 29 Aggregating first cycle coding nodes in three hierarchical levels using iterative cycles.

04_01, 02, and 03 integrated_expint

Name	Files	References	Created On
content	4	25	02.09.2018 12:43
complexity	3	5	02.09.2018 12:49
copy process	1	2	02.09.2018 12:49
technical	4	14	02.09.2018 12:49
templates	1	2	02.09.2018 12:49
theoretical	2	2	02.09.2018 12:49
context	4	74	02.09.2018 12:43
culture	4	26	02.09.2018 12:47
belief system	2	2	02.09.2018 12:50
mental models	3	5	02.09.2018 12:50
mind-set of the people	4	14	02.09.2018 12:50
prejudices	4	5	02.09.2018 12:50
family	1	4	02.09.2018 12:55
language	4	26	02.09.2018 12:50
local environment	4	18	02.09.2018 12:47
community	1	2	02.09.2018 12:50
educational system	4	13	02.09.2018 12:51
law	1	1	02.09.2018 12:50
market	1	1	02.09.2018 12:50
time difference	1	1	03.12.2018 04:45
definitions	4	19	21.11.2019 11:42
information	4	11	02.09.2018 12:49
knowledge	4	8	21.11.2019 11:42
employees	4	131	02.09.2018 12:43
feelings	4	26	02.09.2018 12:48
challenge	3	5	02.09.2018 12:55
excitement	1	1	02.09.2018 12:52
fear	2	2	02.09.2018 12:52
freedom	1	1	02.09.2018 12:52
motivation	3	13	02.09.2018 12:52
trust	2	3	02.09.2018 12:52
uncertainty	1	1	02.09.2018 12:52
relationship	4	41	02.09.2018 12:48
communication	4	20	02.09.2018 12:48

Appendix 29 continued

04_01, 02, and 03 integrated_expint

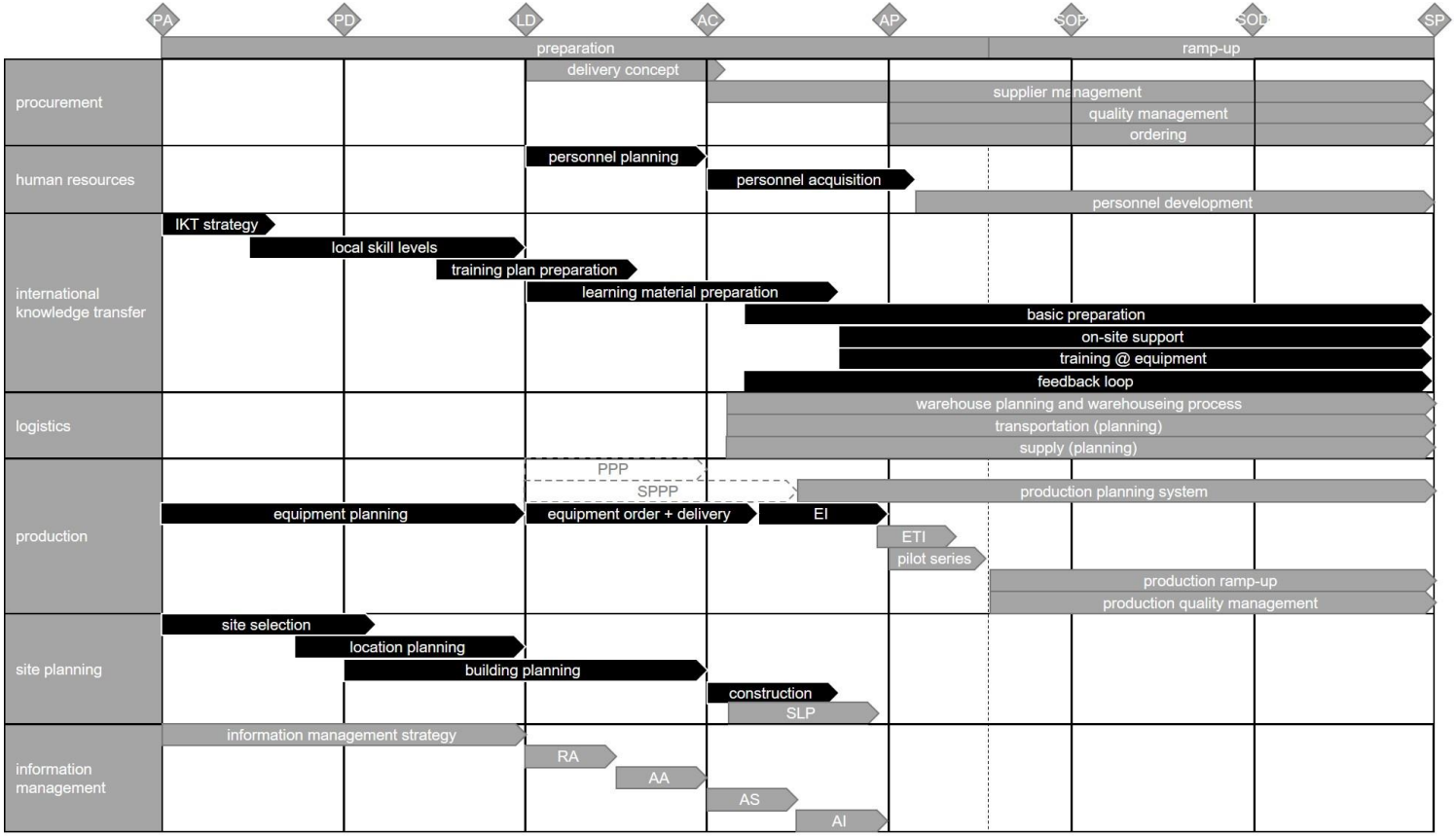
Name	Files	References	Created On
feedback	2	6	02.09.2018 12:48
local mediator_translator	2	4	02.09.2018 12:48
media	4	8	02.09.2018 12:48
reflection	3	3	02.09.2018 12:48
responsibility	4	55	02.09.2018 12:48
expectations	3	19	02.09.2018 12:58
preparation as mentor	4	15	02.09.2018 12:51
understanding of role	4	21	02.09.2018 12:58
skill level	3	9	02.09.2018 12:55
experience	4	29	02.09.2018 12:51
qualification	3	9	02.09.2018 12:51
organization	4	213	02.09.2018 12:43
leadership	4	45	02.09.2018 12:48
decision making	2	3	02.09.2018 12:53
expectation management	4	17	02.09.2018 12:53
priority	4	9	02.09.2018 12:53
proactive	2	4	02.09.2018 12:53
transparency	1	2	02.09.2018 12:53
workforce valuation	4	10	02.09.2018 12:53
local entity	4	38	02.09.2018 12:47
construction	3	8	02.09.2018 12:54
equipment	3	9	02.09.2018 12:54
governmental affairs	2	4	02.09.2018 12:54
ramp-up	1	2	02.09.2018 12:56
set-up	1	3	02.09.2018 12:56
site planning	2	6	02.09.2018 12:56
site selection	3	4	02.09.2018 12:56
supplier	1	2	02.09.2018 12:54
policies	3	16	30.09.2018 15:42
benchmark	2	4	02.09.2018 12:55
exporting	1	2	02.09.2018 12:55
level	2	6	02.09.2018 12:55
organizational framework	2	4	02.09.2018 12:55
processes	4	22	02.09.2018 12:47

Appendix 29 continued

04_01, 02, and 03 integrated_expint

Name	Files	References	Created On
absorbe and apply issue	4	7	02.09.2018 12:56
knowledge transfer	3	4	02.09.2018 12:56
learning by chance	2	4	02.09.2018 12:56
learning by observation	2	2	02.09.2018 12:56
lessons learned	1	1	04.11.2018 08:46
on boarding	2	2	04.11.2018 08:48
prepare own learning material	1	2	02.09.2018 12:51
resources	4	27	02.09.2018 12:47
financial	3	6	02.09.2018 12:57
time	4	21	02.09.2018 12:57
strategy	4	25	30.09.2018 15:43
business need	4	11	02.09.2018 12:55
common goal	4	14	02.09.2018 12:55
support	4	40	02.09.2018 12:47
organizational integration	4	21	02.09.2018 12:58
supporting functions	4	19	02.09.2018 12:58

Appendix 30 EIRMSP.



Note: PA = Production Approval, PD = Product Decision, LD = Location Decision, AC = Approval Construction Drawing, AP = Approval Pilot Series, SOP = Start of Production, SOD = Start of Delivery, SP = Series Production, IKT = International Knowledge Transfer, PPP = Production Process Planning, SPPP = Strategic Production Program Planning, EI = equipment implementation, ETI = Equipment Testing and Industrialization, SLP = Space and Layout Planning, RA = Requirements Analysis, AA = Application Architecture, AS = Application Selection, AI = Application Implementation. Grey areas indicate processes as identified for a set-up process in the “Literature Review”, starting on page 12, and as displayed in Figure 5, on page 17, and Appendix 2, on page 224. Black areas indicate processes updated by expert interview findings.
Source: Adapted from “Reifegradplanung und -überwachung für den Anlauf zusätzlicher Produktionskapazitäten an neuen Standorten als Entscheidungsbasis für Optimierungsschritte (Ramp-up Maturity)” by Böning & Sejdic, 2015, p.16. Copyright n.d. by n.a. & Adapted from “White Paper Ramp-Up Management” by Ammer, n.d., p. 6. Copyright n.d. by T-Systems Enterprise Services GmbH.

Appendix 31 Identification of context factors influencing IKT process characteristics.

characteristic identified from literature review	influenced by local context factor
	sender
mental ability	education & language
technical ability	availability of technical networks & local educational system
physical ability	health/environmental conditions & language
knowledge value	protectionism
motivation	protectionism
effort	n/a
relationship	relationship
	communication channel
behaviour	relationship
dimension	hierarchy understanding
effort	translation/language
relationship	relationship
	content
tacitness	education (*a priori* knowledge)
complexity	education (*a priori* knowledge)
causal ambiguity	n/a
attractiveness	awarding system
unproveness	n/a
specificity	n/a
	receiver
absorptive capacity	education & language (understanding)
retentive capacity	education & language (understanding)
knowledge value	reward
motivation	reward

Appendix 31 continued

NIH syndrome	protectionism
relationship	relationship

Appendix 32 Comparing associated local educational requirements by job title.

job skills required	job title	educational level required Germany	educational level required Brazil	educational level required Mexico	educational level required China
- lead production team of one production step - arrange personnel planning - improve shop-floor processes	Team leader production	vocational basic education + vocational supervisor education	degree from private institution with specialization on manufacturing supervisors	vocational school + private school education for manufacturing supervisors	Bachlor degree in engineering
...					

List of Interviews

China Shop Floor Employee 1. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

China Shop Floor Employee 10. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

China Shop Floor Employee 2. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

China Shop Floor Employee 3. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

China Shop Floor Employee 4. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

China Shop Floor Employee 5. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

China Shop Floor Employee 6. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

China Shop Floor Employee 7. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

China Shop Floor Employee 8. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

China Shop Floor Employee 9. (2018, 06 20). Personal Interview. (C. P. Bechtle, Interviewer)

Expert Brazil Case. (2017, 04 10). Personal Interview. (C. P. Bechtle, Interviewer)

Expert China Case. (2017, 05 27). Video Interview. (C. P. Bechtle, Interviewer)

Expert Mexico Case. (2017, 06 16). Interview via Skype. (C. P. Bechtle, Interviewer)

Mexico Shop Floor Employee 1+2. (2018, 07 21). Personal Interview. (C. P. Bechtle, Interviewer)

Mexico Shop Floor Employee 3+4. (2018, 07 21). Personal Interview. (C. P. Bechtle, Interviewer)

Mexico Shop Floor Employee 5+6. (2018, 07 21). Personal Interview. (C. P. Bechtle, Interviewer)

Mexico Shop Floor Employee 7+8. (2018, 07 21). Personal Interview. (C. P. Bechtle, Interviewer)

Mexico Shop Floor Employee 9+10. (2018, 07 21). Personal Interview. (C. P. Bechtle, Interviewer)

Training Manager. (2017, 04 02). Personal Interview. (C. P. Bechtle, Interviewer)