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LIST OF ABBREVIATIONS

KTT – Knowledge and Technology Transfer
SEM – Structural Equation Modeling
TTO – Technology Transfer Office
UIL – University-Industry Linkage
WOM – Word-of-mouth
PART A: OVERVIEW OF THE DISSERTATION
1. Framing and Demarcation of the Topic

In the current economic climate, businesses and universities alike have to actively defend their position to stay competitive (Kesting and Gerstlberger, 2011; Thorgren, et al., 2009; Mueller, 2006). Moreover, they are seen as instrumental in the pursuit of national and regional growth through innovation. With these two processes in the forefront, businesses are increasingly engaging in knowledge and technology transfer (KTT) with universities (Phan and Siegel, 2006; Etzkowitz and Carvalho de Mello, 2004), commonly referred to as university-industry linkages (UIL). In addition to the classical two missions of the university, contributing to “innovation and change” (Gulbrandsen and Slipersaeter, 2007, p. 112) through UILs has become the third mission (Etzkowitz, 1998, Etzkowitz and Leydesdorff, 2000).

Throughout previous research, scholars employed several terms for UILs, using the terms linkage (Thursby and Thursby 2011; Schiller and Brimle, 2009; D’Este and Patel, 2007), relationship (Leydesdorff, 2004; Welsh et al., 2008; Khan and Park, 2011), interaction (Thune and Gulbrandsen, 2011; Boardman, 2009; Marques and Caraca, 2006), cooperation (Azgara-Caro et al. 2006; Tijssen et al., 2009) and collaboration (Motohashi, 2005; Santoro and Bierly, 2006; Bruneel et al., 2010) interchangeably for describing the alliance between the two parties, however essentially referring to the same concept. Similar as to the difficulty of establishing a common term, no clear and definite definition is formulated in the literature. Due to this fact and regarding UILs as relationships between two parties, the definition of relationship marketing presents a starting point for deriving a definition for this dissertation. Harker (1999, p. 16) explains that “an organization engaged in proactively creating, developing and maintaining committed, interactive and profitable exchanges with selected customers [partners] over time is engaged in relationship marketing”. He further suggests that relationship marketing is characterized by 7 constructs relating to the following – creation, development, maintenance, interactive, long term, emotional content and output (Harker, 1999, p. 14). Here, the emotional content refers to commitment and trust. In this respect, the introduction of the commitment-trust theory is appropriate for developing a definition. Morgan and Hunt (1994, p. 22) propose that “commitment and trust lead directly to cooperative behavior that are conducive to relationship marketing success”. Therefore, both trust and commitment need to be considered in the formulation for a UIL definition. The output component of relationship marketing addresses the profitability, efficiency and reward of relationships (Harker, 1999), thus the creation of mutual value (Cannon and Homburg, 2001; Parvatiyar and Seth, 2000). Under consideration of the relationship marketing characteristics and its applicability to UILs, the definition of Plewa and Quester (2007, p. 371) is employed for this dissertation, in which UILs are defined as “trusting, committed and interactive relationships between university and industry entities, enabling the diffusion of creativity, ideas, skills and people with the aim of creating mutual value over time”.

1 The terms UIL and KTT are used as synonyms in this dissertation. The reasoning for this is as follows: Firstly, as pointed out by Arvanitis et al. (2008, p. 1866) “knowledge and technology transfer between academic institutions and the business sector is understood as any activity aimed at transferring knowledge or technology that may help either the company or the academic institute – depending on the direction of transfer – to further pursue its activities”. The dissertation does not limit itself to one specific activity of knowledge and technology transfer and therefore incorporates all activities outlined by Davey et al. (2011a) - collaboration in R&D, commercializing R&D results, mobility of students and staff, curriculum development and delivery, entrepreneurship, governance and lifelong learning. Secondly, according to Reams (1986) knowledge transfer includes “a variety of processes emphasizing on-going personal interactions and are often a necessary foundation for stimulating larger scale cooperative university-industry research programs”. Further, the NSF (1982) refers to technology transfer as “programs capitalizing on joint industry-university research and aiming to integrate university-driven research into applied initiatives for the development and commercialization of new technologies”. Both statements imply that UILs are a result of knowledge and technology transfer.
Faced with the new task of being engaged with businesses, the universities’ task of producing scientific knowledge and its role in the scientific system has changed (Gibbons et al., 1994, Etzkovitz and Leydesdorff, 2000). Against this background, two approaches explaining these changes are relevant – namely Mode 2 of knowledge production and the Triple-Helix concept. Gibbons et al. (1994) explain that while scientific knowledge was formerly based on fundamental research and was then transferred into an applied context (Mode 1), a shift has occurred to a more integrated approach (Mode 2). Nowotny et al. (2001) describe Mode 1 of knowledge production to be only academic and mono-disciplinary, where the project groups are characterized by having the same skills and experience. In Mode 2, on the other hand, knowledge production occurs trans-disciplinarily (Gibbons et al., 1994). This is a shift in the regulative mechanisms for selecting and rewarding mechanisms. Additionally, it is suggested that scientific knowledge is no longer only generated in universities, but rather in numerous institutions including government laboratories, industry and consultancies (Gibbons, 2000). Due to this, the pool of knowledge producing entities has increased. Moreover, these changes allow for various possible interconnections among these entities and lead to new structures of knowledge and competences (Gibbons, 2000). Mode 2 is generally characterized by a greater interaction of knowledge producers and society in an open system, trans-institutional working teams and heterogeneity of skills (Gibbons, 2000). Further, it is suggested that knowledge production in Mode 2 is creating opportunities that allow scientists as knowledge producers and users to interact in different ways (Gibbons et al., 1994). Similar to the concept of Mode 2, in which the production of knowledge occurs through the interaction of multiple sources of knowledge producers (Gibbons, 2000), the Triple Helix concept postulates that three actors – university, industry and government – interact in such a way as to improve “the conditions for innovation in a knowledge-based society” (Etzkowitz and Carvalho de Mello, 2004, p. 161). More specifically, universities take on the role of knowledge and technology as well as trained people providers; industry has taken on the role as production partners, and the government contributes by setting the framework by regulations and resource conditions (Etzkowitz and Klofsten, 2005; Etzkowitz, 2003). Therefore, the university’s role in the scientific system has changed in regards to its active part in creating innovation and has undergone a transformation from being a teaching institution to an institution coupling teaching and research (Etzkowitz and Leydesdorff, 2000). When confronting the Triple Helix concept with Mode 1 and Mode 2 of knowledge production it has been argued that “the triple helix overlay provides a model at the level of social structure for the explanation of Mode 2 as a historically emerging structure for the production of scientific knowledge, and its relation to Mode 1” (Etzkowitz and Leydesdorff, 2000, p. 118). Following the thought of Mode 2, individuals involved in these hybrid partner constellations are required to develop a heterogeneous set of knowledge pools and skills to manage the partnership effectively.

UILs can also be considered hybrid partner constellations as they consist of partners from university and industry (Marques et al., 2006, Etzkovitz, 2010). As any other type of partnership, UILs need to be managed, both by individuals involved in the linkage and the respective organization. In line with the advancement of the knowledge-based society and focus on adjusting to the new role in the scientific system, universities are gradually re-organizing their structures to manage the new tasks and responsibilities. A part of which is to establish an appropriate environment for the different activities required by UILs (Geuna and Muscio, 2009). Thus, procedures and policies are increasingly institutionalized. Portaria (1996) emphasizes that one step to institutionalize and thereby restructure a university’s relationship with businesses is to establish continuous interaction between members
from universities and industry, which eventually results in an adaption of the infrastructure on behalf of the university. Institutionalization is regarded as both a process and an outcome, where the former “represents the manner of attaining an order that, in turn, reproduces itself” (Colyvas, 2007, p. 458) and the latter “represents the state of having realized this order, and is then reinforced through feedback mechanisms that shape and govern behavior” (Colyvas, 2007, p. 458). In the context of UILs, this means that social structures at universities need to be put in place to encourage, strengthen and foster UIL activities and are at the same time continuously developed to drive UILs. While various organizational channels are employed for UILs, such as staff mobility, attending conferences, publishing research results and engaging in consulting activities, these activities are not yet completely institutionalized by many of the universities. Moreover, the management and governance of such activities has been neglected so far (Geuna and Muscio, 2009). Therefore, this dissertation considers the institutionalization of UIL activities to be incomplete. As the institutionalization process is incomplete, it still provides opportunity to elaborate on issues enforcing this process.

The dissertation focuses on the institutionalization of UILs in universities and therefore only addresses issues necessary from a university’s point of view. For institutionalizing UILs in a sustainable manner it is important to understand the complex nature of these linkages and the various interest groups that are involved. As pointed out by Siegel et al. (2003b), UILs involve many different internal stakeholder groups (students, academics, the university itself, management and other employees) that require coordination (Geissler et al., 2006, Siegel and Phan, 2005). Considering the numerous stakeholders at such an institution, the institutionalization of UILs needs to be considered on a variety of levels – individual, institutional and organizational (Phan and Siegel, 2006). Both approaches - Mode 2 and the Triple Helix concept - of explaining the changing role of universities and knowledge production emphasize the importance of people as one aspect to be considered in the institutionalization of UILs, within trans-institutional teams. Having this in mind and considering UILs as a simplified form of the Triple-Helix constellation\(^2\), it becomes evident that individuals are a key component in these relationships. Phan and Siegel (2006) suggest that three levels need to be considered in terms of setting up UIL processes in universities – individual, institutional and organizational. In their view the institutional factor incorporates aspects such as policies and incentive systems; the organizational aspect refers to the legal form and information flows of the university, and the individual factor considers the characteristics of the individuals involved in UILs (Phan and Siegel, 2006). Adhering to this proposition, this dissertation addresses these points in numerous ways by elaborating on individual characteristics and their interaction with the university environment. It has to be noted, however, that no distinction is being made between the institutional and organizational factor. Throughout the dissertation both aspects are classified as organizational factors. This choice is made because the dissertation is predominately concerned with the manner in which universities organize and manage UILs linkages, including items such as policies and incentives, and therefore the term “organizational” is more appropriate. Referring to the individual factor, it is commonly accepted that individuals are the driving force behind relationship activities and therefore UILs (Howell et al., 2005; Hoye and Pries, 2009; Santoro and Chakrabarti, 2002; Clarysse et al., 2011). The dissertation takes these aspects in consideration and presents an interesting and new approach to understanding UILs, by introducing experience in a framework of

\(^2\) The dissertation does not consider the government as it is regarded as a facilitator and institution for setting the framework for UILs, as proposed by Inzelt (2004), Etzkowitz and Klofsten (2005) as well as Etzkowitz (2003). The main focus is dedicated to the people involved in the actual linkage and the structures at a university to enhance that linkage.
organizational and individual factors. It is well-documented that experience on both levels can significantly enhance the productivity of company performance (Sampson, 2005) and managing UIL activities on an individual basis (Bjerregaard, 2010; Bruneel et al., 2010; Bjerregaard, 2010; Bruneel et al., 2010; D’Este et al., 2012).

The concept of “experience” is a comprehensive topic and no clear definition in the context of UILs is provided. As some authors measure experience based on the years a person is active in conducting UIL activities and others base the concept of experience on the number of UIL activities undertaken, it is difficult to establish a final definition. Determining the level of experience based on the years is arguable as the time one spends in a university does not necessarily imply active participation in UILs. Similar to and following the well-established work of Rothaermel and Deeds (2006), Jiang et al. (2008) and Kale et al. (2000), who conducted extensive research on the effect of experience on the organizational level as well as research results presented by D’Este and Patel, 2007, van Dierdonck et al. (1990), D’Este et al. (2012) and Reagans et al. (2005), considering the effect of experience on the individual level, this dissertation regards the number of UIL projects conducted as the basis for determining the experience level.

One established fact about experience that authors agree on is the fact that experience can be gathered on the individual and organizational level and can be acquired differently. In the context of UILs, individual academic experience can be accumulated either through having held a position in industry or through conducting UILs in general (Bjerregaard, 2010; Bruneel et al., 2010; van Rijnsoever and Hessels, 2011; van Rijnsoever et al., 2008; Boardman and Ponomariov, 2009; Giuliani et al., 2010; D’Este and Patel, 2007; Klofsten and Jones-Evans, 2000; Bekkers and Bodas Freitas, 2008; Martinelli et al. 2008; Clarysse et al., 2011; Dutrénit et al., 2010; van Dierdonck et al., 1990; Lin and Bozeman, 2006). The author puts an emphasis on individuals having experience in mainly conducting UILs. The experience gained on the organizational level can be distinguished in having experience with the same partner and having conducted collaborative activities with the same partner (Sampson, 2005; Gulati, 2009; Hoang and Rothaermel, 2005). The dissertation considers all types of experience, both on the individual and organizational level, thereby making the topic of experience reoccurring in the chapters.

But why is the introduction of experience an interesting way of understanding UILs on the organizational and individual level? The literature already presents some insights, however still leaves considerable room for additions. While the topic of UILs is generally widely discussed in the literature, the underlying factors of truly understanding UIL behavior and managing these effectively, especially addressing the factor of experience, to institutionalize UILs at universities leaves certain gaps. To date, research has evolved around the extent and the type of UIL conducted with certain levels of experience (Lin and Bozeman, 2006; D’Este and Patel, 2007; Ponomariov, 2008; Giuliani et al., 2010; Lam, 2010; Klofsten and Jones-Evans, 2000; Link et al., 2007.) The factor was, however, always considered in conjunction with other individual characteristics, such as age, gender, rank, type of university and faculty (Clarysse et al., 2011; van Rijnsoever and Hessels, 2011; Giuliani et al., 2010). Therefore, the effect experience has on UIL activities must be considered with caution, as one cannot clearly distinguish between the interrelationship and mediation of experience with other individual factors. Thus, considering only the experience and its effect on behavior presents a novelty in UILs research. As constituted by numerous researchers (Bercovitz and Feldman, 2011; Bruneel et al., 2010; D’Este and Patel, 2007; Lubango and Pouris, 2007; Lin and Bozeman, 2006; van Rijnsoever et al., 2008; Ponomariov and Boardman, 2009; Guiliani et al., 2010; Reuer et al., 2002, Gulati, 2009;
Sampson, 2005; Sampson, 2007; Anand and Khanna, 2000; Hoang and Rothaermel, 2005; Kale et al., 2000; Jiang et al., 2008) from various literature streams (strategic management, organization management and UIL), the factor of experience is of great importance in understanding organizational and individual behavior. For instance, with advancing experience levels organizations establish routines relating to the handling of operational activities and managerial procedures in UILs (Sampson, 2005; Hoang and Rothaermel, 2005; Gulati, 2009; Reuer et al., 2002; Rothaermel and Deeds, 2006; Li et al., 2008). Literature does not offer insight into other behavior patterns that may change with advanced experience levels. Kolb (1984) and Bercovitz and Feldman (2008) suggest that individuals learn from past experiences in UILs and adjust their behavior for future linkages. Adding to this and building on the thought of Bjerregard (2009), who proposes that collaboration strategies are modified over time, the dissertation expands the understanding of individual UIL behavior by providing insight into specific collaboration strategies and specific behavior alterations, beside the development of a routine that may change with advances experience levels.

While the understanding of organizational and individual characteristics for fostering UIL activities at universities is well established separately, the interplay and linkage between these two levels remains a black box. Structures for enhancing UILs at universities are commonly targeted at the institution, while the individual, actually being involved in the linkage, is neglected (Ponomariov, 2008, Ponomariov and Boardman, 2008). As a result, structures for encouraging and driving UILs, implemented on the organizational level may not lead to increased UILs activities on the individual level (Azagra-Caro et al., 2006). This is due to the mismatch between the demand and needs of structures on behalf of individual researchers and the development and implementation of such measures on the organizational level (Debackere and Veugetelers, 2005; Friedman and Silberman, 2003; Geuna and Muscio, 2009; Markman et al., 2004). The alignment of both levels is a comprehensive topic in itself already, but emerges to an even more complex research area once experience is introduced. To date, literature does not provide insight into how the organizational level and individual level, specifically in UILs, can be related in such a way to eventually lead to an UIL-driven environment. From a learning point of view, organizations and individuals can learn substantially from each other, but necessitates a close interaction and relationship of the two levels (Beeby and Booth, 2000). As both levels gain experience with time, the interplay between those levels can be expected to become a different one. Therefore, the gap addressed in this dissertation is the effective linkage of the organizational and individual level at a university to enhance individual UILs activities by considering the experience levels of both levels.

Literature identified that it is not only the organizational setting and individual that needs consideration; it is also the interpersonal factor. For example, not only is the individual, so-called champion, crucial for making the linkage work but also interpersonal relationships among champions from each party (Santoro and Chakrabarti, 2002). Having this in mind, relationship marketing and network theory need to be considered when analyzing the interpersonal component in UILs. Previous research identified success factors in UIL relationships (Plewa, 2009; Rampersad et al., 2010a), yet these were not put into context with those individuals having experience. Experience plays a significant role here too, as individuals alter their behavior with increased experience levels.

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3 The term champion is adapted from the definition provided by Bossink (2011, p. 53), who states that champions are people with impact, who take a lead and show the rest which way to go [...] even become additional leaders to the formal leader of the project. Their expert role gives them a basis to direct others in the necessary new direction”. While this definition originates from innovation literature it is applicable to UILs as UILs are approaches to innovate and involve project work.
and as the relationship evolves (Clarysee et al., 2011; Kolb, 1984; Bjerregaard, 2009; Lubango and Pouris, 2007; Lam, 2010; Hall et al., 2003). The effect experience has on the interpersonal relationships is not yet fully explored. Therefore, the dissertation incorporates aspects of relationship evolution under consideration of experience.

In summary, and considering the previous argumentation several aspects justify the differentiation into three distinct elements of the dissertation – namely the individual, the interpersonal relationships and the organization. UIL success can only be achieved if the right individuals are involved in that linkage. Thus, individuals play a crucial role in enhancingUILs (Howell et al., 2005, Hoye and Pries, 2009). Champions are key to overcoming institutional barriers and thereby making the linkage work (Santoro and Chakrabarti, 2002; Clarysse et al., 2011). Not only does the individual him/herself present a significant aspect in UILs but so do his/her personal attributes (D’Este and Patel, 2007; Ponomarov, 2008). As some personal characteristics were identified to be more favorable for UIL engagement (Bjerregaard, 2010; Bruneel et al., 2010; van Rijnsoever and Hessels, 2011; van Rijnsoever et al., 2008; Boardman and Ponomarov, 2009; Giuliani et al., 2010), it is of great value to analyze the specific aspect of experience. In addition, investigating interpersonal ties between champions are of essential importance, as individuals hold a key role in relational exchange (Santoro and Chakrabarti, 2002). Finally, personal and interpersonal intentions and goodwill on behalf of the individual(s) to conduct UILs do not suffice and cannot be performed without appropriate structural support provided by the university (Bercovitz and Feldman, 2008; Azagra-Caro et al., 2006).

Taking the above into consideration the dissertation addresses several interesting aspects. Research gaps are filled and practical consequences for managing UILs at universities are provided. By elaborating on the effect experience has on the individual, interpersonal and organizational level universities can learn to support and foster UILs and thereby drive the institutionalization of such linkages. Due to its complexity the proposed topic of UILs cannot be regarded in isolation without expanding into related research areas such as elements of Relationship Marketing, Organizational (Learning) Theory, (strategic) management theory, Network Theory and Relationship Evolution. Not only does the dissertation present a contribution to existing UIL literature but also advances related literature strands. This is specifically the case for aligning all levels with each other in such a way as to benefit all involved parties. The dissertation provides a comprehensive understanding of UILs by addressing, in particular, success factors in relationship evolution and their interrelationship to shape such linkages, as well as the transferability of network theory and learning theory to UILs under consideration of experience, both on the individual and organizational level. Insights of value for practical use, for academic researchers and university management are provided.
2. Outline of the Dissertation

The dissertation seeks to answer one dominant research aim by investigating the topic with respective research objectives to be achieved. The research objectives are supported by questions, which are answered throughout the chapters. In doing so, the overall aim of the dissertation is answered.

2.1 Research Aim, Objectives and Questions

The overall research aim of the dissertation is:

To gain insight in order to understand individual, interpersonal and organizational components for institutionalizing UILs in universities, under consideration of experience

To achieve the overall research aim, the following objectives, answering respective research questions, are undertaken:

1. Reviewing relevant literature
   1.1. What kind of effect does prior experience have on an organizational (institution) and individual (academic researcher) level?

2. Analyzing the development of UILs and their success factors
   2.1. What are success factors in university-industry linkages in different stages of university-industry linkages?
   2.2. Do interrelationships of success factors across different stages in university-industry linkages exist?

3. Analyzing personal characteristics of individuals engaged in UILs
   3.1. What is the impact of an individuals’ prior experience in UILs on their behavior in UILs?

4. Analyzing the implementation of organizational structures to the individual level to foster individual UIL activities
   4.1. How does the organizational level connect with the individual level in supporting and fostering UILs?

In total, 5 chapters provide an answer to the research questions. In one case (research objective 2) the research questions, belonging to the same research objective, are divided into separate chapters.

2.2 Link between chapters

Five chapters serve the purpose of uncovering linkages between individual, interpersonal and organizational settings under the consideration of experience in UILs. The distinction into these 3 categories is reasoned by the following. As actors being involved in UILs, individuals play an integral part in making these linkages work. It is their characteristics and experience that shape the performance of UILs. However, it is not only the individual who determines the success of the linkage but also the interrelationship with the counterpart; in the case of UILs, the participants from industry. It is not enough for one party to be competent and experienced in conducting UILs. The relationship with the opposite part and the interaction with each other constitute an important aspect as well. While UILs are highly heterogeneous, universities need to find a way to institutionalize these linkages. In order to do so, structures and policies need to be implemented with the purpose of enhancing UILs activities at that institution. One crucial factor when setting up
mechanisms to support individuals in conducting UILs is the continuous interconnection of the organizational level with the individual level. This ensures a comprehensive approach for the institutionalization of UILs at universities.

Given this reasoning, the dissertation starts by providing the theoretical background on the topic of UILs and, more specifically, the aspect of “experience” in the context of the organizational and individual level (chapter 1). The interpersonal aspect is addressed by first profiling an evolution of UILs into phases characterized by success factors (chapter 2) and then putting them in relation to each other (chapter 3). The following paper (chapter 4) is concerned with specifically investigating the personal attribute experience and its effects on interpersonal relationships. The last empirical paper (chapter 5) is concerned with the organizational aspect of UIL structures and its realization and applicability on the individual level in universities. Table 1 provides an overview of the chapters and their contributions. It has to be noted that due to managerial implications presented for each of the chapters, the organizational aspect is covered in all papers. The table displays the allocation of papers according to the largest contribution to the respective setting.

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Table 1: Link between chapters

As such, each chapter serves to cover either the personal, interpersonal or organizational settings of UILs.
3. Methodology
The purpose of this dissertation is to uncover current practices in UILs. Therefore, a research strategy of exploratory nature (Saunders et al., 2007) is employed. Both an inductive and deductive research approach is used in this dissertation. While the deductive research approach is commonly associated with the positivistic philosophy and a quantitative research design, induction is employed when pursuing an interpretivist philosophy and engaging in qualitative research (Bryman and Bell, 2007; Saunders et al. 2007; Malhotra and Birks 2007). The deductive approach seeks to test the previously established theory (Saunders et al. 2007). It is helpful when wishing to determine and explain causal relationship amongst variables. Further, the approach aims at generalizing the research findings, which is why a sufficient sample size is required (Saunders et al. 2007). Induction, on the other hand, is mainly concerned with formulating a theory based on the data analysis (Saunders et al. 2007). To understand the nature of the certain situation, a small sample size is most appropriate when following this approach (Saunders et al. 2007). Throughout the dissertation, various strategies are used, which can be associated with qualitative and quantitative research – namely a case study as well as in-depth interviews (qualitative) and a survey (quantitative) (Malhotra and Birks, 2007). By engaging in numerous strategies, a wide coverage and insight into the topic to be researched is ensured. Thereby the research question has a better chance of being answered and triangulation may occur (Bryman and Bell, 2007; Saunders et al., 2007).

In this dissertation the data collection and analysis occurs sequentially, meaning that the chapters of the dissertation build up on each other. One extensive literature review (chapter 1) contributes to a better understanding and provides the literature background to the topic to be investigated by giving a brief introduction into the topic of experience and its effect on the organizational and individual level. Various research streams are the basis for the analysis. In order to gain a comprehensive overview of the proposed topic, data from a research study (Commercialisation Success – Do Drivers Change over Time) conducted in 2011 among the Science-to-Business Marketing Research Centre associated with the Münster University of Applied Sciences (Germany) and The University of Adelaide (Australia), funded by the DAAD, was utilized. This data set is the basis for chapters 2-4. Whereas the data for chapter 2 and 4 is of qualitative nature, chapter 3 employs a quantitative analysis. The qualitative approach, more specifically in-depth interviews, was chosen for these two chapters as it gives the opportunity to better study the underlying thoughts, beliefs and behavior of individuals. Chapter 3 investigates the topic from a quantitative perspective and thereby determines whether the findings of Chapter 2 are generalizable to a larger sample. Also, in order to truly understand the interrelationship between success factors, a bigger sample size and thus quantitative research is most suitable. Chapter 5 is based on an additionally gathered data base and is also subject to qualitative analysis. Here, in-depth interviews and an analysis of documents provide the data for a case study. This choice was made to be able to best portray current situations and activities. It has to be noted that each of the 4 empirical chapters follows its own research strategy in order to best serve the purpose of the respective study. In doing so, the understanding of UILs is broadened.

While all chapters are completed, not all of them have been published yet. An overview of all chapters according to their status and journal for chapter is illustrated in the table below.
The research design matrix (see Table 3) summarizes the research objective and the respective research question, the data sources employed as well as the techniques developed to analyze the data.
<table>
<thead>
<tr>
<th>Research Objective</th>
<th>Research Question</th>
<th>Data Source</th>
<th>Techniques of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review relevant literature</td>
<td>What kind of effect does prior experience have on an organizational (institution) and individual (academic researcher) level?</td>
<td>Literature Review</td>
<td>Literature Review</td>
</tr>
<tr>
<td></td>
<td>Do interrelationships of success factors across different stages in university-industry linkages exist?</td>
<td>Primary Research Research Study “Commercialisation Success – Do Drivers Change over Time” Sample 132 Academic Researchers</td>
<td>Structural Equation Modeling</td>
</tr>
<tr>
<td>Analyzing personal characteristics of individuals engaged in UILs</td>
<td>What is the impact of an individuals’ prior experience in UILs on their behavior in UILs?</td>
<td>Primary Research Research Study “Commercialisation Success – Do Drivers Change over Time” Sample Germany: 15 Academic Researchers 15 Industry Representatives Australia: 15 Academic Researchers 15 Industry Representatives</td>
<td>Analysis of in-depth interviews using the digital coding software NVivo</td>
</tr>
<tr>
<td>Analyzing the implementation of organizational structures to the individual level to foster individual UIL activities</td>
<td>How does the organizational level connect with the individual level in supporting and fostering UILs?</td>
<td>Primary Research – 5 Publications on Münster University of Applied Sciences – 2 Annual Reports of Münster University of Applied Sciences – University Development Plan 2005 - 2010 – University Development Plan 2010 - 2015 – 4 In-depth interviews with current and former representatives of the presidential board of Münster University of Applied Sciences – 4 in-depth interviews with experienced researchers from Münster University of Applied Sciences</td>
<td>Analyzing publications and in-depth interviews using the digital coding software NVivo</td>
</tr>
</tbody>
</table>

Table 3: Research Design Matrix (after Choguill, 2005)
4. Structure of Thesis
The dissertation is structured in 3 distinctive parts (A-C). Throughout Part A, the framework of the thesis is set, including the introduction to the overall topic in addition to providing an outline of the research gap, research aims/objectives and questions and methodology. This is followed by Part B, in which all chapters are presented. The dissertation is concluded with the overall conclusion (Part C) including a discussion of research results, an elaboration of contribution to theory and managerial implications, limitations of the research as well as further research directions.
PART B: PRESENTATION OF CHAPTERS