Chapter 4: Experience in University-Industry Linkages

Abstract

University-industry linkages (UILs) generate significant benefits for the involved parties and society at large. These linkages are driven by individuals, as they contribute skills, knowledge, competencies and experience. While having prior experience in UILs has been discussed as a valuable characteristic of academic and industry representatives engaged in UILs, we are yet to understand the changes these individuals make as they gain experience. Based on an interview series, this paper outlines the impact individual experience has on project and relationship success, discussing in particular the changes individuals make on strategic, personal and operational levels.

Keywords: University-industry linkages, prior experience, individual behavioral change

1. Introduction

Recent challenging economic times have shown how important innovation is for the recovery from economic downturns and for future organizational and national prosperity (Cohen et al. 2002; Salter and Martin, 2001). In this environment, university-industry linkages (UILs) have increased, both in relevance and number, as universities offer a source of pioneering thinking and specialized knowledge that complement industry expertise (Arvanitis et al. 2008). By working with universities, companies may gain knowledge and technologies that are required for their continuing success (Lee, 2000; Santoro and Betts, 2002). Universities also benefit from working with industry, not only by means of additional financial resources but also through gaining industry insight, realizing broader social benefits of their research and by opening up new opportunities for their students (Nilsson et al., 2010; Lee, 2000).

Literature in the field of UIL is quite advanced. As such, much of the existing literature on UILs provides extensive information about structural and organizational factors hindering and benefiting the success of such linkages (Bozeman and Gaughan, 2007; Nilsson et al., 2010; Ponomariov, 2008; Welsh et al., 2008; Clarysse et al., 2011; van Rijnsoever et al., 2011). Focus on the individuals engaged in the relationships is in so far discussed as the characteristics – such as the motivation, age, gender, tenure, experience, knowledge area – of the actors are analyzed in respect to the surrounding environment they are operating in (Bjerregaard, 2010; Bruneel et al., 2010; van Rijnsoever and Hessels, 2011; D’Este and Patel, 2007; Clarysse et al., 2011). An emphasis on the interrelations between the actors or the individuals as such is seldom the focus of existing literature.

Success in UILs, however, is only possible when engaging the right people and facilitating interaction between them. Only certain individuals, or champions, can overcome well documented barriers to UILs, such as differing institutional structures, culture and norms (Santoro and Chakrabarti, 2002, Clarysse et al., 2011, Bjerregaard, 2010) and drive cross-sectoral collaboration success. University-industry champions serve as the central driving link between the university and industry partner, proactively driving and pursuing opportunities for mutual benefit (Santoro and Betts, 2002).
Adding to the discussion on university-industry champions in the literature, which has focused on their characteristics and motivations, we set out to understand whether an individual’s experience with UILs makes a difference to the success of their collaborations and, if yes, how this is achieved. In line with the call for research to uncover “socially dynamic interactions between collaborating UI partners during collaboration, and how collaboration strategies mix and are modified in circumstantial ways in such processes” (Bjerregaard, 2009, p. 173), we develop a better understanding and framework around the strategic, personal mindset and operational adjustments these individuals have made over time. This insight provides valuable input not only for individuals engaging in UILs but also for policy makers in their respective institutions, leading to specific recommendations for industry managers on how to get the most out of university collaborations.

2. Background

In understanding the topic of UILs and the interplay between different factors inhibiting and facilitating those relationships, a continuously reoccurring factor in the literature is the aspect of individuals having prior experience, either in UILs in general (Bruneel et al., 2010; D’Este and Patel, 2007) or having worked in the opposite environment (Lubango and Pouris, 2007; Lin and Bozeman, 2006; van Rijnsoever et al., 2008; Ponomariov and Boardman, 2009; Guiliani et al., 2010). Research specifically focusing on experience in UILs remains sparse, with extant research showing, for example, that with increasing experience, academics engage in a broader range and greater variety of interaction with industry (D’Este and Patel, 2007). Yet, previous joint research activities with the counterpart do not help reduce the perceived barriers related to administration and intellectual property agreements in UILs (Bruneel et al., 2010).

Prior work experience in the opposite working environment, i.e. academics having been employed in business, has often been confirmed as relevant for both industry representatives and academics, explained by a shift of academics towards a more entrepreneurial behavior (Clarysse et al., 2011), an advancement in the universities’ innovation related activities (Lubango and Pouris, 2007) as well as accelerated change of conducting interdisciplinary research (van Rijnsoever et al., 2011). Academics and industry representatives show a greater network activity (van Rijnsoever et al., 2008) in addition to a heightened probability and intensity of joint research activities (Ponomariov and Boardman, 2007). Research has further confirmed such experience as an essential factor to determine the success of collaborative project work (Hagedoorn and Schakenraad, 1994).

The relevance of experience in this context can be explained by its impact on the behavior of an individual, exemplified by experiential learning theory. Specifically, the experiential learning cycle explains that individuals learn by reflecting on a concrete experience, which leads to the formation of abstract generalizations. The new ideas or understanding, in turn, can be tested by engaging in new behaviors when faced with a relevant situation, which again creates new experiences the individual can reflect upon (Kolb, 1984). This cycle leads to an adjustment of behaviors, as the individual learns over time. Adding to this insight is the fact that for enhancing and smoothing future UILs, individuals with experience, especially in UILs, acquire tacit as well as practical knowledge in respect to communication and collaboration procedures (Bjerregaard, 2009).

Bercovitz and Feldman (2008) support this statement by proposing that behavior may be affected by previous experience gained through professional relationships and thereby learning and observing opportunities. Hence, as individuals gain experience, they become more competent in fulfilling a particular task, leading to better performance (Reagans et al., 2005). Adding to the thought of
individuals’ experience levels and the corresponding impact on behavioral change is the study conducted by Lam (2010) who created categories for academic researchers on a bipolar continuum – namely traditional and entrepreneurial orientation of the academic researcher. The essence gained from the study is that experienced researchers are more likely to influence and thereby alter the industry partners’ expectations to set the boundaries of the relationship (Lam, 2010). Furthermore, researchers’ strategies are altered to overcome problems, to take control of the relationship and to ensure the collaborative work is conducted in the interest of the academic (Lam, 2010).

Through prior experience in UILs, activities and processes that have proven to function well and lead to positive project and relationship outcomes eventually become routines and practices performed by the participants (Bruneel et al., 2010). These routines are not only applicable to an individual, but also to research teams, thus leading to better collaborative work and more economic benefits (Dutrénit et al., 2010). Thus the experience is employed as a learning instrument for enhancing collaborative project work. Partners who collaborate with each other on a frequent basis are more likely to establish routines that promote finding mutual research targets (Gomes et al. 2005), disseminate research results (Hall et al. 2003) and determine a time frame for delivering results (van Dierendonck and Debackere, 1988). A specific emerging routine is the increased usage of standard protocols (Hertzfeld et al., 2006) to moderate collaborative research projects. In this respect, the study by Bjerregaard (2009) identifies collaboration strategies utilized by industry and academic partners for enhancing the formation and optimization of processes, as well as UIL outcomes. Three strategic changes were identified relating to the a) motivation for engaging in UILs, selection of the partner and definition of goal/aim of UILs, b) process optimization and c) exploitation of collaboration results (Bjerregaard, 2009).

It is interesting to note that the majority of previous works imply and conclude individual behavioral changes with advancing experience levels in UILs. However, the changes are only focused on future practices and activities (publications, network activities, support of students) in UILs but do not necessarily consider the changes done in respect to the interpersonal aspect, meaning the behavioral changes occurring when individuals interact with each other. This study is intended to add to the research gap by focusing on individual behavioral changes made from a micro-level perspective.

3. Method
To investigate and understand the topic in detail, an empirical research approach was chosen in addition to the analysis of existing literature. The inductive research approach is commonly employed when there is not a lot of literature on a certain topic (Saunders et al., 2003), which is applicable in this case. When using the inductive approach, data are first gathered, and as a result, a conceptual framework is formulated (Saunders et al., 2003; Bryman and Bell, 2007). The purpose of the inductive approach is to “understand better the nature of the problem” (Saunders et al., 2003, p. 118) thus the approach answers the questions “why” (Saunders et al., 2003, p. 119) and to uncover occurrences and interconnectivity of emerging phenomena (Malhotra and Birks, 2007). Further, it is suggested to make use of comprehensive analysis of a small sample to better understand the contexts, and to allow for a semi-structured proceeding during the research (Saunders et al., 2003). Qualitative research is the most common way to collect data for the inductive research approach (Bryman and Bell, 2007). To better grasp the underlying reasons for individual change in behavior in-depth interviews were thus utilized, allowing for an in-depth analysis of an individual’s perception and reflection.
3.1. Sample
The interview series aimed to capture diverse views on what changes experience in UILs has made to an individual’s behavior to UILs. To ensure a broad range of perspectives, 15 academic researchers and 15 industry partners across Germany/the Netherlands and Australia, operating in a wide variety of industry sectors and research areas, were interviewed. When profiling the academic researchers, interviewees originated from the engineering, science/medicine, social sciences, agriculture, marketing and information systems area (see table 1). The sample for industry partners comprised individuals stemming from engineering, science/pharmaceuticals, government agency, aged-care, fast moving consumer goods, IT and management service.

<table>
<thead>
<tr>
<th>Australian Interviewees</th>
<th>German/Dutch Interviewees</th>
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<td>8 academic researchers</td>
<td>7 academic researchers</td>
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<td>3 medium experience with UIL</td>
<td>4 medium experience with UIL</td>
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<td>5 high experience with UIL</td>
<td>3 high experience with UIL</td>
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<tr>
<td>engineering, science/medicine, social sciences, agriculture.</td>
<td>engineering, marketing, information systems.</td>
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<tr>
<td>6 industry partners</td>
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<td>4 medium experience with UIL</td>
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<td>2 high experience with UIL</td>
<td>5 high experience with UIL</td>
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<tr>
<td>engineering, science/pharmaceuticals, government agency, aged-care provider.</td>
<td>fast-moving consumer goods, IT, management services.</td>
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Despite different historical development of UILs and university funding systems in Australia and Germany/the Netherlands, research has shown relational success factors to remain similar for the two countries (Plewa et al., 2013) and therefore present the study with limited systematic bias (Patton, 2002). All respondents classified themselves as having either medium or high level of experience in facilitating UILs. A screening process occurred to identify the differing experience levels of the participants; therefore no persons presenting no level of experience in UILs were interviewed. The participants were asked to reflect on their experience in UILs and how this experience has changed their behavior.

3.2. Data Collection and Analysis
To investigate the relevance of experience and its impact on individuals’ behavior in UILs, an interview series was undertaken. In most cases the interviews were conducted on a face-to-face basis and in rare cases via telephone; all were tape recorded. The interviews were of semi-structured nature and are most suited for qualitative research studies, as the researcher is able to identify and understand the underlying reasons of the problem (Saunders et al., 2003). Semi-structured interviews present the researcher with the benefit of being able to alter and change the direction of the interview, depending on the response of the interviewee and thereby allowing a certain topic to be talked about in more detail (Saunders et al., 2003). Thus, the tactics of the research strategy can
be described as having an unstructured interview situation, utilizing a non-standardized questionnaire with open and closed questions. Questions related to an individual’s experience, including the frequency with which an individual is engaged in partnerships with industry partners, the level of understanding of industry requirements, and the extent to which well-developed contacts with people from industry background exist. Participants were also asked to reflect on their increasing experience levels and any notable changes in behavior, including approaches to realize behavioral intentions this has brought about.

Following the transcription of all interviews, the digital coding software NVivo 10 was employed to analyze the data. The interviews were coded according to each newly mentioned topic related to a change caused by increased experience levels in UILs. An inductive and explorative approach of analyzing data allowed the researchers to accumulate reoccurring topics into heterogeneous categories. In addition, triangulation with existing literature enabled further classification and categorization of interview statements. Each interview was cross-coded by the researchers and discussed where disagreements occurred. A generalization of research results cannot be concluded due to the small sample size.

4. Discussion of Results
A consensus emerged regarding the importance of experience, with interviewees agreeing that they made a number of behavioral changes as they gained experience in UILs over time. While both the academic and the industry participants discussed strategic and personal changes as presented in detail below, only academic researchers reflected on specific changes in the operationalization of their strategies. This may be due to the fact that processes for conducting collaborative projects are more established in industry and defined on a companywide level. Industry is dealing with collaboration more from a business perspective and taking it as part of their daily processes. Whereas the management of collaborative projects with companies in universities is more dependent on the individual researcher involved in the project and therefore may differ significantly. Moreover, the fact that academics often take on the role as service providers in these partnerships may explain the importance they place on seeking and improving the tools that optimize the service delivery and partnership with industry partners.

The framework in Figure 1 shows what individuals with experience in UIL believe they do and see differently now, as they reflect on altering strategy, personal mindset and operationalization of strategies.

![Figure 4: Framework – Prior experience in UILs as a driver of change](image-url)
4.1. Different strategy

UILs imply a meeting of individuals from different sectors and environments and thus entail challenges that may not be encountered when working in purely academic or purely private sector partnerships. Despite an increasing number of such linkages, however, and the emergence of extracurricular seminars and workshops, neither industry training programs nor university degrees commonly train individuals in how to successfully engage with universities and industry partners, respectively. Hence, for many, hands-on experience has been the only opportunity to develop strategic thinking and approaches in this context.

That means, in most cases, the first UIL projects an individual engages in occur by chance or are planned with a particular narrow purpose in mind, such as the funding of a particular study or the improvement of a particular product. Inexperienced individuals commonly have little knowledge about the range of possible benefits that can be generated, or the criteria that might be relevant for choosing the best partners, and thus are unlikely to engage in a considered, long-term approach. On a strategic level we thus identified three primary changes, namely engagement based on strategy, a greater selectivity in terms of partners and projects, as well as a higher level of orientation towards the other environment.

Primary and significant change that arises from experience is the deliberate development of a UIL strategy. Individuals mentioned the development of a long-term UIL strategy, which can be incorporated in a broader company/university strategy in respect to Human Resource Management (for companies) and/or general research areas (for universities), as explained in the following quotes that might serve as examples:

“Originally it was based, it was based around opportunity, now we’re moving towards engagement based on strategy where we identify you know, where the opportunities are over the next 20 years in clean energy space where there, where we believe there’s enough interest and capability in industry to invest” (University #A3)

“So, for 4 years ago I developed a strategic concept, in which the topic of collaboration with universities was not conducted opportunistically, so a benefit by doing something together on a loose basis, but to engage in close relationships with some universities, deliberately searching for projects, conducting projects and not just in the sense of advertisement via university trade fairs. We work closely together with the career service. The goal is to get to know students and thereby potential employees, already in the project work with the aim” (Industry #G4)

Such strategic behavior is no doubt beneficial for the party implementing it, as it provides clear guidance to the individual and his/her team on the direction and future of their work. But importantly, when developing a UIL with a partner that acts based on a well-developed, long-term strategy, one can be assured that the partner is more likely to commit to the linkage and thus spend time and effort into making it work.

In line with a more strategic behavior lies a higher level of selectivity of partners and projects. While individuals may initially have engaged with the partner who is available at the time, with experience comes a pool of knowledge relating to the characteristics that determine a valuable partner and

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9 AUS/GER refers to the country of origin for each respondent (Australia and Germany/the Netherlands) respectively
project and that are required to increase the chance of UIL success. This knowledge is put to use when considering new partners and projects, as illustrated below:

“In the beginning it was rather opportunity seeking. This changed into a qualitative selection of partner” (University #G14)

“I’ve become far more aware of it and I can, I’m more demanding about what I expect from researchers and I actively avoid certain people and groups” (Industry #A12)

Choosing the right collaboration partner is thought to be a substantial element to successful project work and is thus critical for both industry and university management to embrace. This finding adds to the results identified by Bjerregaard (2009), who states that, depending on the project outcome individuals engage in different partner selection procedures, whereby individuals keen on optimizing short-term collaborative project outcomes refer to already existing contacts, and those conducting research in areas in which personnel and research activities are limited, rather seek to expand their network and engage in long-term cooperation.

When further reflecting on the change experience in UILs has made, both university and industry participants reported a higher level of orientation towards the other environment. For example, this implies a greater appreciation of the contribution or specific needs partners bring to a linkage.

“We do research but we’re geared to an industry frame of mind” (University #A7)

“We now recognize the importance of research and of the university involvement I think prior we would have seen it as a much smaller component to what we do whereas now we see it as a huge component. We wouldn’t, we don’t develop any service without some good evidence and some sort of service research that’s gone on behind it” (Industry #A11)

For both industry managers and university researchers, there is great benefit in having a partner who actively seeks to embrace the strengths and interests offered by the partner and its environment. The external orientation that comes with experience should thus be fostered in one’s own organization but also actively sought out when trying to identify new potential partners. This finding adds to the work of van Dierdonck et al. (1990), who found academic researchers with previous collaboration experience to change their attitude towards industry partners.

4.2. Different mindset
With experience also comes a different mindset that exemplifies growing confidence and a better personal understanding of the other environment. Individuals with greater experience in UILs recognize that they have a higher level of confidence when dealing with the other environment, encouraging them to take on more responsibility or extend their work into other knowledge areas, as the following examples quotes indicate:

“I am more confident; and more picky, more, it’s more like, I am also more confident to say I don’t think that’s really researchable topic for, that you should get industry money.” (University #A4)
I think it’s, there’s been attention to a bit of the power balance that possibly it was more that we felt that the universities were a bit scary because they came with all this research skill and they were going to come to us and sort of it was all going to be too much [...] The other thing too is we’re taking the lead in a lot of the projects and I don’t think we realized how much influence we could actually have” (Industry #A11)

Confidence comes with a better personal understanding of the environment and of UIL success factors. Not only do individuals better grasp the partners’ working environment, they also better understand its relevance for the success of a project. Experience changes an individual’s understanding of the counterpart’s environment, which is not only limited to understanding the work attitude and language utilized but also the importance of the individual and his/her skills.

“It is important to understand how the academic works and this comes through experience” (Industry #G7)

“If you want to survive in this business you have to adapt yourself to the changing environment. And I think that you learn from every contact with every company, and that means that you take it to the next meeting, or you. Well, if you start as a freshman in this domain you don’t speak the language, so you have to learn the language the hard way” (University #G15)

Having confidence in one’s own capabilities promotes determining project goals and thereby better managing expectations of the project and the partnership. This finding contrasts Lam (2010) who proposes that especially scientists who are experienced in collaborating with industry try to influence and in some ways manipulate the partners’ expectations to set the boundaries for the relationship.

4.3. Different operationalization of strategies

Findings regarding the operationalization of strategies can be grouped into three categories – those relating to expectation management, quality management and resource management. As stated earlier, only academics reflected on changes in the tools they developed and/or used in their day-to-day management of UILs. Yet it was obvious that a routine had clearly developed with many of these approaches. Hence, once a particular behavioral approach was tested and found to be valuable, researchers soon adopted it as part of a routine, which allowed them to follow their strategic direction with purpose, calmness and a heightened confidence level described above. This indicates benefits of introducing novices to UILs in a safe and positive environment which may occur by teaming up individuals interested in working with the other environment with more experienced colleagues, supplemented by structured training sessions. A certain routine that develops as experience grows certainly supports any change in mindset and behavior. The specific routines extend the work of Gomes et al. (2005), Hall et al. (2003) and van Dierdonck and Debackere (1988) who identified routines related to finding mutual research targets, disseminating research results and determining a time frame for delivering results.

Experience highlighted the importance of expectation management in the initial stages of UILs, leading to defining clear focus on expectations to be achieved during the project very early on. An approach relating to the management of expectation is the running of taster projects, in which the academic side aims to test the working behavior of new partners and prove their ability to deliver results.
“How I deal with the client whilst doing the project is definitely different in terms that I make sure that we set up. Before I sign a contract or engage in the research process, as we are putting together the proposal, I use either like a Gantt chart and come up with agreed upon set of timelines, and make sure that in the project I spell out exactly what I will do, and I guess I am more careful about kind of guarding my own, like protecting myself [...] And so now I make sure that I’ll underline that I understand their expectations, and we get it on paper” (University #A4)

“[We do taster projects] especially with people that we don’t, we haven’t dealt with before. And we tell them we can do a certain thing within a certain time, and we do it within that time, but we do it very well” (University #A1)

To ensure the quality of collaborative projects and results for the industry partner, academics adapted to industry reporting standards by adjusting the format, extent, time and language. This adds to the finding of Hertzfeld et al. (2006) who identified protocols as an emerging routine in collaborative projects. For example, one individual described a specific reporting framework that was tailored to industry needs. Another reflected on changes in the type and extent of record keeping as well as a stricter focus on reporting timeframes:

“I guess industry works towards certain standards on any process. I mean not that we don’t have standards, but I guess you’re working at a level that industry wants, which is obviously different from what you do in an academic environment. So it’s a bit more exacting, the record keeping has to be proper, the reporting has to be on time” (University #A1)

Another way of managing quality perceptions is the focus on under-promising and over-delivering within each project:

“If you say you’re going to do something, which you know will take eight months, you make it, eight or ten months, you say you’ll do it in a year. If you say we deliver five things within the year, you might deliver six things. So you’re always kind of over achieving” (University #A1)

Academics with experience in UIL also described themselves as more conscious of utilizing appropriate resources, in particular related to personnel. Not only is the deployment of qualified staff key to operationalizing strategies, so is the financial investment in such personnel.

“In the early days, we were so lean on resources, we were probably at a 95-percent quality level, which isn’t good enough. And so we’ve invested more in good staff, good training. We’ve had to put the salaries up quite a lot to make sure we reward the really good people very well. And so we provide a quality standard that is now not an issue. So that’s been an important thing” (University #A14)

A deeper understanding of how academic behavior changes in respect to the operationalization of strategies provides industry managers with the insight that academic researchers are eager to adapt their behavior to embrace predefined standards utilized in industry. Therefore, industry managers can aid academic partners by introducing common approaches used in the industry environment,
contemplating the overall success of the project and partnership. By assisting and supporting each other, individuals are working as a team with a common focus. Given the fact that UILs are commonly performed by a group of people, individual experience is not only relevant for the person itself but also for advancing the entire project group. Project teams, having previously worked together, were identified to work more effective and efficiently as each team member is aware of the other team member’s skills and competencies and can therefore better assign tasks to the most appropriate person, using their experience (Reagans et al., 2005).

5. Conclusion, Implications and Future Research Directions

As already implied by the literature, our findings confirmed that experience matters. It matters as the individual who brings that experience to the linkage has developed a unique set of strategies, personal mindsets and operationalization of strategies that can be utilized to improve relationship effectiveness and broader value creation in UILs. The identified attitudinal and behavioral changes are not necessarily restricted to a specific phase of the partnership. They rather relate to the overall management of UILs at all stages of engagement and can thus inform a number of managerial implications. First, individuals seeking suitable UIL partners may integrate a potential partner’s UIL experience level as a decision criterion in the partner selection process. Furthermore, when working with current partners, one should develop strategies that help capture the strategies as well as approaches for operationalizing those utilized by experienced individuals and assess the value of executing these within different partnerships. Individuals may also wish to periodically reflect on the impact their ongoing experience with individual relationships has on their attitudes and behaviors, and capture insights to enable learning individually and as part of a group and institution.

Despite the fact that individuals are the key drivers for UILs, the respective institutions cannot be neglected. As such, the task for the institution lies in enhancing the value of individuals’ experience beyond that person’s linkages for the benefit of the broader institution. This requires the development of suitable structures and policies that allow institutions to cultivate and institutionalize changes individuals make based on their personal experience. One aspect to be considered by institutions is the engagement of experienced individuals in new linkage endeavors to utilize the individuals’ strategies, mindsets and approaches for operationalizing strategies for the benefit of these linkages. In addition, allowing novices to work alongside experienced individuals and thereby permitting them to learn by observing and imitating behaviors, without compromising potential benefits for the parties involved, is of great value.

Another factor to consider is the design of an incentive system that recognizes the value of UIL experience and the value this creates, thus encouraging individuals to engage in such linkages over time. Lastly, the development of a structure through which strategies and approaches for operationalizing strategies as described above are captured and communicated in internal training programs open to both experienced and novice staff is beneficial. The number of different tools we identified suggests that a broader exchange even between experienced staff would be of value.

While the study provides valuable insights, several limitations should be considered. First, the limited scope of the findings reported here should be acknowledged. The diversity of the sample comprising thirty individuals across two countries, created a solid foundation for our research yet should be broadened in the future to seek insights from individuals in other countries and contexts. Second, while the diversity of participants, for example in their research fields and working environments, allowed for a comprehensive analysis of viewpoints on the impact of experience, it does not enable
industry-specific insight. Hence, future research may focus on, and compare, particular research fields. Third, the interviews asked individuals to outline their experience and related changes in their behavior and mindset based on an overall reflection of their work. Adding to such a broad-picture approach, an investigation of changes occurring within a particular relationship over time would add valuable additional insight.

Future research investigating changes relating to experience should preferably take a longitudinal approach and follow individuals as they gain experience in UILs or follow partners throughout the evolution of a particular relationship as they learn and adapt their behavior over time. Furthermore, a dyadic approach would be beneficial, as it would not only allow the identification of different perspectives on changes that emerge but also the partner’s response to such change.
APPENDIX

Interview Guide

I. General
Information about the interviewee

6. What kind of linkages with industry/university are you involved in?
7. How many projects/relationships are you involved in?
8. When did those partnerships commence?
9. Have you been employed in industry/at university previously?
10. What role do you have in the projects/relationships?

II. Experience
Discuss first and ongoing involvement with industry/commercialization

University:

4. Why did you get engaged?
5. How was first contact made?
6. What happened? How do you manage/handle collaborative projects?
7. With increasing experience, did you change? If yes, how?
8. What did you change in your behavior?
9. How did your approach change?

Industry:

4. How did you first get involved with universities?
5. How was first contact made?
6. What happened? How do you manage/handle collaborative projects?
7. With increasing experience, did you change? If yes, how?
8. What did you change in your behavior?
9. How did your approach change?

III. Individual relationships
Relationship (various relationships; focus on individual relationship when answering questions)

10. Briefly describe what kind of relationship you are engaged in
11. How long has it been running (e.g. several projects or one project, length of time)
12. How many people are involved on both sides?
13. How much is involved (how important for you)?

IV. Clarifying and probing questions
Interviewers were asked to seek clarifications and ask for specific examples in relation to the individual university-industry relationships mentioned throughout the interview.