

Enhancing Regional Engagement Through Further Developing Knowledge Transfer Professionals (KTPs)

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Executive Summary

Terms of Reference of the Study and Report

The study was established to provide the following:

- An integrated account of the existing UK academic and practitioner literature on the Continuing Professional Development needs of Knowledge Transfer Professionals (KTPs)
- An analysis of the Continuing Professional Development (CPD) needs of Knowledge Transfer Professionals within the West Midlands Region
- A review of current CPD provision available within the West Midlands Region and gap analysis to identify areas for attention
- Identification of motivators and attractors of engagement in Knowledge Transfer (KT) through the elicitation of in-depth case stories from academics who are currently highly active in Knowledge Transfer
- A critique of how these identified motivators and attractors can be used to raise awareness of, and to increase engagement in, Knowledge Transfer in West Midlands' Universities.

Methodology

The methodology adopted for this research used both quantitative and qualitative approaches in order to obtain a rich data-set for analysis. Two e-surveys, and 15 unstructured interviews were conducted, scrutiny of a variety of websites and publications, and attendance at a number of networking meetings were all used. In total 91 individuals responded to our e-surveys and over 17 hours of interviews were conducted with 15 individuals from within the West Midlands region.

Findings

Knowledge Transfer Professionals (KTP)

In the present report the term Knowledge Transfer Professional broadly refers to all personnel engaged in knowledge transfer activities within knowledge-based organisations; including the Knowledge Transfer Broker and Knowledge Transfer Academic as defined below.

- A comprehensive account of the CPD needs of West Midland's Knowledge Transfer Professionals (KTPs) is available.
- A more than adequate amount of CPD resource provision is available for KTPs in the form of training courses, e-resources, conferences, networking events, good practice guides and even online mentoring services. However, these resources are difficult to locate and are not well publicised as general awareness of them was found to be extremely low.
- Technical knowledge and skills areas are the most frequently cited training and development needs by KTPs, such technical areas of KT are identified as: business processes, contracting and legal issues including intellectual property, knowledge of external labour market and the University-Industry interface, schemes and frameworks to facilitate interaction, and bid and proposal writing.
- Induction procedures throughout the region are highly variable. Respondents would have liked to have seen technical KT issues, and University-Industry contextual issues covered during their own inductions.
- Face-to-face training delivery was the preferred method, with self-directed study, e-learning and e-tools being least popular amongst respondents.

- Training budgets to address CPD needs across the West Midlands Region were variable and often not large enough to support attendance on external courses. Inline with this, own Higher Education Institutes (HEIs) were most frequently used for CPD provision for KTPs.
- KTPs identification of their own CPD needs tends to occur on an ad-hoc basis, for example when they need to engage in something new, they will seek development in any knowledge-, or skills-gap areas.

Knowledge Transfer Brokers (KTB)

In the present report, Knowledge Transfer Brokers are defined as personnel employed by HEIs with the purpose of facilitating and sustaining knowledge and technology activities between the University and external organisations.

- Knowledge Transfer Brokers believe that a nationally recognised KT qualification would be beneficial to the profession and provide a benchmark of required knowledge.

Knowledge Transfer Academics (KTA)

In the present report, the term Knowledge Transfer Academic describes an individual employed within a HEI whose core function is as an academic, for example has an academic contract as a Lecturer, Senior Lecturer, Research Associate or a Professor, but who also engages in Knowledge Transfer with external organisations, to a varying degree.

- Seven themes were elicited from the unstructured interviews with the academics highly active in KT: Values-in-Practice; Motivations and “Buzz Moments”; Purposive Activities; the Academic Context; The Journey of the Knowledge Transfer Academic (KTA); Pedagogy; and Perceptions of Risk.
- Those currently engaging in KT find it to be exciting, fun, challenging, at times spontaneous, rewarding and job-enhancing placing them at the cutting-edge, enhancing their teaching, and allowing them to pursue their own interests in a practical way.
- Hearing positive stories about engagement in KT will generate curiosity in like-minded individuals and is a key way to promote and publicise engagement in KT.
- The psychological contract is a powerful concept in understanding the factors of the employment relationship that enable academics to engage in KT, and provides a model through which to support increased engagement.
- The KTA values autonomy, the ability to be self-directing in their work, and is appreciative of the flexibility that the HEI provides them. In return the KTAs often expressed a sense of loyalty and commitment to their own HEI.
- KTAs have “discovered” KT in a variety of ways, a variety of entry strategies into KT were identified and KTAs also noted frequently that they ‘fell into’ KT in a serendipitous manner.
- KTAs remain passionate about delivering a quality learning experience and see their experiences with KT as enhancing their teaching.
- KTAs do not desire self-employment, they prefer working entrepreneurially for an HEI and have little, or no desire to enter the risky world of self-employment. They do not want to be ‘sales people’ or issue invoices for their Company’s survival.
- KTAs view the context of HE as being a system enabler for allowing them to engage in many projects that other industry sectors, or self-employment would not be able to support them in. For example, they reported having access to resources and expertise in the HEI context that they did not feel they could have received elsewhere.

Recommendations

1. Continuing Professional Development initiatives should focus upon the specific, technical knowledge and skill areas required by Knowledge Transfer Professionals, as opposed to the more general business process skills such as team working,

communication, and leading others. Specific, technical aspects of the KT role include, understanding the University- Industry interface, HE policy, culture and government schemes, the legal context of KT, and contract negotiation.

2. Awareness-raising and publicity of the training and development provisions available to Knowledge Transfer Professionals needs to occur. Generally, participants were unaware of the training providers, the courses on offer, and the support networks available to them.
3. Consideration should be given to the most appropriate delivery methods and strategies for accommodating KTPs' CPD needs. Online methods of learning and networking were the least favoured method by KTPs, instead preferring the face-to-face delivery methods that allow the opportunity for networking, collaboration and knowledge sharing with peers. We recommend that face-to-face events, courses and networking should be favoured above on-line resources.
4. Publicity of Knowledge Transfer in general and awareness-raising of the positive aspects of engaging in KT is required to increase engagement in KT throughout HEIs.
5. Implementation of a standardised induction programme for the West Midlands Region, covering the context of the University-Industry interface, the culture, policies and procedures of HEIs and a cross-institution buddy, mentor or coaching scheme to facilitate networking and sharing of best-practice is required. The induction should also include a glossary of terms to assist with integration into the HE culture.
6. Models of future engagement should aim to activate 'pull factors' for KTA engagement by emphasising the positive aspects of engaging in KT rather than focus upon the 'push factors, the barriers or threats. One suggested promotion method might be to develop case studies, highlighting 'best practice' in KTA activity, national KT awards and nominated KT 'champions' in each HEI.
7. Due attention should be afforded to the concept of the psychological contract between KTAs and HEIs in enabling KT to occur. The KTA values autonomy, the ability to be self-directing in their work and is appreciative of the flexibility that the HEI affords them. These expectations form part of the psychological contract between KTAs and the HEI and/or the employer and it is important that this contract is upheld. Managers should bear these implications in mind when trying to encourage their team members to engage in KT activities.
8. HEIs need to encourage and facilitate multiple output activities from KT projects in order to increase the awareness and credibility of these projects both externally and internally. This will also improve the academic esteem surrounding such KT activities, thus encouraging further engagement.
9. KTA managers should facilitate dedicated blocks of time and processes to enable the KTA to respond quickly to new KT opportunities (this may involve short-notice release from teaching/administration duties).
10. Models for future engagement could include KTA managers and HEIs facilitating 'KTA problem match' events around specific KT topics, which will attract particular KTA individuals and facilitate networking and collaboration. These would be perceived as more efficient and more relevant than generic 'networking events' or e-learning materials.
11. KTA development activity will be largely determined by the KTA and in a responsive and needs-led manner and so would be better supported with a non-specific development budget aligned to KTA roles, rather than planned development.

Report

Aim and Scope

This project seeks to integrate the existing academic and practitioner literature on the current perceived continuing professional development (CPD) needs of Knowledge Transfer Professionals, all individuals who engage in Knowledge Transfer during the course of their role in Higher Education Institutes.

Using this integrated synopsis as a basis for investigation, a regional e-survey to assess the current training and development needs of Knowledge Transfer Professionals within the West Midlands Region will be conducted. Utilisation and awareness of current provisions, preferred support mechanisms, and ideal platforms for learning will also be identified at this time. Subsequent to this, a review will be carried out on the current provision of training and development provisions within the West Midlands Region.

This data will inform a gap-analysis of the extent to which these needs and preferences are addressed in the current provision, and identify potential gaps in provision to meet these previously identified needs.

The research then focuses specifically on one aspect of the needs of Knowledge Transfer professionals, namely, the ability to motivate academics to engage in knowledge transfer activities. Through engagement in primary research the project seeks to elicit examples of best practice using a case study methodology. The aim of these exemplars of best practice is to provide real-life, revelatory examples of Knowledge Transfer activity aimed at increasing academic engagement with such activities. The stories are collected, not in response to structured interview questions about practices and procedures; or barriers and challenges, but as told by them with a view to accentuating the positive aspects of KT and promoting enthusiasm. We suggest that hearing stories such as these is an optimal way to generate curiosity in like-minded individuals as well as to support and promote those who are already engaging in these activities.

Finally, the project will conclude by making recommendations for any new training and development activities, or enhancements to existing provisions, in order to meet these identified needs. Recommendations will also be made in respect of the recruitment, retention and strategic management of KT activity within the West Midlands Region.

This project builds on the earlier work completed by the Centre for People @ Work on enhancing academic engagement in knowledge transfer activity (Francis-Smythe, 2008, Francis-Smythe, Haase, Steele, & Jellis, 2006, 2007).

Background

This section will define knowledge transfer, the role of the knowledge transfer professional and provide a brief background to the advent and growth of knowledge transfer within United Kingdom (UK) universities. It will then progress to provide a review of the literature and current thinking on the perceived Continuing Professional Development (CPD) needs of Knowledge Transfer Professionals (KTP) and commentary upon how these needs are currently being serviced by existing training provision. Finally, other work currently ongoing in the field will be highlighted.

Definition of Knowledge Transfer

The Term Knowledge Transfer, also referred to as Knowledge Sharing and Knowledge Exchange, third-stream activity or Technology Transfer, refers to a reciprocal sharing process of knowledge and expertise between Knowledge Based Organisations (e.g. Higher Education Institutes, Public Sector Research Establishments), and External Organisations or the wider community for the mutual benefit of both parties, contributing to economic and social development.

Definitions of knowledge transfer vary dependent upon the context in which it is used. Typically, AURIL (Association for University Research and Industry Links, 2006, pp.3) define knowledge transfer as: "the systems and processes by which knowledge, including technology, know-how, expertise and skill, is transferred from one party to another leading to innovative, profitable or economic and social improvement". The Economic and Social Research Council (ESRC) definition emphasises the sharing aspect of knowledge transfer between organisations saying that "Knowledge Transfer is about exchanging good ideas, research results, experiences and skills between universities, other research organisations, business, government, the public sector and the wider community to enable innovative new products, services and policies to be developed" (www.esrcsocietytoday.ac.uk, accessed 28 May 2009).

For the purpose of this report, the term knowledge transfer will refer to the process within the setting of Higher Education Institutions (HEIs) and is interpreted as relating to the processes that facilitate the movement of knowledge across the research-business interface. Francis-Smythe, Haase Steele & Jellis (2006) identified the following commonly occurring Knowledge Transfer activities that occur in HEIs: giving presentations/ conference papers, applied research, authoring practitioner/ applied research books/ journal articles and training.

Definition of a Knowledge Transfer Professional (KTP)

The term 'Knowledge Transfer Professional' is an increasingly widely used term that refers to personnel engaged in knowledge transfer activities within knowledge-based organisations. In the present report the term is used to broadly refer to all persons with a connection to Knowledge Transfer, including the Knowledge Transfer Broker and Knowledge Transfer Academic as defined below.

Definition of a Knowledge Transfer Broker

In the present report the term Knowledge Transfer Broker shall be used to encompass a wide range of job titles used by Higher Education Institutions (HEIs) such as Knowledge Transfer Manager/Officer, Technology Transfer Manager/Officer, and Business Development Manager/Executive. Knowledge Transfer Brokers are defined as people employed by HEIs with the purpose of facilitating and sustaining knowledge and technology activities between the University and external organisations.

According to the survey undertaken by AURIL in 2005 (n=314), the types of activities engaged in by knowledge transfer brokers are wide ranging. Out-reach and partnership

activities with external organisations comprise the major form of activity (73%). Commercialisation management and support is a further important activity (44%), followed by research administration/ contract management (41%), project management (40%), innovation/ new ideas/ new knowledge management (40%), intellectual property management (38%) and funding (34%) (AURIL, 2005, pp.10).

Definition of a Knowledge Transfer Academic

In the current report, in addition to Knowledge Transfer Professionals, we will also refer to a further subset of individuals who engage in Knowledge Transfer, the Knowledge Transfer Academic (KTA). The KTA is an individual employed within a HEI whose core function is as an academic, for example has an academic contract as a Lecturer, Senior Lecturer, Research Associate or a Professor, but who also engages in Knowledge Transfer with external organisations, to a varying degree. This KT activity can either be carried out in addition to their full time role as an academic, or within an explicitly negotiated contract stating a commitment to delivering KT for a proportion of their time.

The Increase in Knowledge Transfer Activities

Traditionally, universities have had a twofold mission, teaching and research, and financial support from the public purse commonly funded both of these activities. However, since the advent of the White Paper on "The Future of Higher Education" (DfES, 2003), the Lambert Review of Business-University collaboration (December, 2003) and the establishment of the Higher Education Funding Council for England's (HEFCE) Higher Education Innovation Funding (HEIF) programme in 2001, HEIs have become increasingly aware of their requirement to seek financial support from alternative sources, if they are to be successful (Marginson & Considine, 2000; Shattock, 2005). This alternative funding is commonly referred to within Higher Education (HE) as 'third stream' income. In the last decade, there has been a steady decline in the financial support for both teaching and research from the state (DfES, 2003), so that universities not only in the UK, but also globally, are increasingly aware of the need to consider ways in which they can actively engage in knowledge transfer to generate further income.

Aside from the financial 'push factors', there are many benefits (or 'pull factors') for universities and external organisations to be gained from engaging in knowledge transfer. As stated by the Confederation of British Industry (CBI, 2001, pp.2) in their best-practice guidance for developing University-Industry partnerships; "From the company perspective academic and industry partnerships are a means of tapping into the academic knowledge base of the UK. For universities such activities provide a range of opportunities, not least of which is the chance to raise external income and bring industrial relevance into the work that they do. From the Government perspective, industry-academic partnerships are a mechanism to help drive future prosperity in the UK and lead us in developing a successful knowledge-based economy."

For these reasons, the UK has witnessed a large amount of public investment into knowledge transfer activities in recent years. An evaluation report by HEFCE (2009) states that almost £600 million has been invested in knowledge transfer from public funds since 2001, primarily through the Higher Education Innovation Fund (HEIF). It estimates that this investment has generated a minimum of between £2.9 and £4.2 billion in value. This investment is also evidenced in the number of staff engaged in knowledge transfer roles in the UK being significantly higher (13 staff per institution, Zeitlyn and Horne, 2002) than in the USA (4.3, AUTM, 2005) and Japan (4.4, NISTEP, 2005).

Emergence of Continuing Professional Development Provision

UK policy for University-Industry links began to emerge on the basis of the Business Interface Training Provision (BITS) Report in 2002 (Zeitlyn & Horne), which found that the principle barrier faced by higher education institutions in the recruitment of knowledge transfer professionals was the identification of people with relevant skills and experience. They noted that it was unlikely that institutions would be able to recruit from the external environment to

fill recruitment gaps as there was a shortage of people with these necessary skills and experience. The solution was felt to lie in training those already employed in such organisations and supporting new entrants into the field (Woolgar, 2006). It was assumed that the provision of professional training opportunities for employees in knowledge-based organisations may assist the process of technology and knowledge transfer and a number of organisations have emerged that seek to provide such opportunities (Woolgar, 2006). However, before it was possible to supply effective CPD for KTPs it was essential that the role competencies and resulting training and development needs of KTPs were clearly identified.

Perceived Continuing Professional Development Needs of Knowledge Transfer Professionals

The HEFCE (2009) evaluation report of third-stream funding states that "High-calibre Knowledge exchange staff who can understand not only the requirements of the strategic partner but also how the academic capabilities within the HEI can help the organisation are increasingly recognised as the lynchpin for developing successful relationships." (pp. 11). In light of such thinking, much research attention has been invested in determining the knowledge, skills and abilities required by knowledge transfer professionals in order to optimise the successful exploitation of university technologies and knowledge.

A review of the literature suggests that this is a complex task due to the broad range of knowledge, skills and abilities required by knowledge transfer professionals in the performance of their role. The range of skills required for knowledge transfer vary considerably and relate to understanding technology, its applicability and market potential, possible licensees; the underlying nature of contracts, intellectual property law, costing processes for research contracts, licensing agreements or the processes involved in spin-off formation. In addition, negotiation, planning, team working ability, information collection and management as well as managing relationships are all important. Whilst Knowledge Transfer requires entrepreneurial, risk-taking or deal-making individuals who are able to reach-out to business and 'make things happen', it also requires supporting and facilitating services that underpin collaborative and deal-making activities (Zeitlyn & Horne, 2002).

The BITS Review (Zeitlyn & Horne, 2002) commissioned by the formerly named Department of Trade and Industry (DTI) (now UK Department for Business, Enterprise, & Regulatory Reform, BERR) aimed to identify the core competencies, skills and training needed to support the growing scale of interactions between industry and the research base. It also considered the alignment between supply of, and demand for, skilled professionals and how any discrepancies could be addressed by stimulating the provision of appropriate training. Their review found that there is a fairly good level of consensus on the essential knowledge and core skills that are required by knowledge transfer professionals. Much of the required skill-set they elicited is typical of many professions (e.g. business planning, business development and selling, negotiation, influencing, conflict resolution, planning and time management), but they proposed that it is the execution of these skills in combination with knowledge areas pertinent to the community's working environment that is important. They concluded that whilst training providers are addressing most of the essential knowledge and skills areas, there is no integration with the context in which knowledge transfer professionals operate and the way in which this affects the actual tasks they undertake. Areas that they identified as contextual include science policy, HE policy, business and academic cultures and government schemes.

The report made several recommendations to the DTI for improvements to the support for knowledge transfer professionals including the development of a Knowledge Transfer course that was made up of standalone modules that could enable a 'pick and mix' approach, ideally developed by universities in association with professional networks. They proposed that the course should be given appropriate accreditation and designed to be part of a formal qualification (such as a Diploma or Masters of Business Administration) and be no more than 1 year (full time) in duration. The review also highlighted the urgent need for induction training materials for new entrants (ideally downloadable web-based documents) and mentoring and coaching schemes, secondments and exchanges, with significant thought given to

implementation of these schemes in practice. It was also noted that the demand for training was felt to be too small to drive business interest in supplying courses and it was recommended that the government play some role in supporting new course development. The BITS review's final recommendation to the DTI was to consider facilitating the establishment of a practitioner owned, managed and operated dynamic web-based knowledge centre with a directory of courses, conferences, trainers, networks, a library of source material, research data etc. It was thought that such a resource would be of benefit to inform, network and unite many of the different players across the knowledge transfer landscape.

Zeitlyn & Horne's (2002) review further identified 19 skill categories that were necessary for the knowledge transfer professional role which were as follows: Research, Information Technology (IT), Organisational, Oral/ Written Communication, Active Listening, Meeting Skills, Presentation skills, Editing and Précising, Team Leadership/ Working, Influencing Skills, Receiving Feedback, Negotiating, Conflict Resolution, Planning and Time Management, Business Planning, Business Development and Selling, Facilitation, Problem Solving and Decision Making, Networking. In summary, they identified that knowledge transfer managers and professionals in the HEI sector require the following training and or formalised continuing professional development:

- Organisational and coordination skills
- Influencing skills
- Business planning skills
- Meeting and presentation skills

In 2001 AURIL originally presented a Continuing Professional Development (CPD) framework (3rd revision published in 2006) for knowledge transfer professionals engaged in developing and supporting knowledge exchange links, relationships and partnerships between universities, other public research organisations, private sector research bodies, and industry. The Framework is to be seen as an evolving document which will continue to be assessed and revised on a periodic basis according to developments and feedback received by AURIL from their users. The main aims of the framework were stated as: assisting employees to develop an understanding of what is required of the KT Practitioner function; enabling them to identify their personal development and training needs; and assisting them to establish a programme of continuing professional development. In addition, it aims to provide a basis against which individual post holders can reflect upon their competence and, following from this self-reflection, develop knowledge and skills and take action to increase their overall effectiveness as part of a policy of continuous improvement. Finally, it provides a framework for a dialogue between a post holder and his/her line manager as a basis for personal review and personal development planning.

The AURIL CPD Framework identifies 8 "key roles" and various associated "units and elements" which are designed to provide a detailed insight into the roles and requirements of the knowledge transfer function within the organisation. The study examined the roles and responsibilities of those working in Knowledge Transfer, split them into generic activities and designed a framework around management competency standards, condensed into 8 key managing roles. The 8 key roles are as follows:

1. Manage Information and Communication;
2. Manage Relationships;
3. Manage Projects;
4. Manage the Commercial Interface;
5. Manage Operations within a Legal Context;
6. Problem Solve and Manage the Decision Making Process;
7. Provide and be a Source of Leadership;
8. Provide Leadership at the Senior Management Level.

Francis-Smythe et al. (2006) proposed that in order to be able to service the CPD needs of KTPs, it is necessary to identify what generic behavioural competencies are required by KTAs in order to successfully perform their role. According to Kurz and Bartram (2002,p.235) competencies "..... are concerned with the behaviours and the underpinning successful

performance; what it is people do in order to meet their objectives; how they go about achieving the required outcomes; what enables their competent performance". Francis-Smythe et al. suggested that specific programs for academics needed to be designed to be contextualised around the most important competencies identified in their study. Their study identified 8 competencies of successful role performance of knowledge transfer professionals. Two competencies, 'interacting and presenting' and 'organising and executing' were by far the most predominant, generating at least twice as many example behaviours by participants than the other competencies. Competencies identified with example behaviours were as follows:

1. Presenting and Communicating Information (e.g. put information across concisely and easily accessible for client)
2. Relating and Networking (e.g. build rapport through regular contact with client)
3. Delivering Results and Meeting Customer Expectations (e.g. establish client's needs through probing and confirm them in writing)
4. Entrepreneurial and Commercial Thinking (e.g. stay in touch with latest developments within industry)
5. Planning and Organising (e.g. provide clear schedule)
6. Working with people (e.g. listen to advice)
7. Persuading and Influencing (e.g. demonstrate and sell benefits of certain actions)
8. Enterprising and performing (e.g. identify and develop technology ahead of the market and industry demand)

Existing Continuing Professional Development Provision

In 2002, Zeitlyn & Horne conducted a review of the training and CPD provision of commercial training providers in relation to knowledge transfer and found that the most commonly cited training providers were Hawksmere plc and Cranfield University. They found the pricing of courses to be fairly consistent amongst suppliers and tended to average £300- £500 per day. Hawksmere and Cranfield favoured residential courses that had different pricing structures and averaged £750- £900 for each training event. A review of the budgets available for the implementation of training/ CPD showed that they were found to be relatively small, with 83% of the HEIs reviewed having less than £10,000 in total to assign to their knowledge transfer professionals. Their findings indicate that each HEI has around 13 employees classified as knowledge transfer professionals, therefore each employee would have an available budget of only £769. Therefore, they concluded that HEIs allocate insufficient funds for staff development to purchase a significant volume of commercially provided training.

Zeitlyn & Horne (2002) also reported a preference amongst knowledge transfer professionals for taught/ seminar style format of training (95% of their sample), as opposed to alternative training formats such as support networks, online and distance learning. In terms of the delivery of training, external courses, in-house courses and support networks were regularly used. Feedback from course providers suggested that the use of case studies, exchange of experience, and role-play were seen as critical to the success of the course and to consolidate learning outcomes. Although most use a mix of media including CD-ROM and video, these were seen as supporting a learning experience rather than being an end product. Most had investigated on-line or e-learning delivery and discarded it as a future route. Furthermore, one training provider commented that the proliferation of distance learning and e-learning methods had served to make people more resolved to seek out traditional 'hands-on' training with user notes and manuals. Most preferred to run residential courses because they felt that the networking opportunities outweighed the additional costs involved for delegates. They also found that 63% of HEIs responding to their survey supported the idea that training should lead to a recognised qualification. In general, KTPs were fairly contented with existing training provision, with 68% of their respondents from HEIs reported being either completely or moderately satisfied with the provision available.

In terms of the most popular training topics opted for by knowledge transfer professionals, Zeitlyn & Horne (2002) report a consensus amongst training providers that courses in intellectual property, finance, and managing projects were popular and in growing demand. Similarly, the AURIL CPD Questionnaire Survey (2005) showed that technical knowledge and skills topics such as commercialisation and Intellectual Property were most popular rated by

knowledge transfer professionals, with softer skills areas, such as relationship management, rated least popular.

Zeitlyn & Horne's (2002) review of training provision also led them to conclude that professional networks and associations can, and do, play a large role in supplying contextual understanding and relevance. However, they concluded that these networks and associations are numerous and tend to be very specifically focused in terms of their area of interest which they felt had led to a limiting of their general appeal and networking opportunities for KTPs.

Other approaches that have been trialled in supporting the training and development of Knowledge Transfer professionals have included attempts to share best-practice amongst professionals. In 2006 HEFCE set up 6 national expert working groups to identify and distil exemplars of good practice in a 9 month programme entitled "Enhancing impact through good practice in knowledge transfer and exchange". In November 2007 the Knowledge Transfer Good Practice programme moved to be delivered under the Institute of Knowledge Transfer (IKT) brand and a Knowledge Transfer Good Practice web-site was established to deliver good practice 'recipes', case studies and on-line networking forums- www.ktgoodpractice.org. The purpose of this website is to provide a dynamic resource for all those involved in HE knowledge transfer and exchange to share and advance good practice, thereby enhancing the effectiveness and impact of HE Knowledge Transfer and Exchange activity. The site enables the sharing of good practice 'recipes': generic, transferable models of 'how to do things' in the different operational management areas of the developing knowledge transfer function. The aim is to encourage productive collaboration in sharing good practice and advancing knowledge transfer and exchange across the HE sector. 28 'good practice recipes' were available in April 2009.

Zeitlyn & Horne's (2002) review concluded that a number of good quality courses and materials already exist in the Knowledge Transfer field, but it is not easy to find them. They reported that most of their respondents were not aware of the range of courses, materials and networks already in existence. They note that "new entrants must find this a complex and confusing field filled with ever-changing policies, schemes and acronyms." (Zeitlyn & Horne, 2002, pp. 4). The field lacks a complete Knowledge Transfer resource, which leaves practitioners with the difficult task of filling in the gaps through the assimilation of material from multiple sources.

Given this comprehensive body of literature which has identified the training and development needs of knowledge transfer professionals, defined the role competencies required, and given the vast amount of public funds invested in encouraging knowledge transfer; this raises the question of why are only a minority of academics involving themselves with knowledge transfer?

Barriers to Engaging in Knowledge Transfer

It has been proposed that the complexity of the work of a KTP comes from the context in which they operate. More specifically, the systems, the politics and the sensitivities of working in an environment where there remains a need to effect real change in the culture and operations of host organisations and in the attitudes and behaviour of senior managers and research colleagues, and the difficulties of working at the boundary between the internal and external interface (Zeitlyn & Horne, 2002). "The structure of academia is such that members of the academy, individually and collectively, are largely accountable to their disciplines; ideas for new research therefore must be situated in the questions and methods of the discipline. Legitimacy is obtained through peer review of process and product. Rewards and incentives like tenure and promotion are dependent on meeting disciplinary standards. Thus, for consulting to be more widely embraced, academia must change some of its own structures and practices." (Jacobson, Butterill & Goering, 2005, pp.317).

Francis-Smythe et al. (2006) investigated the institutional and individual barriers to academics engaging in knowledge transfer. The top 3 institutional barriers were: lack of reward/incentives for department, lack of investment in core academic/research knowledge transfer staffing, bureaucracy (form-filling) required to engage in knowledge transfer processes. The

top 4 individual barriers were: academic's time available to pursue knowledge transfer is too fragmented, lack of academic's time to engage in knowledge transfer, lack of reward/incentives for academic, mismatch of academic and commercial time-scales.

In respect of these contextual, institutional and individual barriers, it could be proposed that no amount of training and development provision for KTPs could solve the inherent problem of academics not being motivated enough to overcome these obstacles and engage in KT. This proposition led us to the second part of this study, which focuses on examining the motivations of those academics who do overcome these barriers and do engage in KT, with the intention of using this information to assist policy makers and HEIs in encouraging academics to engage in KT. In essence, to identify the 'pull factors' that attract and motivate individuals to engage in KT. This represents an alternative approach from the traditional approach of work in this field which has tended to focus on identifying the 'push factors' that have led to an increased attention and emphasis upon engaging in Knowledge Transfer and the obstacles to engaging in KT activities. The present report takes the view that identifying the 'pull factors' for those who are already highly engaged in KT will provide invaluable information that can be used as a motivational tool to engage others in KT through a positive psychology approach. By identifying and focusing on the pull factors, individuals will actually want to get involved, rather than feeling pushed into getting involved in KT.

Other Ongoing Work in the Field

[Alan Hughes](#) and [Michael Kitson](#) (2009) of the University of Cambridge, are currently conducting a national project funded by the Economic and Social Research Council (ESRC) into the impact of higher educational institutions and how they interact with private, public and charitable organisations and how these interactions are perceived within academia, with the aim of defining policies to support UK academics to engage in Knowledge Transfer. The research will consider the objectives for taking part in these interactions and the evaluation of their success from both the business (or 'demand' side) perspective and from the academic (or 'supply' side) perspective. The research will be used to draw implications for public policy in the area of knowledge exchange. The research method consists of two large-scale UK-wide surveys, one of businesses and one of UK-based academics. (The full report should be available free of charge in June 2009 at www.cbr.cam.ac.uk)

Helen Blanchett Daniel McAtominey, and Tim Dixon (2009) at Newcastle University are currently conducting research on behalf of the Joint Information Systems Committee (JISC) into the Training and Development requirements for practitioners involved in knowledge transfer activities. With a focus on e-learning methods, they will be working closely with existing providers in the area, such as AURIL and Praxis, JISC plans to complement existing provision in order to support the sector. A national Training Needs Analysis (TNA) and gap analysis of current provision was conducted between November 2008 and March 2009 with 311 responses received from across the UK. The results of this practitioner survey and training needs analysis are available at <http://bcecpd.jiscinvolve.org/>. In brief, their results indicated that although respondents were generally satisfied with the quality of CPD support available, much of this support was not seen as relevant to KT staff. They therefore concluded that staff do not feel that the CPD resources available to them are adequate and that there is scope for JISC services to deliver relevant and effective support to the CPD needs of Business and Community Engagement (BCE) practitioners, provided that support is seen as relevant and targeted. Between April 2009 and June 2010 they plan to deliver and evaluate the training support package offered by JISC, informed by the TNA and Gap analysis.

Research Objectives

Given this background, the following research objectives were identified:

1. Review of the training and development needs of Knowledge Transfer Professionals in the West Midlands Region
2. Review of the current training provision in the West Midlands Region
3. Gap analysis of training needs against the current provision
4. Identification of the motivations of highly active Knowledge Transfer Academics
5. Recommendations for further development of Knowledge Transfer Professionals to encourage regional engagement in Knowledge Transfer by Academics given these findings

Research Objective 1: Review of the training and development needs of Knowledge Transfer Professionals in the West Midlands Region

Methodology

This section will describe the data collection and analysis methods used during the research to explore the issues around the Continuing Professional Development needs and training preferences of Knowledge Transfer Professionals in the West Midlands Region. .

A programme of desk-based research was conducted employing a literature review, internet resources, and telephone research techniques to identify and investigate key providers of training services to the knowledge transfer professional market. This was supplemented and validated by information drawn from the first e-survey (see below) where respondents were asked to cite training providers they were aware of, or had used in the past.

An E-survey (designed using survey monkey, 2009) was distributed by email to 30 participants identified by CONTACT Knowledge Exchange to be Heads of Units of Knowledge Transfer Professionals within the West Midlands Region Universities. The aim of this e-survey was to gain some initial information from Heads of Units (HoUs) to establish their views on the current provision of training and development for the Knowledge Transfer Professionals in their teams. A further reason for contacting the HoUs was to raise awareness about the research and seek their support in encouraging their colleagues and team members to engage in the research when contacted at later stages of the project. The e-survey specifically asked for names of team members who could complete the main e-survey, and to identify people in their team who they felt were highly engaged in knowledge transfer whom could be approached to be interviewed in the final stage of the research. A copy of the e-survey can be viewed in *Appendix 2: Head of Unit E-Survey*)

Informed by the results of the e-survey to Heads of Units, a further e-survey was sent out to 149 participants whose names and contact email addresses were supplied by CONTACT Knowledge Exchange from their database of regional contacts. Participants were individuals who were engaged in knowledge transfer, either in a Business Development role; defined in this report as a Knowledge Transfer Brokers, or as an academic engaged in Knowledge Transfer, defined here as a Knowledge Transfer Academic (KTA), who had registered with CONTACT Knowledge Exchange and were based across 13 universities within the West Midlands Region. The e-survey consisted of the following main themes:

- Current training and development needs
- Training and Development Method Preferences
- Knowledge, and use of, KT training providers

An Initial email inviting participants to complete the e-survey was followed up after one month with a reminder email. An incentive for participation was offered of free entry into a prize draw to win £200 worth of Amazon gift vouchers. A copy of the e-survey can be viewed in *Appendix 3: Main E-Survey*.

Both e-surveys included a combination of fixed response and open response question formats as deemed appropriate in order to elicit the level and depth of information required. Each survey was piloted on representatives from CONTACT Knowledge Exchange. Following their review and comment, they were approved following one round of iteration.

Results

This section will provide a description of the results of the first stage of the research; a review of Knowledge Transfer Practitioners' Continuing Professional Development Needs. It shall examine the results of the investigations into the CPD needs of KTPs through the administration of two e-surveys, the first to Heads of Units, and the second to individuals working in the area of KT in the West Midlands Region.

Heads of Unit Survey

Demographics

12 participants completed the e-survey, a response rate of 40%. Responses were received from 7 Universities from the West Midlands Region (from a possible 12, a representation of 58% of Universities contacted), with one response from each institution except in the case of University College Birmingham (from whom 5 responses were received) and Coventry University (from whom 2 responses were received). Of the 12 respondents, half reported to be responsible for a team of more than 10 people, with the total number of KTPs managed by these participants indicated to be 115 individuals. 59% of the respondents' team were described as having a sole role as a Knowledge Transfer Broker (e.g. Business Development Manager); 30.5% were described as having roles that were dual role within Knowledge Transfer (e.g. academic and innovation fellow), and 10.5% were described as having a sole role as an academic.

Training Budgets

9 participants informed us about their training budgets for knowledge transfer activity. 33% of those who responded informed us that they did not have any specific budget to spend on knowledge transfer activity, 11% had less than £500 available per employee to spend on training in respect of knowledge transfer activity, 22% had between £501 and £1,000, 11% had between £1,001 and £2,000 and 22% had more than £2,000 to dedicate to this.

Training and Development Needs

Respondents stated that the most common knowledge areas that needed to be supported in knowledge transfer professionals were centred around business processes, contracting and legal issues, and understanding of the local and regional labour market. 60% of those who responded stated that knowledge of Intellectual Property issues was a commonly required area of training and development amongst their team. Further areas identified were concerned with process and project management issues including business processes (Human Resources, Finance etc.) and contract management. Knowledge of the external labour market and industry were also identified by 38% of respondents, specifically in terms of managing the Higher Education/ Industry interface.

Respondents stated that the most common skills areas that need to be supported in knowledge transfer professionals were, bid and proposal writing (identified by 57% of respondents), customer relationship management, including understanding the customer's needs (57%), negotiation skills (57%), sales and marketing (43%) project management skills (43%). Communication, presentation, Information Computer Technology (including Sharepoint and database management systems) and applied research skills were also identified as areas of common skills development required.

Preferred Delivery Methods

The most popular mode of training delivery identified by the Heads of Units was face-to-face training, with 100% of those who responded to this question stating a preference for this mode. 75% of respondents also stated a preference for on-the-job-training, with 40%

favouring E-Knowledge Transfer Tools as a mode of delivery, 38% indicated that e-learning and distance learning were their preferred methods.

Training and Development Suppliers

A range of external training providers were identified as having been used previously by a team member including AURIL, PRAXIS, Blueberry, Collier Pickard, the Intellectual Property Office, Kaplan Hawksmere, PROTON Europe, and Neil Stewarts associates. These training providers were used for such courses as Knowledge Transfer introduction courses, Business Development, Consulting skills courses for academics, Intellectual property, licensing and legal issues skills courses, Knowledge Transfer conferences and workshops and specific information computer technology courses.

Internal training provision typically tended to be delivered by the following departments if available within their institutions for their Knowledge Transfer training and development needs: Corporate Development Centres, Business Development Units, Leadership and Development Departments, Finance Departments and Business Schools. Internal departments were typically used for such training requirements as Project costing, innovation courses, Information Computer Technology, Leadership and continuing professional development.

Respondents believed that regional and national training provision for Knowledge Transfer Professionals could be improved in the following ways, by making more of it available; by introducing bid writing for academics that was specific to different subject areas; and by offering peer support "Champions" to encourage and assist academics when engaging in knowledge transfer.

Identification of Training and Development Needs

Typically Heads of Units stated that they discussed their direct reports' training and development needs with them on a regular basis, with 75% indicating that this discussion took place on a monthly basis or more frequently and often as part of an appraisal event.

Of the tools available to Knowledge Transfer Professionals, Heads of Units generally do not tend to be great advocates of their use to their subordinates. When asked which of these resources they encouraged the use of, JISC Netskills was only used occasionally by 13% of respondents, and never used or never heard of by the remaining respondents. The Global Innovation Network (GINNN) was a similarly unpopular resource with 63% of respondents indicating that they had never heard of, or never used this resource, and 25% indicating they only encourage its use rarely or occasionally. AURIL KT Academy was the most popular resource, with 100% of respondents being aware of this, and only 25% saying that they never encouraged the use of this resource. 13% of respondents were unaware of the Institute of Knowledge Transfer, with 25% indicating that they would never encourage its use, but 50% saying that they often or always encourage its use by their direct reports. Other resources that were identified as used by the Heads of Units were PRAXIS and UNICO.

Induction Methods

Typical induction methods used for Knowledge Transfer Professionals included standard University inductions with an additional master class on Knowledge Transfer Partnerships, or a training needs analysis for required skill set (for example intellectual property, or a general introduction to knowledge transfer within academia). One participant stated that they aimed to provide "a well-rounded programme that makes individuals aware of the wider issues nationally and within each industry sector delivered through internal short courses, and enrolment on an MBA in Innovation Management and Technology Transfer". A typical induction for a KTP was also stated to include an introduction to internal systems and knowledge management processes or protocols.

Main Survey

Demographics

79 Participants completed the main e-survey which was emailed to 149 participants who were engaged in knowledge transfer, either in a Business Development role, or as an academic engaged in knowledge transfer, a response rate of 53%. Participants were based within 13 different universities within the West Midlands Region. Responses were received from 11 out of these 13 Universities, with particularly high response rates from University College Birmingham (100%), The University of Birmingham (75%), and Staffordshire University (67%).

56% of the respondents described themselves as having a sole role as a Knowledge transfer broker (e.g. Business Development Manager); 27% described themselves as having a dual role of which one part was dedicated to knowledge transfer (e.g. academic and innovation fellow), and 11% were described as having a sole role as an academic. These results validate the breakdown given by the Heads of Units survey. The breakdown of participants across sectors is displayed in table 1 below.

Table 1: Breakdown of participants across sector of expertise

	<i>Art and Design</i>	<i>Business</i>	<i>Business Development</i>	<i>IT</i>	<i>Engineering</i>	<i>Environment</i>	<i>Health</i>	<i>Sport</i>	<i>N/A</i>
Total % of Respondents	5.0%	6.5%	45.5%	9%	12.5%	2.5%	7.5%	9%	2.5%

Training and Development Needs

When asked what they considered to be their current training and/ or development needs in terms of the knowledge required to enable them to engage in Knowledge Transfer, technical knowledge areas associated with Knowledge Transfer came top of the list. Over 40% of respondents indicated that they would like developmental support on managing operations within a legal context. A further 40% indicated that they had developmental needs in terms of managing the commercial interface. Less frequent responses were associated with what might be considered soft skill areas of management, for example, problem solving and decision making, leading others, sales and marketing. Table 2 details the full breakdown of development needs identified.

Table 2: Development needs of KTPs in relation to the Knowledge required to engage in Knowledge Transfer

Knowledge Area	Percentage
Managing operations within a legal context (e.g. Intellectual property issues- licensing, spin-outs, patents, copyrights)	44.30%
Managing the commercial interface (e.g. developing and managing business opportunities, promotion and marketing knowledge transfer)	40.51%
Context of the Higher Education Institute/ business interface	32.91%
Schemes and frameworks to facilitate interaction (e.g. Index, KTPs, CASE awards, Research councils, Charities, hefce, EC, Venture Capitalists)	31.65%
Managing relationships internally and externally	27.85%
Finance (e.g. costing projects, overheads, budgets, evaluation)	27.85%
Leading projects (proposal development, research plans, monitoring progress etc)	25.32%
Managing information and communication (obtaining, evaluating and communicating)	21.52%
Business awareness and business planning	21.52%
Project management	20.25%
Delivering training (course development and delivery styles)	20.25%
Data protection	17.72%
Sales and marketing	16.46%
Leading others	13.92%
Problem solving and decision making	12.66%
Research dissemination (e.g. public relations, publication writing)	11.39%
Other	8.86%

When asked what they considered to be their current training and/ or development needs in terms of the skills required to enable them to engage in Knowledge Transfer, again technical skills areas associated with Knowledge Transfer came top of the list. 38% of respondents indicated that they would like developmental support with technical skills areas such as Intellectual property issues, Over 35% of respondents identified bid writing as an area for skills development and 32% indicated that they were in need of enhanced skills in business development. In-line with the knowledge areas, 'soft skills' such as team working, problem solving and decision making were the least identified areas of skills requirements. Table 3 details the full breakdown of development needs identified.

Table 3: Developmental Needs of KTPs in relation to the Skills required to engage in Knowledge Transfer.

Skills Area	Percentage
Intellectual property (e.g. patent application, license agreements, license marketing)	37.97%
Bid writing	35.44%
Business development	31.65%
Contract drafting	29.11%
Influencing and persuading	29.11%
Contract negotiation	26.58%
Business planning	26.58%
Conflict resolution	26.58%
Entrepreneurial skills	25.32%
Sales and marketing	16.46%
Research skills	15.19%
Financial planning	13.92%
Selling	13.92%
Meeting facilitation	13.92%
Collection, collation and analysis of information	12.66%
Feedback skills- giving and receiving feedback	12.66%
Oral communication skills (e.g. articulation, presenting, negotiating)	12.66%
Budget management	11.39%
Networking	11.39%
Time management	11.39%
Written communication skills (editing)	11.39%
Organisation and coordination skills	11.39%
Publishing results	10.13%
Business administrative skills	8.86%
Assertiveness/ confidence	6.33%
Active listening skills	6.33%
IT skills	6.33%
Other	3.80%
Problem solving and decision making	3.80%
Team working	3.80%

Identification of Training & Development Needs

61% of respondents indicated that, on average, they felt that they discussed their training and development needs with their line manager on an annual basis. 28% stated they had this discussion every 3 to 6 months, and 8% believed they discussed their training and development needs with their line manager on a monthly basis or less. This is in stark contrast with the results from the Head of Units survey, where 75% of participants stated that they reviewed training and development needs with their team members on at least a monthly basis. Generally this discussion appears to take place formally, within an appraisal event, with 73% of respondents indicating that this was the case. 15% stated that it tended to take place on an informal basis as part of a more informal discussion and 12% stated that the discussion took place in a formal setting, but outside of an appraisal event.

Only 13% of participants stated that they had completed the AURIL training needs analysis, with 78% indicating that they had not completed this. When asked how aware they were of the AURIL Continuing Professional Development framework, 43% of participants indicated that they had no knowledge of this framework. Only 17% of participants reported to have ever used this framework with 36% reporting to be aware of its existence, but never taking the opportunity to use it or investigate it further.

When asked how do they identify their own training and development needs many participants responded that this was an ongoing process of self assessment whilst performing their role, they naturally discover areas where they need additional training and development when they come across new issues or topics. Many reported that their line manager and networking with peers were influential in this process as they helped them to identify skills or knowledge gaps through informal discussion, or during a formal appraisal process. A number of participants were very open in admitting that they do not identify their own training and development needs in any active way. A minority of participants indicated that they used a formal continuing professional development scheme (either within the HEI or within a professional body) to plan and monitor their individual training and development needs.

Induction Methods

When participants were asked to think back to when they were first engaged in a Knowledge Transfer role, what training or development would have been useful to them as an induction programme, many responses highlighted the need to understand the complexities at the University- Industry interface, for example the co-ordination of academic and commercial interests, and the complexities of how HEIs work in what was termed as “the clash of commercial and academic agendas”. One participant stated that HEIs are “a baffling world to outsiders [in terms of] how it works, what are its drivers, how does this impact researchers and academics”. Others indicated that it would have been helpful to know how researchers and academics are actually targeted and managed, more about the HE culture, HE policies and processes, and how the various government initiatives work in terms of policy, process and procedures for example Knowledge Transfer Partnerships, Research Councils, General guidance on student/ graduate start-ups and the support they require, eligibility criteria, understanding the requirements of the documentation, understanding of the terminology.

Others specified that it would have been useful to have had a formal introduction to relevant staff in other areas of the University and similar roles in other universities in order to build a network and an awareness of work within other areas. Many identified the need for support from a colleague in the form of a mentor/ coach or buddy, who could have introduced them to processes and procedures and key contacts within the University and provide an “advice network”. Other innovative approaches for inductions included learning from case studies and the real experience of others, and visits to businesses with products/services generated in partnership with Higher Education Institutes.

Other participants highlighted the need for a general introduction to Knowledge Transfer covering all of the areas outlined in the KT Competency Framework, and the Institute of Knowledge Transfer’s Continuing Professional Development Framework. Specifically identified were areas such as intellectual property management, bid writing and contract negotiation, finance for non-financial managers and business development and sales. In contrast to this, a minority of respondents indicated that no amount of formal induction training would have helped them as it was their personal interest in, and passion for knowledge transfer that led to their success in knowledge transfer. Others propose that you don’t just start in a KT role without already having some experience. Mostly you learn on the job and a lot of the skills you need aren’t really transferable via a course.

When asked what had been the most valuable learning experience for the Knowledge Transfer role, and why, participants’ responses were wide ranging. Many identified the comprehension they have gained from understanding the differences between the business environment and the way that academic institutions work. A common theme in responses was the realisation of the differences in the pace of business environments and Higher Education Institutes. One respondent said “nothing stands still, especially in business”. Many identified the importance of understanding how Universities work and how their processes can enable, and obstruct knowledge transfer, and how best to work with academics; by identifying what motivates them and using this information to translate academia into industry.

Others responses centred around the importance of finding the correct ‘fit’ with the company and ensuring that the organisation buys into the project and makes a commitment to it, or else it will not succeed. Responses also suggested that many of the learning experiences came

from on-the-job experience, the actual experience of engaging businesses and understanding the process. One participant identified practical trade visits that highlighted the “scale of challenge faced by UK in 21st Century global economy”. Many participants reported the learning experience gained from the realisation that “we are multifaceted and have transferable skills, which we often take for granted”.

Collaboration and knowledge sharing with others, and the opportunity to network and meet new people was identified by many as being a key learning experience; participants reported drawing great benefit from the interpersonal interaction with business leaders and academic peers. Some identified the benefits of learning from other colleagues in other Universities, being involved in large initiatives allowing them to work with people across disciplines and benefit from a variety of individual's strengths and skills, whereas others felt attendance on recognised Knowledge Transfer skills courses provided the best learning experiences.

Many highlighted their positive learning experiences in Knowledge Transfer, for example learning patience and persistence as the greatest rewards come from matching academic expertise with external demand to solve a problem, but it doesn't happen overnight. Also, understanding that academia can make a significant difference to industry, and can contribute business growth, ‘nothing is as powerful as an innovation when it's time has come’, as long as you ‘keep an open mind as opportunities can arise from unexpected situations’.

Training Delivery Preferences

Table 4 displays the participant's preferences in terms of their preferred mode of training and development delivery. The most popular delivery method was an external course, with 65% indicating a preference for this method. Internal courses were also popular amongst participants (44%). Least popular methods were support networks and self study. Other preferences for training delivery methods included emailed or downloaded newsletters and factsheets and experiential learning. 49% of respondents stated that they preferred their training and development to be delivered by a professional association, 33% by another Higher Education Institute, 32% by a commercial supplier, and 27% by an in-house supplier. Others specifically noted that they did not have a preference for suppliers, whilst one participant specified that it would need to be a nationally recognised supplier.

Table 4: Preference for training delivery methods.

Training Delivery Method	Percentage
External course	65%
In-house course	44%
Expert briefing sessions	35%
Secondments/ exchanges	32%
On-the-job-training	29%
Self-study	14%
On-line Support networks	9%
Other (please specify)	6%
Other support networks	4%

Awareness and Use of Current Training Provision

Table 5 shows the awareness of, and usage of, various training and development suppliers who provide training in various skills and knowledge areas of Knowledge Transfer. Low awareness (classified as more than 60% of respondents selecting not aware of supplier) tended to be smaller private providers including Blueberry Training, Kaplan Hawksmere, Really UK Company. Neil Stewart Associates and Proton Europe were also shown to have low awareness amongst our sample. In line with the low awareness of these providers, their usage by participants was similarly low. Whilst awareness of the larger providers of support for knowledge transfer professionals (e.g. AURIL, PRAXIS, JISC) was considerably higher than for the smaller suppliers, it is interesting to note that 25% of respondents had no awareness of AURIL, 32% had no awareness of PRAXIS, and 18% had no awareness of

JISC. Similarly high percentages were seen for those who were aware of the providers, but had never used their training and development services.

The most frequently used suppliers were respondents own institutional business development or knowledge transfer units (30%), and their own institutional staff development or academic development or quality units (34%). Larger providers such as AURIL, PRAXIS, JISC and the Intellectual Property Office, tended to be used on a more infrequent basis, most likely due to cost concerns.

Other suppliers that were identified as having been used by respondents included KTP training workshops by AEA Technology (an energy and climate change consultancy, assisting Government with evidence based policy development and assist in solving environmental challenges to improve organisational performance); The Institute of Marketing; National Training Resources Ltd; West Midlands European Network; Association for Research Managers and Administrators (ARMA); Enterprise Educators UK (national network for enterprise educators, supporting over 600 enterprise educators from more than 90 Higher Education Institutions to develop their practice, network with peers, and collaborate in enterprise and entrepreneurship teaching and research across all curriculum areas); and Higher Education Entrepreneurship Group (HEEG- a regional network of academics, business development, knowledge transfer and entrepreneurship professionals, careers services staff, senior managers and students based in Higher Education Institutions across South East England).

Table 5: Awareness and usage of training and development suppliers in Knowledge Transfer support.

	Used regularly	Used infrequently	Aware of, but never used	Not aware of
Own Institutional staff development/ academic development/quality units	34%	35%	14%	4%
Own Institutional business development/ knowledge transfer unit	30%	34%	15%	4%
Other Higher Education Institute	10%	28%	39%	8%
Association for University, Research and Industry Links (AURIL)	1%	27%	32%	25%
Joint Information Systems Committee (JISC)	3%	22%	46%	18%
PRAXIS (Technology Transfer Training)	10%	13%	34%	32%
Intellectual Property Office (IPO)	3%	15%	41%	29%
Blueberry training	6%	9%	22%	64%
Neil Stewart Associates	1%	5%	18%	66%
Kaplan Hawksmere	0%	4%	11%	71%
ProTon Europe	0%	4%	16%	66%
Really UK Company	0%	1%	22%	65%
The Training Gateway	0%	0%	34%	53%

Table 6 depicts the awareness and usage of e-learning and knowledge transfer tool suppliers. Overall awareness of these tools was very low, on all suppliers at least 33% of respondents stated that they were not aware of them, rising to over 50% for InfoEd and Knowledge Tree. The most frequently used e-learning supplier was GINNN, with still only 19% of respondents reporting to have used these tools at some point. The Institute of Knowledge Transfer and AURIL KT Academy were the next most frequently used, with 19% and 13% of respondents indicating they had ever used these tools. A large proportion of respondents reported they were aware of tools available from the IKT, AURIL KT Academy, and JISC Netskills, but have never used them, which questions the value they place on these tools for the purposes of their individual CPD.

85% of participants reported that they were not a member of the Institute of Knowledge Transfer Professionals (IKT). Of the 8% who indicated that they were members, they used

their services to attend events, network and keep up-to-date on recent developments, and continue their awareness of the Knowledge Transfer debate.

Table 6: Awareness and usage of e-learning/ Knowledge Transfer tools suppliers

	Used regularly	Used infrequently	Aware of, but never used	Not aware of
Global Innovation Network (GINNN)	3%	16%	27%	41%
Institute of Knowledge Transfer (IKT)	1%	15%	39%	33%
AURIL KT Academy	3%	10%	37%	38%
JISC Netskills	0%	10%	41%	37%
InfoEd	0%	3%	24%	57%

The most available, and most often used support schemes, or resources in place for knowledge transfer professionals were reported to be conference attendance (used by 65% of respondents), and peer group support networks (used by 48% of respondents). As displayed in *table 7*, a mentoring or coaching service was the most often available, but not used service (20%). Secondment and job shadow or job exchange programmes were the least often available support scheme available to participants.

Table 7: Current availability and use of support schemes/ mechanisms to assist in participants Knowledge Transfer activities.

	Available and use	Available but don't use	Don't know if available	Not available
Conference attendance	65%	14%	5%	6%
Peer group support networks	48%	15%	13%	14%
Mentoring or coaching service	25%	20%	10%	34%
Secondment or placement opportunities	4%	19%	23%	41%
Job shadow or job exchange	3%	11%	25%	47%

There appears to be a certain amount of apathy from participants regarding the training provisions for knowledge transfer professionals. When asked how satisfied they were with the current level of training provision for Knowledge Transfer Professionals, 58% responded that they had neutral feelings about the situation. A slightly higher percentage reported that they were either dissatisfied or very dissatisfied with training provision (19%), than stated that they were satisfied with provisions (14%). There was not a significant difference in this pattern when the results were split across role-type.

When asked in what ways they thought regional training and development provision for Knowledge Transfer Professionals could be improved, many responded that they had no opinion on this, or could not suggest any solutions. However, many interesting and insightful themes were also highlighted. A recurring theme was that awareness raising and the publicising and profile-raising of knowledge transfer activities requires attention. Many participants noted that they were not aware of any training or support available to them in their knowledge transfer work, others suggested that better networking opportunities or institutional collaboration were needed in order to promote the sharing of best practice. Further suggestions for promotion of KT work were to organise local events and 'self-help' groups, 'bite-sized' research papers written by those doing the work, "case study examples" or lunch time seminars on focussed issues requested by delegates or events held at different universities to showcase their work. A further suggestion for knowledge sharing was the provision of the opportunity for secondments to other institutions.

Suggestions for improvements to training and development provisions at a practical level centred around the need to ensure that courses or workshops are skills oriented and are delivered in manageable time-frames (e.g. 1 day courses) to recognise the combined teaching, administrative and KT workload that many practitioners juggle, and at a reasonable

cost. Some respondents specifically argued that there was no requirement for regional knowledge transfer training and development provision, proposing that all training should be carried out within nationally recognised and available courses, believing that there is "not sufficient demand or breadth of community to justify regionalisation of KT [training] delivery". They voiced the opinion that there should be a nationally recognised qualification or award that any Knowledge Transfer Professional could undertake to create a "level playing field" where employers could be confident in the level of training undertaken by that individual, and linked to this a set career progression path for KTPs with levels of training determined by the level and nature of the job role.

Constraints on Participation in Training and Development

Constraints on participants' engagement in knowledge transfer training and development activities were mainly in terms of cost, with 57% of participants stating that this was a factor. 24% specified that the limited provision of relevant topics was a constraint on engagement for them, and only 6% states that limited modes of delivery were a factor. A lack of time, opportunity, interest and awareness of what is available were other recorded constraints.

Accreditation of KT Qualifications

When asked to what extent they would like their training and development activities to lead to a recognised professional Knowledge Transfer qualification, opinion was very much divided. 41% saw this as not being necessary, whilst 54% said they would either like this, or see it as essential. When these results are split across job role function, then it becomes apparent that those who indicated that they had a sole role as a knowledge transfer professional see this as being far more important than those in a sole academic role, with 70% of those in a sole KT role indicating their desire for a formal KT qualification, compared to only 78% of respondents in a sole academic role saying that this was not necessary. Those undertaking a dual role appear more divided, with 44% viewing a formal qualification positively, and 57% indicating that this is not necessary, see *table 8* for a full breakdown.

Table 8: Need for a formal Knowledge Transfer Qualification as shown across different job functions.

	<i>See this as essential</i>	<i>Would like this</i>	<i>Not necessary</i>
Sole Academic	0%	22%	78%
Dual	10%	33%	57%
Sole KT	11%	59%	30%

Research Objective 2: Review of the current training provision in the West Midlands Region

Whilst it is our intention to provide a comprehensive review of regional training provision, we cannot take responsibility for any omissions that fall out-with our data collection method.

Training Providers reviewed here exclusively include organisations whose names were provided to us by participants in our research or through discussions with experts in the KT field during the course of this research. The information provided below was correct at the time of writing and the authors accept no liability for misrepresentation of services offered when these are amended post publication. The training providers provided below are split into three classification groups: private organisations, Not-for Profit organisations, and Public-funded organisations. These providers are not necessarily based within the West Midlands Region, but training is accessible for KTPs operating within the West Midlands Region. Contact details for all Organisations are listed in appendix 1: Training Suppliers' Contact details.

Private Organisations

Kaplan Hawksmere is a private company that provides a range of courses spanning business and finance, specialist courses, and personnel management. Many of their tutors are from the legal profession or industry with less activity by university participants. It has over 7 years experience in the training and conference industry and offers in-house training and public seminars and conferences in subjects as diverse as business law, commercial contracting, project management, marketing, PR and sales. There is a strong business focus in these courses and courses tend to be aimed at those in more senior levels, typically managers and executives. Public training events are delivered in London.

Blueberry Training offer sales and marketing business skills courses, they offer a series of podcasts and professional business skills courses to assist delegates in improving their business skills on topics including how to start up your own business, how to sell your product, financial advice when running a business, legal requirements for business or employment business information.

The Really UK Company, based in Shropshire, state that they provide "really useful knowledge for those engaged in enterprise". Really UK's primary activities are in consultancy and training relating to the use of intangible assets in enterprise. They provide workshops and consultancy for understanding and exploiting IP, patent infringement (freedom to act), valuation of intellectual property, patent mapping, business plan evaluation and preparation.

Neil Stewart Associates have been producing public policy conferences and events since 1994, working with public bodies, membership associations, think tanks, campaign groups, voluntary organisations and the commercial sector. They provide conferences in the area of education and skills of relevance to knowledge transfer professionals.

Not-for-Profit Organisations

The *Institute of Knowledge Transfer (IKT)*, established in 2004 in response to calls for a central service for Knowledge Transfer Professionals, provides training, professional development, and qualifications, with the aim of further enhancing the professional recognition of the sector and of those working within it. The IKT was established in order to set standards for development of the profession and address issues surrounding accreditation, certification and training. The IKT profess to be different to the existing bodies who bring together the organisations involved in knowledge transfer, as it is dedicated solely to meeting the needs of the individuals involved in knowledge transfer. The IKT is an independent, democratic and not-for-profit professional body, established to promote the interests of the profession and the practice of 'knowledge transfer'. The IKT aim to be a collaborative platform for interdisciplinary and cross-organisational research and knowledge transfer, through the provision of a member's newsletter ("IKT Exchange"), mentoring scheme

(including a recently introduced online mentoring scheme), events and conferences such as their Research Into Practice of Knowledge Transfer Seminar Series, and providing accreditation for recognised KT training providers by the IKT course accreditation committee. Accredited course and event suppliers can be viewed through the IKT's online social network and community of practice- Global Innovation Network (GIInN). The IKT are also due to release an online 'CPD Tracker' in the near future. The tracker aims to provide a template for members to report on their CPD, with members expected to structure their own learning and to keep a record of their own CPD with reference to the third edition of the AURIL/Proton Continuing Professional Development Framework for Knowledge Transfer Professionals.

The IKT *GIInN Professional Network* is a professional networking platform that was launched with a view to improving members' connectivity beyond the IKT, especially connecting with other national and international online communities including those in industry and academe. The IKT community forms the core of this new network.

Praxis was originally established with funding from the Department of Trade and Industry (DTI) and the Cambridge-MIT Institute, from where it was a spin-out company. PRAXIS Courses Limited now provide national professional development courses specifically aimed at technology transfer professionals working in universities, research institutions and industry. The Praxis programme features a range of courses led by experts from universities, industry and government, featuring a mix of seminars, interactive workshops and case studies at various venues throughout the UK. Praxis is non-profit making, but market-driven and aims to continue to deliver excellent courses that meet a market need for the profession. Courses are offered on subjects including: Fundamentals of Technology Transfer, Creating Spinout Companies, Advanced Licensing Skills, Research Contracts, and Business Development. Courses occur on a regular basis and run from one to three days in length.

Unico was founded in 1994 to represent the Technology Exploitation companies of UK Universities. It provides a forum for exchange and development of best practice. Member companies transfer technology and expertise through the formation of Spin-out companies, licensing, consultancy, training, design and development projects, contract research, testing and evaluation, and problem solving. Unico supports its members through the provision of conferences, training and events and practical best-practice guides. Technology Transfer training is delivered by Unico's training partner Praxis.

ProTon Europe is the European network of Knowledge Transfer Offices (KTOs) and companies affiliated to universities and other Public Research Organisations (PROs). It was created in 2003 by the European Commission and has been self supporting since 2007. With over 220 KTO members and 10 National Partner Associations (comprising over 500 KTOs), ProTon Europe reaches out to almost 600 universities and public research organisations across Europe. The Directory gives the names and contact details of all members and provides excellent opportunities for networking. As part of their provision of CPD to Knowledge Transfer Professionals they provide access to mentoring and expert advice, KT training and staff exchange programmes. ProTon Europe also offers Members the possibility to meet with peers and experts in all aspects of Knowledge Transfer by organising each year:

1. Training schools: 2 day events on Managing a KTO, Deal making with Industry, Fundamentals of IP, Patenting, Licensing
2. Workshops: 1 and ½ day events on Marketing research results, Ten great ideas for marketing innovations, and Proof of concept
3. Hot topic debates: one-day events on Fiscal incentives to R&D, State Aids limits, Space technologies down to Earth
4. Annual conference, the largest event of the year, which offers networking opportunities.

The workshops provide a mix of presentations, group discussion, case study work, use of tools and practical exercises. ProTon Europe also offer access via their website to KT good practice platform and tools, which include dozens of good practices reviewed and selected by peers (Policy, Patenting, IP, Licensing, Interaction with Industry, Spin-offs, Training) and tools (the Knowledge Vine, the Staff Exchange programme, market research database, guidelines, checklists, agreements, forms). In addition they also publish a monthly electronic newsletter

to members with updated case studies, news from the members, hot policy topics, and major European Events.

Public-Funded Organisations

SFEDI is the Government recognised UK Standards Setting Body for Business Support and Business Enterprise. Run by entrepreneurs for entrepreneurs, SFEDI researches leading practice, sets standards, principles and guidelines. SFEDI sets the standards for small business learning and support. Through their national delivery network they accredit and endorse all those providing learning and support to enterprise owners, entrepreneurs and their staff. People, products, programmes and centres that meet their standards and principles carry the SFEDI logo. SFEDI offer on-line business support 'know-how' guides, online training modules in association with The Small Business Company (TSBC), and workshops and events.

Established in 1995, *Association for University, Research and Industry Links (AURIL)* has gradually expanded its role into KT training as the professional association that represents all practitioners involved in knowledge creation, development and exchange between researchers and industry in the UK and Ireland. It works to ensure that new ideas, technologies and innovations flow from public sector research organisations into the market place. It is the largest knowledge and technology transfer association in Europe, with more than 1,500 members from universities, NHS Trusts and public sector research establishments. AURIL's course provision is linked to their CPD framework. To date, AURIL have developed 3 types of course: the professional award for knowledge transfer, the postgraduate certificate in knowledge transfer and a non-assessed portfolio. AURIL also provide one or three day courses that cover particular themes, such as Business Development, or Negotiating Contracts. The Postgraduate Certificate in Knowledge Transfer is an Open University award for professionals working in the area of knowledge transfer. "The course is for managers who deal with knowledge in a variety of organisational contexts ranging from multinationals, small and medium-sized businesses to the public sector and charities. In an increasingly inter-connected world, knowing how to manage knowledge to meet new opportunities and challenges is becoming a growing priority for practising managers, and this course covers the essential areas of importance to them." (AURIL, <http://www.auril.org.uk/pages/auril--cpd/kt-qualifications.php>, 2009). This course is currently in abeyance, however it is expected that a similar programme will be provided by another institution. In 2004, AURIL was instrumental in the creation of the Institute of Knowledge Transfer.

The Training Gateway describes itself as the 'one-stop shop' from which to source corporate, vocational and executive training from UK Universities. As part of its remit to support CPD staff, The Training Gateway runs a series of workshops. The subject areas for each workshop are suggested by the members, depending on their own training requirements, for example one forthcoming workshop is entitled "Effective Delivery of CPD in the Workplace". A series of reports and presentations around establishing University-Industry links are also available.

Joint Information Systems Committee's (JISC) activities support education and research by promoting innovation in new technologies and by the central support of Information Computer Technology services. They support 50 services that address the needs of all users in HE and Further Education (FE). JISC supports colleges and universities through the provision of expertise, advise, guidance and resources in the strategic management of relationships with partners and clients external to the institution, and in managing the associated activities and services, such as knowledge exchange and workforce development.

The Intellectual Property Office (IPO) are the official government body responsible for granting Intellectual Property (IP) rights in the United Kingdom. In addition to the information available on their website, telephone advice service, and newsletter, they organise numerous events around the UK.

Enterprise Educators UK is a national network for enterprise educators, supporting over 600 enterprise educators from more than 90 Higher Education Institutions to develop their

practice, network with peers, and collaborate in enterprise and entrepreneurship teaching and research across all curriculum areas. They offer training and events with the aim of supporting members to increase the scale, scope and effectiveness of enterprise and entrepreneurship teaching within their organisations. However, no forthcoming training or events were listed as at 12 May 2009.

Higher Education Institutes also typically provide training and development opportunities in the forms of workshops, inviting external speakers and internal experts (e.g. from the law school, or business faculties) to provide technical guidance for their employees who are engaged in Knowledge Transfer

Research Objective 3: Gap analysis of training needs against the current provision

A review of the literature suggested that the identification of the knowledge, skills and abilities required by knowledge transfer professionals to effectively exploit a University's technology and knowledge capital, is a highly complex task due to the broad range of tasks and duties that a KTP might be expected to carry out. The range of skills required for knowledge transfer are various and the knowledge base required is wide-ranging; relating to understanding technology, its applicability and market potential, possible licensees, the underlying nature of contracts, intellectual property law, costing processes for research contracts, licensing agreements or the processes involved in spin-off formation. In addition, negotiation, planning, team working ability, information collection and management as well as managing relationships are all important for successful role performance.

Several comprehensive reviews of the training and development needs of knowledge transfer professionals have been conducted in recent years, including the Business Interface Training Provision (BITS) Review (Zeitlyn & Horne, 2002), the AURIL CPD Framework (3rd revision published in 2006), Woolgar's (2006) examination of current provisions in the UK, USA and Japan, and Francis-Smythe et al.'s (2006) identification of a competency framework for KTPs. Despite the difficult task of defining this broad-ranging and often fluid role, these studies show a large degree of consensus regarding the training and development needs of KTPs. Much of the required skill-set they elicited is typical of many professions (e.g. business planning, business development and selling, negotiation, influencing, conflict resolution, networking, planning and time management). Zeitlyn & Horne (2002) proposed that it is the execution of these skills in combination with knowledge areas pertinent to the community's working environment, or context, that is important. Areas that they identified as contextual include science policy, HE policy, business and academic cultures and government schemes. In agreement with this, the following skill and knowledge areas were identified that are more specific to the role of the KTP: manage the commercial interface, managing operations within a legal context, entrepreneurial and commercial thinking. Consistent with these findings, the present study found that these specific technical skill and knowledge areas were the most highly demanded by participants.

Our review of the training provision available for KTPs operating within the West Midlands Region revealed that there are a wide variety of providers and courses available. Suppliers include those from the private sector, public sector and not-for-profit organisations, offering a selection of courses and delivery formats from conferences, seminars, networking opportunities, taught courses, online forums, e-learning tools, best practice guides, case studies, and mentoring opportunities. Course titles available included: Business Law; Commercial Contracting; Project Management; Marketing; PR and Sales; Understanding and Exploiting IP; Fundamentals of Technology Transfer; Creating Spinout Companies; Advanced Licensing Skills; Research Contracts; Business Development; Managing a Knowledge Transfer Office; Deal Making with Industry; Patenting; Marketing Innovations; and Interaction with Industry. Zeitlyn & Horne (2002) found that the most commonly cited training providers were Hawskmere plc and Cranfield University, similarly Woolgar (2006) cited Hawskmere plc as a well-known training provider in KT, along with AURIL, PRAXIS. Whilst these providers were used by a small number of our participants, the most frequently used training providers in the present study were participant's own institutional training departments or other HEIs. In summary, there is a large portfolio of training and development provision available but it is difficult to locate, a considerable amount of desk-based research was required to locate training provision suitable for KTPs in the current project. The IKT have attempted to provide a resource for locating KT courses through their social networking platform GInnN, however only courses accredited by the IKT are listed here and they were small in number and did not include many of the courses identified in our review of training provision.

The results presented here suggest that training budgets vary widely between institutions, with one third of respondents still having no dedicated budget. Knowledge gap areas that were identified by the Heads of Units (HoUs) were similar to those identified by participants in

the main survey and included knowledge of business processes, contracting and legal issues, knowledge of external labour market and the University-Industry interface and schemes and frameworks to facilitate interaction (e.g. Index Vouchers, KTPs, Research Councils). There was also a consensus between the HoUs and main survey participants about the skills areas most commonly requiring training and development, these were: bid and proposal writing, customer relationship management, understanding customer needs, negotiation skills, project management, intellectual property issues, and business development. There was also consensus between these two groups in terms of preferred training delivery methods, both stating a clear preference for face-to-face taught courses, with self-directed study, e-learning and e-tools falling to the bottom of each group's list. There was a general low awareness of E-Tools and E-learning platforms amongst both groups, the IKT (19%) and AURIL (13%) were the most commonly used, but still with very low numbers. There was an average awareness of the IKT amongst HoUs, with 50% encouraging the use of it amongst their team, but this was mismatched with the responses from the main survey where only 8% of respondents indicated that they were members of the IKT.

There was a low awareness of training suppliers amongst both groups, with their own institution being the most commonly used for KT training. A result which is at odds with the stated preference for training delivery method, with only 27% indicating that they would like their training to be delivered by an in-house supplier, instead favouring a professional association (49%). Conference attendance and peer group support networks were the most commonly used support schemes. Where they were provided by institutions, coaching and mentoring schemes were only used infrequently, with job shadow and job exchange programmes not being available in the majority of cases. A general apathy was evidenced from respondents with regards to their feelings towards the training and development options available to them, with 58% reporting neutral feelings toward current provision. However, it seems unlikely that this is a general apathy within the KT community as we received encouraging response rates from within the region, with a response rate from the heads of unit survey of 40%, and a response rate from the main survey of 53%. This response rate was favourable in comparison to previous research in the area (Zeitlyn & Horne, 2002, Francis-Smythe, 2006, AURIL, 2006).

These results suggest that there is still a requirement amongst the KT community for a one-stop-shop for KTPs. Zeitlyn and Horne's (2002) final recommendation to the DTI was to consider facilitating the establishment of a practitioner owned, managed and operated dynamic web-based knowledge centre with a directory of courses, conferences, trainers, networks, a library of source material, research data etc. It was thought that such a resource would be of benefit to inform, network and unite many of the different players across the knowledge transfer landscape. The IKT was established in 2004 in an attempt to satisfy this requirement, and to a large extent the resource has been a success. However, the present results suggest that many of those engaging in KT are still not aware of this resource and are not members of the Institute. The website also still seems to be under development and needs to be publicised.

There was a large disparity between HoUs and the main survey respondents in terms of the regularity that their training and development needs were examined and discussed. 75% of HoUs indicated that they discussed their team member's training and development needs with them on at least a monthly basis, whereas 61% of respondents from the main survey suggested that this only occurred on an annual basis. This discrepancy might suggest that Line Managers are not being overt enough in their review and appraisal of their subordinates current skills levels and future needs, an issue which could be resolved by setting formal review time aside on a regular basis. Only a very small number of respondents had completed the AURIL training needs analysis (13%) and 43% had no knowledge of the CPD framework, 36% being aware of it, but not used it. In the present study, only Knowledge Transfer Brokers would like their CPD to be formalised into an accredited KT qualification, a high proportion of them believing that it would be beneficial to the profession (70%). Similarly, Zeitlyn & Horne (2002) found that 63% of HEIs responding to their survey supported the idea that training should lead to a recognised qualification.

The quantity and quality of inductions being offered to new KTPs appears to be extremely inconsistent between institutions. Suggestions of improvements to the induction process were also very varied, ranging from full programmes covering all of the areas outlined in the KT Competency Framework, and the Institute of Knowledge Transfer's Continuing Professional Development Framework, to introductions to the culture, policies and procedures of HEIs and the context of the University-Industry interface, and introductions to other staff with similar roles, key contacts, mentor or buddy scheme, through to some individuals who felt that on-the-job training was the only way to understand the complexities of the role and context.

Zeitlyn & Horne (2002) found that training budgets were low, estimated at £769 per KTP. They concluded that these were insufficient funds for HEI staff to purchase a significant volume of commercially provided training as these averaged between £300 and £900 per training event. The present research found that training budgets varied widely amongst HEIs in the West Midlands Region, with 1/3 of HoUs reporting to have no specific budget to dedicate to training their employees, 44% having up to £2,000 per annum per employee to dedicate to KT training, and 22% having more than £2,000. It seems unlikely that many HEIs will have enough funding available in order to send their KTPs on courses at the higher priced end of the market. This is reflected in the finding that cost is an issue for participation in training and development, with cited constraints on participants' engagement mainly in terms of cost, with 57% of participants stating that this was a factor. Furthermore, the most frequently used training suppliers were identified as HEIs' own Business Development or Knowledge Transfer Units, which might suggest that there were insufficient training funds available to permit the use of external providers.

Zeitlyn & Horne (2002) also reported a preference amongst knowledge transfer professionals for taught/ seminar style format of training (95% of their sample), as opposed to alternative training formats such as support networks, online and distance learning. They found that course providers had actively investigated, and discounted e-learning as a future training route due to its unpopularity with their delegates, who felt they missed out on networking and collaborative benefits using this method. Consistent with this finding, the present results indicated 100% of respondents (across both surveys) stated a preference for face-to-face training delivery methods compared to only 38% stating a preference for e-learning or distance learning. Our results suggested that the e-tools and e-resources that are currently available to KTPs, are rarely used. Heads of Units did not advocate their use to their team members, and concurrent with this finding, they were made little use of by respondents. JISC Netskills was only used occasionally by 13% of respondents, and never used, or never heard of by the remaining respondents. The Global Innovation Network (GInnN) was a similarly unpopular resource with 63% of respondents indicating that they had never heard of, or never used this resource, and 25% indicating they only encourage its use rarely or occasionally. AURIL was the most popular resource, with 100% of respondents being aware of this resource with only 25% saying that they never encouraged the use of this resource. 13% of respondents were unaware of the Institute of Knowledge Transfer, with 25% indicating that they would never encourage its use, but 50% saying that they often or always encourage its use by their direct reports.

There appears to be an issue with the awareness of these online resources, but in addition to this, there also appears to be a resistance to their use when people are aware of them. Even when respondents were aware of the resource, they often reported to not make use of it. This apparent apathy towards e-learning methods and e-tools provides us with food for thought given the ever increasing tendency to use the technology available to enhance training and development. The thinking behind this movement is clear to see, making resources available on-line is cost effective for both suppliers and delegates, and it means that training is potentially available 24 hours a day and delegates can study at convenient times to fit around their other commitments. However, when we consider what may be lost when using these techniques, it is possible to see why KTPs do not favour this delivery method. The knowledge sharing, networking, collaborative approach that KT demands, is extremely difficult to achieve through an online environment. There are ways around such problems (see Bicknell, 2005 for a full review), but it is important for future KT training and development initiatives to consider whether e-learning, e-networking, and e-tools are indeed the optimum platform for delivery to KTPs.

Zeitlyn & Horne (2002) found that, in general, KTPs were fairly contented with existing training provision, with 68% of their respondents from HEIs reported being either completely or moderately satisfied with the provision available. Similarly, in the present study there appears not to be particularly strong views from participants regarding the current training provisions available. When asked how satisfied they were with the current level of training provision for Knowledge Transfer Professionals, 58% responded that they had neutral feelings about the situation. A slightly higher percentage reported that they were either dissatisfied, or very dissatisfied with training provision (19%), than stated that they were satisfied with provisions (14%). There was not a significant difference in this pattern when the results were split across role type. This was further supported by the finding that, when asked in what ways participants thought regional training and development provision for Knowledge Transfer Professionals could be improved, many responded that they had no opinion on this, or could not suggest any solutions. This begs the question whether it is indeed training and development provision that is lacking for KTPs? Perhaps instead KTPs are craving a network, recognition and positive public relations rather than increased training opportunities. Further investigations are recommended in order to further examine this possibility.

In terms of the most popular training topics opted for by knowledge transfer professionals, Zeitlyn & Horne (2002) report a consensus amongst training providers that courses in intellectual property, finance, and managing projects were popular and in growing demand. Similarly, the AURIL CPD Questionnaire Survey (2005) showed that technical knowledge and skills topics such as commercialisation and Intellectual Property were most popular amongst their KTPs, with softer skills areas, such as relationship management, rated least popular. In the present study, over 40% of respondents indicated that they would like developmental support on managing operations within a legal context. A further 40% indicated that they had developmental needs in terms of managing the commercial interface. In general common knowledge areas requiring support centred around business processes, contracting and legal issues, and understanding of the local and regional labour market. Further areas identified were concerned with process and project management issues including business processes (Human Resources, Finance etc.) and contract management. Knowledge of the external labour market and industry were also identified by 38% of respondents, specifically in terms of managing the Higher Education/ Industry interface. Respondents stated that the most common skills areas that need to be supported in knowledge transfer professionals were: bid and proposal writing (identified by 57% of respondents); customer relationship management, including understanding the customer's needs (57%); negotiation skills (57%); sales and marketing (43%); and project management skills (43%). Communication, presentation, information computer technology (including Sharepoint and database management systems) and applied research skills were also identified as areas of common skills development required.

Less frequently identified training and development needs were associated with what might be considered soft skill areas of management, for example, problem solving and decision making, leading others, team working, sales and marketing. It appears that KTPs feel they require formal training provision in technical and specialist skills and knowledge areas associated with KT. The results suggest that the soft skills that are more generic to professional roles, such as team working, problem solving, communication skills, leading others etc., are less of an area of need. One possible explanation for this could be that KTPs bring a wealth of previous business experience with them when they come to the KT role, and these more generic business skills are already well-honed. The gaps in their knowledge and skills are therefore the more technical areas specific to KT and the context of the business-university interface. This is supported by Woolgar's (2006) finding that KTPs are likely to be degree qualified (37% with a postgraduate qualification), and have come from a managerial (38%) or scientific (44%) background.

This hypothesis is supported by results regarding the optimum content for KTPs inductions. Participants identified that it is the *context* that makes KT so challenging within academia, and many responses highlighted the need to understand the complexities at the University-Industry interface, for example the co-ordination of academic and commercial interest, and the complexities of how HEIs work in what was termed as "the clash of commercial and

academic agendas". Others indicated that it would have been helpful to know how researchers and academics are actually targeted and managed; more about the HE culture, HE policies and processes, and how the various government initiatives work in terms of policy; process and procedures for example Knowledge Transfer Partnerships, Research Councils; general guidance on student/ graduate start-ups and the support they require; and understanding the requirements of the bid documentation. One of the main areas of confusion during the induction stages concerned the lack of understanding of the abundance of HEI specific terminology; as Zeitlyn & Horne (2002, pp.4) stated "new entrants must find this a complex and confusing field filled with ever-changing policies, schemes and acronyms.". Many identified that a successful induction could have been achieved through support from a colleague in the role of a mentor/ coach or buddy, who could have introduced them to processes and procedures and key contacts within the University and provide an "advice network". However, a mentor or coaching scheme was also evidenced in the present research to be the most available, but least often used support scheme in HEIs. It is essential when introducing such schemes that considerable thought and planning goes into the practical functioning to ensure successful take-up (Clutterbuck, 2004). In line with the specific, technical skills required for the role, participants also highlighted the need for a general introduction to Knowledge Transfer covering all of the areas outlined in the KT Competency Framework, and the Institute of Knowledge Transfer's Continuing Professional Development. Specifically identified were areas such as Intellectual Property Management, Bid writing and contract negotiation, finance for non-financial managers and business development and sales.

The importance that has been placed by participants on understanding the context of HEIs in order to successfully perform the KTP role suggests a specific approach to encouraging KT. It suggests that KTPs need to focus their efforts on how to motivate academics to engage in KT, by focusing on translating academia into industry through an understanding of the context of HEIs. In this respect participants highlighted many positive aspect of engaging in KT, for example learning patience and persistence as the greatest rewards come from matching academic expertise with external demand to solve a problem, something which doesn't happen overnight. Also, understanding that academia can make a significant difference to industry, and can contribute business growth, 'nothing is as powerful as an innovation when it's time has come', as long as you 'keep an open mind as opportunities can arise from unexpected situations'. A recurring theme was that awareness raising and the publicising and profile-raising of knowledge transfer activities requires attention. Many participants suggested that better networking opportunities or institutional collaboration were needed in order to promote the sharing of best practice. Further suggestions for promotion of KT work were to organise local events and 'self-help' groups, 'bite-sized' research papers written by those doing the work, "case study examples" or lunch time seminars on focussed issues requested by delegates or events held at different universities to showcase their work, and even the opportunity for secondments to other institutions.

This focus upon the positive aspects of KT by participants, led the authors to the second stage of this research, an examination of the 'pull factors' of engaging in KT by investigating the motivations of KTAs' already highly active in KT. The reasoning behind this approach being that a focus on these pull factors by KTPs when recruiting KTAs and widening participation throughout the HEI, is a more fruitful approach than focusing solely upon the reasons why individuals *should* get involved (the push factors), and the barriers to engagement. Individuals will actually want to get involved in KT.

Research Objective 4: Identification of the motivations of highly active Knowledge Transfer Academics (KTAs)

This section details the second stage of the research. This stage examines the proposition that through the examination of the motivations of KTAs who currently engage in Knowledge Transfer it is possible to provide KTPs with information to enhance regional engagement in Knowledge Transfer by academics.

Reflecting on stage one, we now know a great deal about the training and development needs of KTPs and that support is out there, although this may be difficult to navigate. A related problem is in encouraging academics to support the KT activities that Knowledge Transfer Brokers facilitate (Zeitlyn & Horne, 2002). This led us to examine the motivations of those active academics who do engage in KT, with a view to illuminating the means by which we can widen academic participation. As such, this section now describes a piece of research based on a series of in-depth interviews with KTAs, which collected examples of successful KTA practice to illuminate those engagement motivators from academics already highly active in KT. These motivators are of value to Knowledge Transfer Brokers in terms of presenting the ‘pull factors’ in the role as well as being able to consider the challenges.

A number of Governmental reports and funding sources have aimed to encourage academics and HEIs to engage with business and communities. These documents contain a number of what might be termed ‘push factors’ related to identified corporate citizenship and economic ‘needs’ for Knowledge Transfer (KT) activity which are encapsulated in statements such as , “The UK must unlock the talent of all its people and become an Innovation Nation” (DIUS, 2005 p4). The tensions, threats and challenges for the KTA have been well explored and documented (Francis-Smythe, 2008; Francis-Smythe, Haase, Steele & Jellis, 2007; Bicknell & Francis-Smythe, 2008). As such, this part of the research intentionally focused on uncovering some of the *pull factors*, or what makes the KTA role appealing for academics who currently engage in it. In this way we can utilise this information in encouraging *more* engagement.

Considering the KTA

This KTA role has been discussed in the literature as a kind of academic entrepreneurialism, arising from the individual KTA and the unique ‘human capital’ they bring to the role (Audretsch, Lehman & Plummer, 2009). Questions of who can innovate in Knowledge Transfer terms, and how much, are part of continuing debate that has occurred primarily at the organisational and policy level. The outcomes of such debates have resulted in the establishment of these push factors designed to encourage increased KT activity. The debate has occurred less so at the individual level, a level of analysis which has the potential to uncover the pull factors, or the exploitation of the KTAs themselves as ‘attractors’ for others to become involved in KT by virtue of their enthusiasm and the opportunities they can create. By highlighting the positive aspects of the role, it is suggested that such processes can be facilitated. Indeed, there is conceptual agreement with such an approach; “The effects of innovative people are self-reinforcing...[they] are drawn towards exciting and challenging career opportunities” (DIUS, 2005 p7).

Context Issues & the Psychological Contract

A number of *contextual factors* related to entrepreneurial capacity have also been identified (Segal, Borgia & Schenfeld, 2005). These are also referred to as ‘process variables’ and include facilitating and inhibiting factors for KT activity in the environment. From the KT research these would include: rewards and reinforcements for applied research and KT activity as compared to ‘pure’ academic research; the provision of administration support to manage KT liaison and external contacts and provision of KT training programmes and mentoring systems in organisations (Bicknell & Francis-Smythe, 2008; Francis-Smythe et al., 2007).

There is a risk that the individual KTA is 'forgotten' in this essentially structural approach. HEIs need to be able to respond to the needs of the KTA with the administrative, or process innovation, necessary to support these KTAs on more flexible employment contracts (Guest, 2004), and to allow these workers the freedom to initiate their development in a way that is congruent with a more autonomous approach to work (Valle, Martin, Romero & Dolan, 2000). These discrepancies between the individual KTA requirements and the structural support available for them signals an inconsistency between HEIs' and policy-makers' explicit intentions, and the implicit support available; or, between the role benefits perceived by some and not others.

One potentially helpful area of research here has focused around the psychological contract (Thompson & Heron, 2005). The psychological contract has been defined as "the perceptions of the two parties, employee and employer, of what their mutual obligations are towards each other" (Guest & Conway, 2002, pp. 12). These obligations will often be informal and imprecise: they may be inferred from actions or from what has happened in the past, as well as from statements made by the employer, for example during the recruitment process or in performance appraisals. Some obligations may be seen as 'promises' and others as 'expectations'. The important thing is that they are believed by the employee to be part of the relationship with the employer. It is the psychological contract that effectively tells employees what they are required to do in order to meet their side of the bargain, and what they can expect from their job. The contract is based on employees' sense of fairness and trust and their belief that the employer is honoring the 'deal' between them; where the psychological contract is positive, increased employee commitment and satisfaction will have a positive impact on business performance.

In this instance, it refers to the set of mutual obligations and expectations in the employment relationship between the KTA and the HEI and or their manager. This is a particularly poignant concept when we consider that many KTAs may in fact be operating outside the stated traditional 'teaching, research and service' aspects of their contract (Houston, Meyer & Paewai, 2006) at least initially. Therefore, on points of 'wriggle room' or potentially contested areas about what the employee should be doing to fulfil their employment contract, the psychological contract provides a useful lens through which to view the evolving dynamic between the KTA and their organisation in terms of recruiting, retaining and increasing KTA activity.

A way forward

The research project progressed with the aim of exploring the KTA's motivations in greater depth so that it is possible to begin to explore *why* some academics engage in KT and *how* they do this, to offer comment on expectations as to the nature, process, frequency and regularity of KT activity for those who occupy KTA roles; in essence to ask; how does the KTA view the experience of their work? In so doing, it will be possible to take guidance as to how to advertise these roles in a way which appeals to similar pro-KT individuals and to learn more about how to embed these roles into HEIs in a way that is synergistic for both parties.

Methodology

This section will describe the data collection and analysis methods used during the research to explore the motivations and case-stories of highly active KTAs.

Fifteen unstructured interviews with experienced KTAs (3 female, 12 male) from the Midlands region were conducted lasting between 40-90 minutes during spring 2009. These academics were identified as being highly engaged and motivated by knowledge transfer by a representative at CONTACT Knowledge Exchange and Head of Units. They covered a variety of subject areas (including: Engineering, IT, Medical and Agricultural & Environmental technologies, HR consultancy, Occupational & Sports Psychology).

The interviews were voluntary, confidential and conducted with an opening question “*Tell me the story of where this knowledge transfer journey began for you?*” This was an intentional decision taken to minimise the re-structuring of their talk in response to a series of questions. The interviews produced in excess of 120,000 words of qualitative dialogue which was transcribed and submitted to a thematic analysis to produce eight themes (Symon & Cassell, 1998). Thematic analysis was verified by multiple investigators. Thematic analysis is a method for interpreting elements of qualitative data under a smaller number of pertinent themes. These themes can come from the data (as was the case here) or be defined beforehand and allow ‘new’ or salient issues in the dialogue of personal experience to be uncovered and available for public debate.

Results

Seven thematic areas were elicited from the interviews – illustrated in order of volume of transcription.

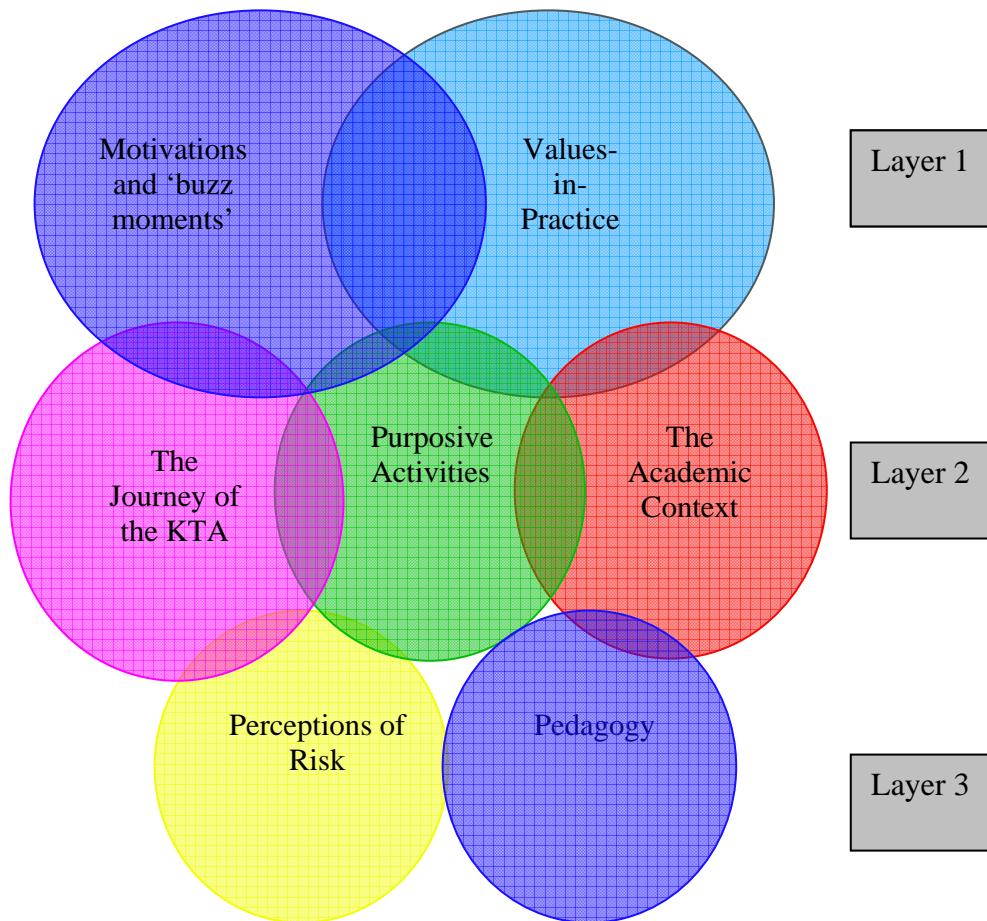
1. Values-in-Practice
2. Motivations & ‘buzz moments’
3. Purposive Activities
4. The Academic Context
5. The Journey of the KTA
6. Pedagogy
7. Perceptions of Risk

From the dialogue collected, the majority of the stories were produced for *values-in-practice* and *motivations & buzz moments*. These two areas closely interrelate, as what is motivating often satisfies, or is consistent with, their values about what counts as relevant work.

In considering these seven thematic representations of the Knowledge Transfer Academic’s role, they can provide a role as enablers to those who undertake to support the Knowledge Transfer Academic. These themes allow us to see into the “emotional and symbolic lives of [those in] organisations” (Yiannis; in Symon & Cassell, 1998). They capture exemplary or revelatory experiences previously inaccessible to research in a way that is authentic (Yin, 2003) such as the ‘new economic phenomenon’ of the KTA.

The relationships between these seven thematic areas of the KTA role are visually represented in *figure 1*. In *figure 1* it is possible to see that three layers of interrelated themes emerged, where the degree of interrelation of themes is represented by the size of the overlap of their respective circles. This diagram would be better conceptualised in a three dimensional space, so that themes like pedagogy (e.g. for promoting student employability) could also connect with values-in-practice (creating the economic producers of the future). This diagram indicates that the interaction of multiple phenomena is a useful way to conceptualise the KTA role. It also illustrates the hierarchy in which the emergent themes and were discussed by participants.

Figure 1: Relationships in the experience of the KTA role



Below, qualitative Interpretations for the emergent themes are detailed with some illustrations of the data gathered in *italics*:

1. **Values in Practice**

This describes the 'way of doing' their work or their fundamental approach to their work. It is certainly not as simple as 'to do a good job' and is often bound up in living out their values: personal beliefs about what is the 'right' kind of work to be doing from a moral or civic perspective; passion, freedom and professionalism in their dedication to work. They discuss responsibilities to be 'helpful' in sharing knowledge and to pass on their commitment to applying *theory in practice* to others. They also hint at some temporal aspects of the role and suggestions as to why they are not self-employed as entrepreneurs and instead choose to work in an academic context; being motivated to solve problems and questioning 'why'? Sub-themes included:

- **Individual engagement with society through academic practice**

I think it's good for society that we are doing this, [I have] a passionate belief that we shouldn't be doing ivory tower research that just sits there in books and journals. I suppose that's because having got 20 years [experience] now, I've read so many books and journals myself and thought, well, where's this gone; has this every done anything for anybody.

- **External responsibility to be helpful**

Well, wouldn't it be silly if all the companies around [here] had never heard of [the] University, or were afraid to come over the doorstep because they thought we were a different animal? They need to know that we're communicators, that we're human beings, that we'd like to solve their problems, we'd like to help them understand their problems.

- **Indispensable human capital**

...from the design and innovation and product development and the finance end, from the operational end, not least manufacturing, I'm a chartered engineer by trade, so I've got a fairly broad understanding of all of the elements of all of the pieces of the manufacturing business, that is pretty unusual for an academic as it stands.

- **Quality and individual capacity**

If I was to have someone that was to help me to manage things, then they'd have to be able to do things to the standards that I want them done to.

2. Motivations as Cognitive Attractors & 'buzz moments'

These contain the greatest emphases on what motivates the KTA to do what they do – even in the face of acknowledged frustrations arising from the academic context. These are the ‘pull factors’ on a more personal and work-based footing, their awareness of feedback at the individual psychological level. They also find being ‘current’ and externally credible as motivating. What is difficult to convey, is the animated enthusiasm that interviewees exhibited in talking about their work. It was not difficult to see how they could be perceived as ‘attractors’ for creating opportunities around them. Sub-themes included:

- **Work is fun**

Although I was here, I had about ten years where I was seconded, sometimes 100%, other times 50% out of the ‘grind’ of teaching. We went all over the country and had money to build big equipment and it was just fabulous, you know, just playing really, but with a very reasonable chance of doing something.

- **Remaining current and industry credible**

I've had projects where they've designed the biggest aircraft in the world, and I walk into the design office and I see my book on the desks of the guys who are working on the landing gear, and they get up and shake my hand - they know me -so I'm a credible engineer. I like the external engagement: I think it just broadens everything about your daily experience, the people you're dealing with, and I actually think I continue to learn more by practising in that world.

- **Challenge**

Perhaps I'm crazy, because in several periods of my life, I've said to myself, this has to be right and I don't care if the barriers are there, I don't care if the walls are there, I'm going to knock a hole in it somewhere. I may fall over in the process, but I'm up for giving it a go and that's where [knowledge transfer] comes in.

- **Locating opportunities**

If I'm sitting there listening to a presentation, I'm thinking what information I could incorporate into my lectures, thinking about what the gaps in knowledge are so if there's any research opportunities and then also thinking about whether the presenter is someone that I could use for a knowledge transfer event or he's going to be useful contact.

3. Purposive Activities

This is where the KTAs talked about the processes they go through in generating KT activity and their reasons for doing this. They discuss the serendipitous nature of some opportunities which they pursue because they have projects 'in mind' which are kept until a suitable funding source presents, or they have consciously developed networks in their areas of interest which will facilitate the kind of work they want to do, as they are motivated by novelty and new challenges. Overall a mix of strategies is employed in creating opportunities. This relies to some degree on their reputation for being a 'safe pair of hands' as one KTA described it, or having developed a good reputation in their local or subject network for delivering KT outputs. Sub-themes included:

- **How it gets done?**

I normally have projects in my mind; it's just a case of often waiting for the right funding to come along. There are other projects that have just kind of happened and there's been funding that's become available and there's been a contact.

- **The avoidance of boredom**

I'd be bored to tears if I was just doing teaching and research, it's that variety, otherwise you would just be working with the same team of people and the same students all the time and you wouldn't have those stories to tell in lectures about different people's projects, different people's ideas and I think that really can inform teaching quite a lot.

4. The Academic Context

The KTAs discuss some 'pull' factors in the academic role and in being in an academic context. These are supportive of, and consistent with, their reported motivations e.g. academic freedom and autonomy to engage in research as well as income generation. They discuss a strong preference for being self-directing in their work and appreciate a high degree of flexibility in how they organise their work. Individuals who report this desire for autonomy and self-direction tend to expect a reciprocal arrangement in negotiating their work with managers. This theme links to the literature on the importance of the *psychological contract* for successful KTAs – a contractual arrangement which allows for a high degree of relational interchange in planning work, rather than adherence to a stated contract. Sub-themes included:

- **The Academic role**

I guess I don't think it was until I became a lecturer that I had the scope or power to develop projects where I'd be employing other people.

- **Relationship with the organisation**

So I've also got an allegiance and a loyalty and a sense of belonging to the university. So for me, it was very rewarding to see the university being recognised in such a way.

5. The Journey of the KTA

This was interesting because it revealed a variety of entry strategies to a KTA role e.g. taking up a KT training route through Medici fellowships, or moving 'sideways' from a traditional academic career, in addition to those who came from an industry background into KT at the same time as they returned to academia as a career change or development. Sub-themes here are:

- **Looking backward**

Well, I suppose I've come sort of in a circle it's more commercially focussed so I think I probably brought my experiences in from when I was doing knowledge transfer into more commercially focussed research.

- **Finding the right people to work with**

This is interesting: the first time that I really became aware that KT was a thing was when [someone] asked me if I'd go along and talk about KT at an [event]. And it was the first time I'd ever thought of it as a thing; I was just doing my job.

I had never really thought of it that way. And now I've been to other events like that; quite a lot of these people and their understanding of KT is entirely different to mine. That's their KT. But, actually, that's a fragment of the KT that actually happens in the country.

6. Pedagogy

That the KTAs mostly discussed teaching as a secondary element to their KTA in terms of personal importance does not preclude them having strong views on what constitutes relevant and credible teaching methods and activities. They reported enjoying some aspects of their teaching in developing students' skills and enthusiasm with applied examples. Sub-themes included:

- **Transferable skills for graduate employment**

When people say, well, why are you doing it, I say how many times when [employers] get a graduate, do [they] give [them] a tutorial sheet with six questions on and say do these by lunchtime? Never. Instead you give [them] a problem, and they've got to sort it out. Well, that's how we're going to do the teaching. We're calling it activity-led learning.

- **Industry credible teaching e.g. problem based learning/case studies**

When you need to teach students a transferable skill, you also need to teach them what the current state of the sector is and to do that, you know, you have to keep current.

7. Perceptions of Risk

Related to theme 4 The Academic context, KTAs prefer working entrepreneurially for an institution rather than for themselves, which is a marked difference for academic entrepreneurs if we compare them to the research on business entrepreneurs (Segal et. al, 2005). They discuss the risks involved in setting up their own business against the benefits of being able to engage in work they enjoy but without 'risking their house' on it. On the whole they described themselves as risk-averse, yet this highlights another issue about the attribution of risk; the stresses involved in project managing between organisations were noted and yet were not identified as 'risks', more as challenges – as was the notion of doing something a little bit different and challenging practices in academia to work with external businesses. They do not particularly want to be 'sales people' or issue invoices for their company's survival. The academic context removes this aspect of entrepreneurialism in addition to some of the managerial and general running responsibilities that a business owner would have to take on e.g. human resources. Sub-themes included:

- **Risk awareness**

I'm my own boss, completely my own boss; I'm self-managed almost entirely, which is very attractive. It's the only other place I can get that is by starting my own business, and that's really risky.

- **Access to resources**

It is in terms of resources as well, because if you try and put an event on, if you were just in an ordinary organisation, that might be a lot different. Whereas that's part and parcel of, oh yeah that's the sort of thing we do around here. You just go and see so-and-so...

Images of the KTA role

Within these interviews KTAs were also asked to describe their experiences of KT as an 'image', again to try and convey motivating aspects of their work to others. The images collected were an alternative way to represent the experience of pull factors in the KTA role and in an engaging manner (Stiles, cited in Symon & Cassell, 1998). These could be used in 'best-practice case study' material to communicate the positive elements of the role and to support engagement. Some of the images together with their rationale are presented below – these represent the motivations of the KTA role 'in pictures'. It was during the explanation of these images that some KTAs also reported not intentionally ending up in this role, but that it had 'evolved' out of serendipitous opportunities. This suggests that future engagement of KTAs should be more outward-looking than advertising purely within academia (e.g. to attract people from industry or consultancy roles who may not have been career academics).

<p>"I think a tree. [Laughs.] I think the tree reflects the subject area in terms of sustainability but also with the branches of the tree, you can see where I started from the new kind of branch there into several different areas that have all got their own branches coming off them. <u>Yes, seeing something grow and</u> <u>develop, that it feeds something...</u>"</p> <p></p> <p> Centre for People @ Work www.worcester.ac.uk/cpaw</p>	<p>"... that one lucky event that happened all those years ago, and where I am now, I see that as part of the same thing. The image that I've got in my head is... a postage stamp on a massive, great, big empty white [envelope], and a drop of water hits the postage stamp, it's like, oh, well, what the hell's the chance of that happening? [laughter] So, something like that; <u>something</u> <u>that represents what a small chance is there,</u> <u>actually, of ending up at that point?"</u></p> <p></p> <p></p> <p> Centre for People @ Work www.worcester.ac.uk/cpaw</p>
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<p>"Playing in the sandpit of life....it's fun...what... it's not is, "I am the fountain of all knowledge, please take it from me and do what I say because it's right." It's let's sort this out together...You say, well, okay, we have a problem, how are we going to solve it? What information do we need to solve this problem...?"</p> <p></p> <p></p> <p> Centre for People @ Work</p>	<p>"Um...the first thing that came into my mind, actually, a Flintstone car with people with the pedals, okay? And they're going along and evolving and then a rocket comes out the end. Kind of like the innovation route; yeah, that's probably it. <u>So,</u> <u>something coming in .. basic and very,</u> <u>very sketched, and going to something very</u> <u>High-tech and manufactured at the end, I guess.."</u></p> <p></p> <p> Centre for People @ Work www.worcester.ac.uk/cpaw</p>
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Conclusions and Implications

That this large amount of dialogue can be represented under the eight themes contributes to its value in guiding models of future engagement for KTAs. It should be noted that feedback during the interviews suggested that many of the KTAs had not thought about the nature of their experiences in this way before – or of having an explicit ‘career path’ – being guided more implicitly by motivations towards these pull factors, rather than a series of explicitly ‘planned’ career choices, and as a result found the interviews “fascinating and illuminating” from a point of self-reflection.

Recruitment

For increasing recruitment of KTAs it is suggested that hearing positive vignettes like those presented in this report, is an optimal way to generate curiosity in like-minded individuals as well as to support those who are engaging in these activities but who maybe finding them more challenging than they had expected. The KTA, like many creative role incumbents, may turn out to be their own best advocates and a self-selecting sample for whom ‘pull’ factors in the presence of opportunity, will be much more powerful than ‘push’ factors; such as targets or organisational mission statements aimed at increasing KT work.

In this respect, it is recommended that HEIs and supporting bodies focus on publicising the positive aspects of engaging in KT activity in order to attract new KTAs: e.g. that the work is exciting, fun, at times spontaneous, it allows them to be at the cutting-edge of applying theory in the real world and to pursue their own interests. It generates a sense of being worthwhile and allows the opportunity to be regarded as an expert externally as well as bringing teaching to life. Case studies that focus on the motivational aspects rather than on the operational barriers of KT work are in sympathy with the pull factors for active KTAs and therefore appear to demonstrate merit in use as models for future engagement.

Retention

Recommendations concerning the professional development of people in KTA roles are to consider identification of these needs as responsive rather than necessarily ‘planned’. The KTA will be more likely to identify their own development in relation to KT projects, than to value generic KTA input. This is consistent with the individual human capital they bring and with their desire for autonomy. The KTA is motivated to identify and respond to a ‘need’. As such, creating networking opportunities between KTAs per se may not be valued, even though collaboration was referenced as a necessary structural part of the KT system. However, if these opportunities are organised around a ‘problem’, this can operate as an attractor for like minded people. One participant suggested ‘problem match’ events around specific KT topics, which could be multi-disciplinary, but around particular areas of interest - to increase in the presence of for example, imminent opportunities and relevant contacts for application in a KT project.

From the earlier discussion of the psychological contract, it is suggested that due attention should be afforded to the relationship between the KTA and the HEI in enabling KT to occur. The KTA values autonomy, the ability to be self-directing in their work and is appreciative of the flexibility that the HEI affords them. These expectations will form part of the psychological contract between KTAs and the HEI and/or the employer and it is important that this contract is not breached. This expectation of flexibility supports the work of Francis-Smythe et. al. (2007), who advocate different kinds of academic contract are needed, rather than a more generic approach to encouraging all academics to be involved in KT. In this respect, we recommend that retention of active KTAs will be supported by system enablers that allow them to engage fully and responsively with the role. These include: the presence of flexible, and autonomous relational aspects in their psychological contract, structural arrangements that allow them to dedicate blocks of time to KT, support processes that enable them to react quickly to opportunities, independence in being able to follow their interests and direct their own career development in this autonomous way. In essence, variety and challenge (as they see it) will keep them engaged.

Strategic Management of KTA Activity

For those managers tasked with increasing the amount of KT work carried out within HEIs, some strategic level implications can be drawn from the present results which advocate the use of attending to the ‘pull factors’, over and above the strategic ‘push factors’ when establishing future engagement strategies.

We propose that publicising and promoting the positive aspects of engaging in KT; the motivators, rewards, and successful outcomes will do more to encourage engagement than emphasising the government and organisational ‘push factors’ such as revenue targets and government mission statements aimed at increasing activity. We further propose that this positive publicity for KT will lead to a gradual change in the perception of the value of KT activity in HEIs. As stated by one of our interviewees, there was still the overwhelming perception that KT was seen as the ‘poor relative’ to traditional academic research in their own HEI. This positive publicity, and increased regard for KT, will address the theorised inconsistency between HEI and policy-makers’ explicit intentions, and the implicit support available for KT engagement; and between the role benefits perceived by some and not others.

Research Objective 5: Recommendations for further development of Knowledge Transfer Professionals to encourage regional Knowledge Transfer engagement by academics given our findings

1. Continuing Professional Development initiatives should focus upon the specific, technical knowledge and skill areas required by Knowledge Transfer Professionals, as opposed to the more general business process skills such as team working, communication, and Leading others. Specific, technical aspects of the KT role include, understanding the University- Industry interface, HE policy, culture and government schemes, the legal context of KT, and contract negotiation
2. Awareness-raising and publicity of the training and development provisions available to Knowledge Transfer Professionals needs to occur. Generally, participants were unaware of the training providers, the courses on offer, and the support networks available to them.
3. Consideration should be given to the most appropriate delivery methods and strategies for accommodating KTPs' CPD needs. Online methods of learning and networking were the least favoured method by KTPs, instead preferring the face-to-face delivery methods that allow the opportunity for networking, collaboration and knowledge sharing with peers. We recommend that face-to-face events, courses and networking should be favoured above more on-line resources.
4. Publicity of Knowledge Transfer in general and awareness-raising of the positive aspects of engaging in KT is required to increase engagement in KT throughout HEIs.
5. Implementation of a standardised induction programme for the West Midlands Region, covering the context of the University-Industry interface, the culture, policies and procedures of HEIs and a cross-institution buddy, mentor or coaching scheme to facilitate networking and sharing of best-practice. The induction should also include a glossary of terms to assist with integration into the HE culture.
6. Models of future engagement should aim to activate 'pull factors' for KTA engagement by emphasising the positive aspects of engaging in KT rather than focus upon the 'push factors', the barriers or threats. One suggested promotion method might be to develop case studies, highlighting 'best practice' in KTA activity, national KT awards and nominated KT 'champions' in each HEI.
7. Due attention should be afforded to the concept of the psychological contract between KTAs and HEIs in enabling KT to occur. The KTA values autonomy, the ability to be self-directing in their work and is appreciative of the flexibility that the HEI affords them. These expectations form part of the psychological contract between KTAs and the HEI and/or the employer and it is important that this contract is upheld. Managers should bear these implications in mind when trying to encourage their team members to engage in KT activities.
8. HEIs need to encourage and facilitate multiple output activities from KT projects in order to increase the awareness and credibility of these projects both externally and internally. This will also improve the academic esteem surrounding such KT activities, thus encouraging further engagement.
9. KTA managers should facilitate dedicated blocks of time and processes to enable the KTA to respond quickly to new KT opportunities (this may involve short-notice release from teaching/administration duties).

10. Models for future engagement could include KTA managers and HEIs facilitating 'KTA problem match' events around specific KT topics, which will attract particular KTA individuals and facilitate networking and collaboration. These would be perceived as more efficient and more relevant than generic 'networking events' or e-learning materials.
11. KTA development activity will be largely determined by the KTA and in a responsive and needs-led manner and so would be better supported with a non-specific development budget aligned to KTA roles, rather than planned development.

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Appendices

Appendix 1: Training Suppliers Contact details

Association for University, Research and Industry Links (AURIL)

<http://www.auril.org.uk/pages/home.php>

Association for University Research and Industry Links
c/o Queen's University Belfast
Lanyon North
University Road
BELFAST
BT7 1NN

Telephone: 028 9097 2589
Fax: 028 9097 2570

Email: auril@qub.ac.uk

Blueberry Training

<http://www.blueberrytraining.com/>

17 Cheltenham Avenue
Bromsgrove
Worcestershire
B61 0RU

Telephone: 07795 360 294

Email: andrew.corcoran@blueberrytraining.com

Enterprise Educators UK

<http://www.enterprise.ac.uk/home/>

Enterprise Educators UK
c/o Loughborough University Enterprises Ltd
Rutland Hall
Loughborough University
Loughborough
LE11 3TP

Telephone: 0114 233 3854

GInN Professional Network

<http://www.ginnn.com/>

Email: info@ginnn.com

Joint Information Systems Committee's (JISC)

<http://www.jisc.ac.uk/>

University of Bristol
3rd Floor, Beacon House
Queens Road
Bristol
BS8 1QU

Telephone: 0117 33 10789
Fax: 0117 33 10667

Email: info@jisc.ac.uk

Kaplan Hawksmere

<http://www.hawksmere.co.uk/hawksmere/>

Kaplan Hawksmere
7th Floor, Elizabeth House
York Road
London
SE1 7NQ

Telephone: 0845 120 9602
Fax: 0845 120 9612

E-mail: info@hawksmere.co.uk

Neil Stewart Associates

<http://www.neilstewartassociates.com/>

Neil Stewart Associates
PO Box 39976
2nd Floor
1 Benjamin Street
London
EC1M 5YT

Tel: 020 7324 4330
Fax: 020 7490 8830

E-mail: info@neilstewartassociates.co.uk

Praxis Courses Ltd

<http://www.praxiscourses.org.uk/>

Praxis Courses Ltd
St. John's Innovation Centre
Cowley Road
Cambridge
CB4 0WS

Telephone: 01223 422088
Fax: 01223 420844

Email: info@praxiscourses.org.uk

ProTon Europe

<http://www.protoneurope.org/>

ProTon Europe Secretariat
Rue des Palais 44
B-1030, Brussels

Telephone: +3222113432
Fax: +3222113405

Email: sg@protoneurope.org

SFEDI

<http://www.sfedi.co.uk/>

SFEDI
Business Incubation Centre
Durham Way South
Aycliffe Industrial Park
County Durham
DL5 6XP

Telephone: 0845 224 5928

The Institute of Knowledge Transfer (IKT)

<http://www.ikt.org.uk/>

76 Portland Place
London
W1B 1NT

Telephone: 020 7470 4912

Email: info@ikt.org.uk

The Intellectual Property Office (IPO)

<http://www.ipo.gov.uk/>

Intellectual Property Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

Telephone: 0845 950 0505
Fax: 01633 817777

E-mail: enquiries@ipo.gov.uk

The Really UK Company

<http://www.reallyuk.co.uk/>

RUK

Gable End
Knighton Road
Clun
Shropshire
SY7 8JH

Telephone: 01588 640650
Fax: 01588 640812

The Training Gateway

<http://www.thetraininggateway.com/home>

The Training Gateway
The Innovation Centre
York Science Park
York
United Kingdom
YO10 5DG

Telephone: 01904 435360
Fax: 01904 435101

Email: info@thetraininggateway.com

Unico

www.unico.org.uk

St John's Innovation Centre
Cowley Road
CAMBRIDGE
CB4 0WS

Telephone: 01223-422098
Fax: 01223-420844

Email: info@unico.org.uk

Appendix 2: Head of Unit E-Survey

1. Welcome

The Centre for People @ Work, at the University of Worcester, are currently exploring issues around the training and development needs of Knowledge Transfer Professionals (KTPs) in the West Midlands region on behalf of CONTACT Knowledge Exchange .

KTPs are considered to be people who are actively involved in the academic/business/industry interface whether they be Business Development Managers in a Business Development/Enterprise office in the HEI or academics engaging with clients in business/industrial research.

The research project is being carried out with a view to informing the development and provision of training and development for KTPs in the region.

We are contacting you as the lead of a team of KTPs to ask you for some information from a KTP leader/manager perspective.

The information that you provide us with will help us formulate our main survey to KTPs. Any information you give us will be treated in confidence and whilst we would be most grateful if you could complete each of the questions please feel free to omit any you so wish.

Please complete this survey giving your preferred views as the KTP leader.

2. Demographic Information

1. Please provide us with the following information:

Name:

Job Title

Institution

Unit

2. Please indicate the number of people you are responsible for under the following categories:

Sole role as a Knowledge transfer Practitioner (e.g. Business Development Manager)

Dual role as a Knowledge transfer Practitioner (e.g. academic and innovation fellow)

Sole role as an academic

3. Please provide the names of the people in your team whom we may contact to seek their participation in the main survey?

4. Please could you provide us with the name of an individual in your team who you feel is particularly passionate about their engagement in knowledge transfer whom we could contact for an interview of their experiences?

3. Training Provision

1. Please indicate your approximate annual budget to spend per person on training and development:

- £0
- £1- £100
- £101- £500
- £501- £1,000
- £1,001- £2,000
- £2,001 +

Comments

2. Please state the most common knowledge areas to be supported:

3. Please state the most common skills areas to be supported:

4. Please select your preferred mode(s) of delivery

- Face-to-face
- Distance learning
- E-learning
- E-KT tools
- On-the-job training

Other (please specify)

5. Please state your preferred KT training and Development providers who are EXTERNAL to the institution:

Supplier

Supplier

Supplier

Supplier

Supplier

6.

Course(s) supplied

Course	[Redacted]

7. Please state your preferred KT training and Development providers who are INTERNAL to the institution:

Supplier	[Redacted]

8.

Course(s) supplied

Course	[Redacted]

9. Are there any areas where you think regional Training and Development provision for KTPs can be improved?

[Redacted]

10. How often, on average, do you discuss with your KTPs their training and development needs?

- Once a week
- Once a month
- Every 3 months
- Every 6 months
- Annually

11. Is this discussion typically (select all that apply):

- On an informal basis
- Formally, but outside of an appraisal event
- Formally, as part of an appraisal event

12. Please comment on the extent to which you encourage engagement in the following:

	Never	Rarely	Occasionally	Often	Always	Not aware of resource
Institute of Knowledge Transfer (IKT)	<input type="radio"/>					
Global Innovation Network (GINN)	<input type="radio"/>					
Knowledge Tree	<input type="radio"/>					
AURIL KT Academy	<input type="radio"/>					
JISC Netskills	<input type="radio"/>					
Other (please specify)	<input type="text"/>					

13. Please comment upon the induction methods you provide for those new to the profession:

4. Thank You

Thank you for taking the time to complete this survey.

This is the first stage of our project into the training and development needs of Knowledge Transfer Professionals (KTPs) in the West Midlands region.

We would really appreciate your continued support during later stages of the project; both in terms of your own participation in our main survey, and further in terms of your assistance in encouraging your colleagues to engage in our research when we contact them later in the year.

Thank you once again for your support.

Appendix 3: Main E-Survey

1. Welcome

This survey is part of the CONTACT Knowledge Exchange project relating to the Continuing Professional Development of Knowledge Transfer Professionals (KTPs) in the West Midlands region.

Your responses are anonymous and will be used to produce a regional level analysis. If you wish to enter the Amazon £200 voucher prize draw, you will need to provide us with an email address through which we can contact you. Email addresses will be removed prior to data analysis to maintain anonymity.

In addition, if you supply information on your institutional affiliation, a local report will be produced for use by your Unit/ Institution.

2. Prize Draw

1. To enter the £200 Amazon vouchers prize draw, please provide us with an email address through which we can contact you.

Email:

3. Demographic Information

1. Please provide the following demographic information:

Institution

Faculty/ Department

2. Please select the response that best describes your role:

- Sole role as a Knowledge Transfer Professional (e.g. Business Development Manager)
- Dual role as a Knowledge Transfer Professional (e.g. academic and innovation fellow)
- Sole role as an Academic

Other (please specify)

3. Would you describe yourself as more involved in:

- Technology transfer
- Knowledge transfer (e.g. consultancy, skills or Continuing Professional Development training)
- Both equally

2. What do you consider to be your current development needs in terms of the SKILLS required to engage in Knowledge Transfer? (select all that apply)

- Research skills
 - IT skills
 - Organisation and coordination skills
 - Oral communication skills (articulation, presenting, negotiating)
 - Written communication skills (editing, precising)
 - Active listening skills
 - Meeting facilitation
 - Sales and marketing
 - Team working
 - Influencing and persuading
 - Feedback skills- giving and receiving feedback
 - Conflict resolution
 - Time management
 - Business planning
 - Business development
 - Selling
 - Problem solving and decision making
 - Networking
 - Assertiveness/ confidence
 - Budget management
 - Collection, collation and analysis of information
 - Publishing results
 - Financial planning
 - Bid writing
 - Contract negotiation
 - Contract drafting
 - Intellectual property (patent application, license agreements, license marketing)
 - Entrepreneurial skills
 - Business administrative skills
- Others (please specify)



3. How often, on average, do you discuss your training and development needs with your line manager?

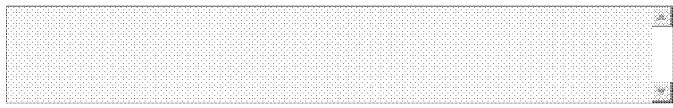
- Once a week
- Once a month
- Once every 3 months
- Once every 6 months
- Annually

4. In general, does this discussion tend to take place:

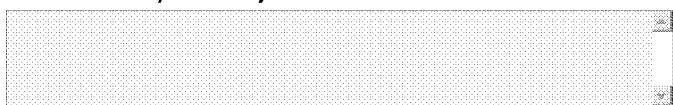
- On an informal basis
- Formally, outside of an appraisal event
- Formally, within an appraisal event

Other (please specify)

5. Thinking back to when you were first engaged in an Knowledge Transfer role, what training or development would have been useful to you as an induction programme?



6. What has been your most valuable learning experience for the Knowledge Transfer role, and why?



5. Training Preferences

1. Please indicate your preferred mode(s) of training and development delivery:

- In-house course
- External course
- Self-study
- On-line Support networks
- Other support networks
- Secondments/ exchanges
- Expert briefing sessions
- On-the-job-training

Other (please specify)

2. Which type of organisation would be your preferred supplier of Knowledge Transfer orientated training?

- In-House
- Another HEI
- Commercial
- Professional Association
- Trade Association

Other (please specify)

3. Please indicate your usage of the following training providers:

	Not aware of	Aware of, but never used	Used infrequently	Used regularly
Association for University, Research and Industry Links (AURIL)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PRAXIS (Technology Transfer Training)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blueberry training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indigo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Training Gateway	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Joint Information Systems Committee (JISC)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hawksmere	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collier Pickard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ransome Associates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Really Useful Company	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neil Stewart Associates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ProTon Europe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intellectual Property Office (IPO)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own Institutional business development/knowledge transfer unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own Institutional staff development/academic development/quality units	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other HEI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)				

4. Please indicate your usage of the following e-learning/ Knowledge Transfer tools suppliers:

	Not aware of	Aware of, but never used	Used infrequently	Used regularly
Institute of Knowledge Transfer (IKT)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Global Innovation Network (GINN)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AURIL KT Academy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge Tree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blueberry Training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JISC Netskills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
InfoEd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)				

5. How satisfied are you with the current level of training provision for Knowledge Transfer Practitioners?

- Very dissatisfied
- Dissatisfied
- Neutral
- Satisfied
- Very Satisfied

Other (please specify)

6. In what ways do you think regional training and development provision for Knowledge Transfer Practitioners could be improved?

7. Are there any constraints on your engagement in training and development activities?

- Limited provision of relevant topics
- Cost
- Limited modes of delivery

Other (please specify)

8. Are you a member of the Institute of Knowledge Transfer Professionals (IKT)?

- Yes
- No
- Don't know

If yes, please state what you have used its services for

9. Have you completed the AURIL (Association for University, Research and Industry Links) training needs analysis?

- Yes
- No
- Don't know

10. How aware are you of the AURIL Continuing Professional Development framework?

- No knowledge
- Aware of, but not looked into
- Looked at, but not used
- Used once
- Used a few times
- Used regularly

11. How do you identify your training and development needs?

12. To what extent would you like your formalised training and development activities to lead to a recognised professional Knowledge Transfer qualification?

- Not necessary
- Would like this
- See this as essential

13. Do you have any of the following available to you to support your training and development as a Knowledge Transfer Professional?

	Available and use	Available but don't use	Not available	Don't know if available
Mentoring or coaching service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Peer group support networks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conference attendance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Secondment or placement opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job shadow or job exchange	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Would you be willing to participate in a follow-up interview that will enquire further about your positive Knowledge Transfer experiences?

- Yes
- No

6. Thank you

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