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IDENTITY CONSTRUCTION AMONGST KNOWLEDGE TRANSFER STAFF IN ENGLISH HIGHER EDUCATION INSTITUTIONS

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Declaration

I, DEBORAH ANNE LOCK, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm this has been indicated in the thesis.

Deborah Anne LOCK

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In my opinion, a PhD journey is akin to that of the Grand Tour of the 1800's whereby reading existing, and formulating new ideas and concepts result in a form of creative, intellectual and cultural awakening. The journey is hard, but the voyage of self-discovery well worth it.

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Abstract

This research uses a case study approach to explore identity construction amongst Knowledge Transfer (KT) staff in English Higher Education Institutions (HEIs). A Bourdieusian framework is employed to organise and interpret the key factors of identity construction. Specifically, notions of capital, habitus, field and practice are used to examine and analyse the notion of the KT professional.

In this context, the thesis attends to five factors that are influencing identity work. First, institutional understandings of, and responses to, the KT agenda and the catalytic nature of KT on institutional philosophies and structures are considered. Second, I discuss the various types of capital that KT staff bring to the institution and the tensions that exist between individual and institutional (mis)recognition of its relative value are discussed in the context of the impact on an individual's credibility. Third, individual and institutional dispositions are identified as key mechanisms for field and context constructs which define the space in which KT staff operate. Fourth, the role of capital, field and habitus within practice are considered against the various strategies which KT staff appear to use in the KT process. In this area, the case study analysis reveals KT practice to be multifaceted and in constant flux: that is, KT work provides a conduit through which an individual's habitus (their sense of being) converges with their everyday actions to create multiple KT identities. Finally, individual and collective understandings of KT as a profession are examined, and suggest that KT identity constructs are not dependent on membership of a recognised professional association or body, but instead are the result of a combination of attributes and assumptions.

The study concludes by arguing that KT staff exist within a world of ambiguity that is subject to internal and external forces which are sometimes beyond the control of the institution, and at other times at the behest of the institution as it struggles to articulate the KT agenda. For practitioners, the struggle over KT identity produces issues with credibility, validity and clarity of position that results in the juggling of a plurality of roles as they restructure and reposition their identities in response to the shifting expectations and assumptions of KT antagonists and protagonists.

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CHAPTER ONE

INTRODUCTION

1.0   Introduction

According to the McMillan Group (HEFCE, 2016) universities exist within a global economy whereby industrial innovation and technological advances are stimulated and driven by the creation, accessibility and usability. The role of higher education (HE) in the knowledge economy has been a central element in successive UK government funding policies since the mid twentieth century as the sector is re-shaped and re-positioned as a key contributor in the formation of a knowledge society (Department for Business Innovation and Skills, 2009; Department for Education and Skills, 2003). This society is one where knowledge influences social structures, transforms the means of production, and where the university is the *'knowledge factory'*; a status through which effective knowledge transfer is an essential (Temple, 2012: 11). Since discretionary funding is frequently linked to the outputs from the *'factory's'* production line, such as student numbers and commercial income, via the funding allocations from the Higher Education Funding Council for England (HEFCE), it is important for Higher Education Institutions (HEIs) to engage in the knowledge transfer agenda. This both encourages and enables them to diversify their income streams, unlock knowledge to maximise exploitation potential, and critically, demonstrate their value to government, society and the economy.

Whereas Greenhalgh (2010) called for *'a time to problematize and critically question our understanding of knowledge'* and what is being transferred and exchanged (p.492), this study focuses on the 'who' is involved with the knowledge transfer (KT) process rather than the 'what' is being transferred. It seeks to explore identity construction amongst KT staff through understanding the motivations and drivers which attract staff to work in the KT arena, and how the relationship between the individual and the institution influences, shapes and personalises their KT practices. There are two assumptions underpinning this research. First, that knowledge is a commodity with intrinsic market value (whether this be economic, political or reputational) which can be packaged, exchanged, modified, distributed and exploited. Second, that there exists a group of non-academic staff in HE whose primary role it is to lead, and coordinate the transfer of knowledge from universities to business that will contribute to social and economic prosperity (HEFCE, 1999a). The research aims to be of value and interest to the HE community, public sector research establishments, business, and government policy makers. It highlights and clarifies the role that KT staff play in knowledge exchange between business and academia at a time of economic uncertainty when income diversification, marketization of HE (McGettigan, 2013) and *'rhetorical shifts about the wider benefits of HE'* (Lebeau and Cochrane, 2015:

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252) are in play as the sector seeks to mitigate the impact of austerity measures and restrictions on public sector funding. In such a climate, it is important that key stakeholders have a greater understanding of what KT staff do, and the value they bring to the academy through their roles in the exploitation and prorogation of knowledge.

1.1   Contextualising and defining the research problem

The research problem emerges from four inter-related areas of discourse. These include:
- Debates around KT in terms of its definition and processes;
- The positioning of KT within the HE context as the primary delivery mechanism on which a third mission of activity is based. This being a mission of *'(socio-) economic engagement'* (Nelles and Vorley, 2009: 341) that complements the existing missions of teaching and research (Geuna and Alessandro, 2009; HEFCE, 1999b);
- The need for income diversification as the impact of economic austerity measures begin to filter through the sector, and finally,
- The practices of the individuals recruited to deliver the KT third stream agenda. Specifically, their skills and relationships with the academic community without whom there would be no knowledge to transfer.

1.1.1   Issues of definition and common understandings

In the late 1990s a new discourse emerged in HE with a rhetoric littered with references to KT, a concept which, according to Lockett (2008), appears to lack universal agreement as to its meaning and interpretation (p.667). This is further exacerbated by the interchangeability of the terms knowledge transfer (KT), knowledge exchange (KE) and knowledge sharing (KS) which appear to be used to describe the same processes albeit one, KT implies a one-way movement, whereas the other two, KE and KS suggests reciprocity between parties (Lavis *et al.*, 2003; Mitton *et al.*, 2007; Paulin and Suneson, 2015). In their work calling for the establishment of a Canadian public health research network, Keifer et al.,(2005) place two of the terms together and use the phrase knowledge transfer and exchange (KTE) to emphasise the *'bi-directional flow of knowledge and ideas'* (p. I4). This adds another dimension to the terminology dilemma since it suggests that within KT different types of activity take place which require different expressions and explanations. Since the terminology linked to this area of activity appears to be constantly evolving, for the purposes of this research I mainly use the term KT and reflect on the various definitions and traits that are encompassed within this expression.

Definitions for KT range from those which speak of an economic orientated process that enables the exchange of knowledge and expertise between HE and the business sector,

and results in transformational partnerships that will contribute to economic prosperity (Fender, 2001), to those which position it as a holistic process of engagement that will enhance *'human, social and environmental well-being'* (PhillipsKPA Pty Ltd, 2006: vi). Others such as Argote (2000) view KT through an organisational science lens where it is positioned as a management process through which *'one unit (e.g. group, department, or division) is affected by the experience of another'* (p.2) such as in the case of new technologies being introduced into the production line. Peng et al., (2014) who also adopts a similar management stance in terms of knowledge mobility links *knowledge ownership* to the KT process by suggesting that ownership of knowledge is retained as it is *'passed from a source to destination without the source losing his/her knowledge'(p.11)*. In the context of HE, knowledge ownership is frequently articulated in intellectual property (IP) agreements as part of the commercialisation process. In such situations background IP is retained by the academic, and any new IP emerging from the collaboration is shared or wholly owned by the commercial partner.

Despite terminology ambiguities, there appears to be a growing body of literature which focuses on both frameworks for university business KT (Etzkowitz and Webster, 1998; Hauser, 2010; Ternouth, 2004) and visionary documents that detail expected outcomes from the sector as a result of universities adopting a more entrepreneurial stance (Dyson, 2010; Wellings, 2008). Much of the research is based on the assumption that knowledge is transferable and mobile (Ennals, 2010; Kogut and Zander, 1992) as shown in Gorgoglione's (2003) study which suggests that KT involves two cognitive processes through which knowledge is mobilised. These are the '*upstream*' act of knowledge codification and the '*downstream*' act of code interpretation both of which render the knowledge usable as it passes between parties. The upstream, downstream analogy merits some consideration, although it may not always be one or the other instead there are times when both actions take place simultaneously. This is especially so for those involved with the co-creation of knowledge when the ability to work mid-stream, that is, change from coder to interpreter and vice versa is critical. Thus, the ability to translate knowledge, recognise its value and apply it is key to successful KT (Cranefield and Yoong, 2006; Nonaka, 1994). This interpretive stance resonates with Holden and Von Kortzfleisch's (2004) proposition that KT is a translation process aimed at creating '*a common cognitive ground among people'* (p.129).

Other core areas of research consider knowledge attributes and characteristics (Grant, 1996), KT mechanisms, (Kogut and Zander, 1996) and the enablers and barriers to successful KT (Simonin, 1999; Szulanski, 1996). For instance, according to Szulanski's 1996 study into firms' ability to transfer best practice internally, internal *'stickiness'* and

the relationship between the knowledge holder and knowledge seeker were considered to be the impediments to KT and *'dominate motivational barriers to knowledge transfer'* (p.38), whereas Simonin's empirical investigation into the role of KT in multinational strategic alliances identifies knowledge ambiguity as playing a critical role as which can either *'enable or disable transfer'* (p.611). Both of these studies apply a process and systems definition to KT whilst endeavouring to reflect on the role and motivations of the KT agent in the knowledge transfer process.

In 2006, the PhillipsKPA review of KT within Australian universities recognised the importance of contextualisation and suggested that for HE, a research-specific definition of KT underpinned by notions of mutual benefit might be more appropriate and acceptable to the academic community than one which is solely focused on commercial benefits:

> [Knowledge Transfer]… is the process of engaging, for mutual benefit with business or government to plan, conduct, apply and make accessible existing and new research to enhance the success of commercial enterprises (PhillipsKPA Pty Ltd, 2006: vi)

This is approach is further endorsed by the UK Research Councils (RCUK) who comment that KT is:

> The two way transfer of ideas, research results, expertise or skills between one party and another that enables the creation of new knowledge and its used in the development of innovative new products, processes or services' (RCUK, 2006: 4).

One might have expected HEFCE to follow suit since they, like RCUK, are predominantly dependent upon public sector funding. However, in addition to developing Fender's (2001) initial proposition about the need to strengthen university and business relationships, they extended this to suggest that KT in HE is a process for the common good which not only adds value to teaching and research, but is also an agent for transformational change:

> 'Knowledge transfer is a core activity of higher education, alongside and adding value to research and teaching" and "reflects the purposes for which universities were originally created – to support the social and economic transformations of their communities' David Sweeney, Director of Research, Innovation & Skills, HEFCE (Pauli, 2010:3)

Whilst acknowledging the complexity surrounding defining KT and the changing nature of terminology and meaning, the definition of KT in HE in this thesis is understood to be those processes, practices and activities which contribute to, promote and unlock the potential of knowledge to enhance socio-economic prosperity. It is the movement of knowledge *'across the boundaries created by specialized knowledge domains'* (Carlile and Rebentisch, 2003: 1180), which in the case of third stream activity, is mainly (but not exclusively) between HE, business and the community.

This definition is underpinned by the following principles:

1. It is based on an assumption that knowledge is mobile and has value;

2. It is a communication process through which a transactional relationship is established that results in _beneficial knowledge exchange_ between knowledge domains, always resulting in new knowledge for the _knowledge seeker_ (that is the party seeking the knowledge initially such as a business or an academic looking for a solution to a perceived or actual problem) and occasionally resulting in the co-production of new knowledge between the domains (Liyanage _et al._, 2009; Peng, Dey and Lahiri, 2014)

3. It is a process primarily driven by socio-economic forces which _does not necessarily result in a direct financial transaction_ between knowledge domains;

4. It includes those activities that are _distinctly different_ from those funded by HEFCE's Teaching and Learning and Research block grants; and

5. It has a language which is _constantly evolving_ as the sector struggles to articulate the distinctiveness of this activity with the result that the term is altered to reflect a particular slant or emphasis as required by the audience and in some cases, the funding body.

The challenges of articulating the KT agenda raises the following questions: how do staff working in this arena understand KT? And how do they develop their practices in an area which is inherently ambiguous and subject to change?

1.1.2 Contextualising knowledge transfer within the Higher Education

Although it can be argued that the UK HE sector has experienced a major paradigm shift through the establishment of 'new' university and business engagement activities such as the Triple Helix innovation ecosystem (Etzkowitz, 2003; Etzkowitz and Viale, 2010) and Mode2 knowledge production (Gibbons, 1994), the relationship between 'the University' and 'Business[1]' is not new. In Cardinal Newman's 1854 discourse on knowledge relating to professional skills he cautions against a Liberal Education which _'does not teach us how to advance our manufactures'_ (Newman, 1982 (Reprint): 116), and in 1925 Baillie's '_Industry and the University'_ address suggests that universities have a critical role to play in solving the industrial challenges through _'scientifically trained young men'_ or the application of science in the workplace (Baillie, 1925: 95): There has always been a relationship between knowledge and the economy irrespective of how tenuous that might be at times.

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[1] The terms 'business' and 'industry' are interchangeable in this thesis.

The concentration and focus on universities playing a role in both social and economic reconstruction through providing and shaping a skilled workforce was a key driver behind much post-war HE planning. Post-war Britain wanted an educated workforce which could meet the growing competition from the United States and Russia, an educational system that could achieve greater social and educational equality than previously existed, and a mechanism that could do this without undermining academic and intellectual integrity (Becher and Kogan, 1992). By 1963, the Robbins Report identified four aims and objectives for HE, one of which highlighted the university-business relationship and the role an expanded higher education sector would have in developing individuals that could '*play a part in the general division of labour*' (Robbins, 1963: 134). Two decades later, the 1987 White Paper '*Higher Education: Meeting the Challenge*' served to reaffirm commitment to universities and business working together in partnership (Department for Education and Skills, 1987). Until this point, most of the discussions had been around the notion of universities and business working together to address employability skills and research agendas, the 1987 White Paper was one of the first policy documents in UK HE to widen the spectrum of engagement to include the term 'technology transfer' and thereby bring attention to the commercialisation potential of the sector's research base.

In 1997, Sir Ron Dearing, was appointed by the Secretaries of State for Education and Employment for England, Wales, Scotland, and Northern Ireland to undertake a national review of HE and make recommendations on how '*the purposes, shape, structure, size and funding of higher education, including support for students, should be developed to meet the needs of the United Kingdom over the next 20 years*' (Dearing, 1997: 3). '*Knowledge*', Dearing goes on to say, '*is advancing so rapidly that a modern competitive economy depends on its ability to generate that knowledge, engage with it and use it to effect*' (p.51). The Dearing recommendations marked a move away from an unplanned university-business engagement agenda based on a series of separate initiatives to one with a coherent strategy that would enable HE to be more responsive to business. The report suggested that knowledge (not just employability skills) could be considered as a commodity which can be sold and or exchanged and co-created within, across and outside universities in collaboration with third parties such as those within the business community.

Whilst Dearing (1997) identified several core services that universities could provide to business to encourage KT such as business incubation services, Lambert's 2003 review of business and university collaboration focused on the barriers within the university-business relationship that limited efficient and effective KT. Amongst his

recommendations was the creation of a range of model legal agreements which set out approaches to intellectual property (IP) in terms of ownership, management and exploitation rights. In addition, Lambert also highlighted the need for on-going government investment in permanent funding to increase the flow of knowledge and ideas from the science base into business (Lambert, 2003).

Whilst Dearing and Lambert focused on the development of institutional KT capability and capacity building, the 2007 Sainsbury Review '*The race to the top: a review of government's science and innovation policies'* focused on the role of innovation in the UK economy. Sainsbury placed KT within an innovation ecosystem in which relationships and interdependencies resulted in economic prosperity through the co-creation of knowledge and mutually beneficial knowledge sharing:

> 'A country's innovation rate depends on inter-linked activities which include: industrial research; publicly funded basic research; user-driven research; knowledge transfer; institutions governing intellectual property and standards; supply of venture capital; education and training of scientists and engineers; innovation policies of government departments; science and innovation policies of RDAs; and international scientific and technological collaboration.' (Sainsbury, 2007:1)

The Sainsbury review had a major impact on various funding bodies and government agencies as amalgamation and consolidation of innovation support structures took place. For example, the Technology Strategy Board (TSB) was formed under the Science and Technology Act 1965 (Innovate UK, 2015) and given a remit to stimulate innovation activity by using public sector funding to leverage private sector resource. The aim being to accelerate economic growth through incentivising engagement:

> Our role is to stimulate technology-enabled innovation in the areas which offer the greatest scope for boosting UK growth and productivity. We promote, support and invest in technology research, development and commercialisation. We spread knowledge, bringing people together to solve problems or make new advances. (Technology Strategy Board, 2010)

Given the national remit of the TSB, universities, research councils and regional development agencies (which in 2012 were replaced by local enterprise partnerships) became more engaged with the activities that underpinned science and innovation. This was an area in which the Government had allocated a significant amount of funding and not to engage in this activity would limit commercialisation opportunities. For example in 2008/09, £222m was made available via the TSB to support commercial research and development which businesses could apply for either alone or in collaboration with a HEI (Technology Strategy Board, 2009:12). Likewise, Research Councils were encouraged to develop KT initiatives and these generally took the form of special grants and awards aimed at galvanising and unlocking the HE sector's innovation and translational research potential. The Engineering and Physical Sciences Research Council (EPSRC) follow-on funding for commercialisation activities, and the Arts and Humanities Research Council

(AHRC) Knowledge Catalyst programmes were all aimed at enabling business-led research. Regional development agencies were also encouraged to work closely with universities and take a leading role in embedding KT within local business communities through developing and participating in a series of short term initiatives such as the *Innovation Voucher Scheme* developed by the North-West Development Agency (a collaborative venture with Lancaster University), and the *Business + Scheme* developed by the South East of England Development Agency.

Despite the initiatives and stimulating funding, by 2012 there was a concern that sector was not achieving its full potential. HE was considered to be an *'integral part of the supply chain to business'* but was failing in the government's aspiration for the sector to become a *'world leader in university-business collaboration'* (Wilson, 2012: 1). Part of this was due to various types and differing levels of university-business engagement within an extremely diverse sector, and part was the result of a complex landscape within which multiple initiatives took place outside the HE sector but required the sector to engage with such as the Technology and Innovation Centres (TICs) which had been reviewed two years earlier (Hauser, 2010). Along with increased graduate work experience opportunities to accelerate the transition between being a student to an employee, Wilson also argued for the expansion of the innovation voucher scheme and consolidation of R&D opportunities (including secondments for researchers in business and vice versa). The resulting Catapult Centres were a re-configuration of the TICs by Innovation UK as a means to support collaboration between the two sectors in priority areas such as Off-Shore Renewables and Satellite Applications (Catapult, 2016; Department for Business Innovation and Skills, 2012).

Whilst a number of the challenges of defining KT appear to be conceptual and context sensitive to the organisation, the art of strategizing and delivering an HE KT agenda is one of which requires flexibility and responsiveness to evolving government policies. For example, since 2003 there have been multiple reviews *(See Appendix Two)* of university-business engagement activities, the latest being the Dowling (2015) review*,* with the result that KT is, to some degree, socially constructed and directed through priority R&D areas which are subject to change. Thus, the sector needs to recruit and retain staff that not only understand HE funding regimes, but also are able to identify opportunities resulting from business policies which are aimed at stimulating innovation and growth through collaborations led by industry. In view of this, senior management need to be sure that KT staff are sufficiently skilled enough to work within the interdependencies which exist between HE, business, and government to realise the exploitation potential of academic knowledge in a fast-changing environment. This is an issue that Siegal

(2003) identified in his review of university-industry technology transfer services which concluded that the appointment of staff with business experience that are skilled *'boundary spanners'* and able to work across different organisational and sectoral cultures was key to successful KT (p.122). With this in mind, what type of business experience and skills do KT staff have, and how are these are recognised and deployed within the HE setting?

1.1.3   Knowledge transfer activities

Having previously noted the challenges of defining KT and the complex policy landscape that surrounds this agenda in this sector, the following section focuses on the activities that occur under this term in the HE sector. For Seppo and Lilles (2012) KT:

> …encompasses highly interactive activities that include formal and informal personal interactions, cooperative education, curriculum development, and personal exchanges (Seppo and Lilles, 2012)

This definition resonates with work done by PhillipsKPA (2006) who suggested that KT portfolios included activities which make knowledge accessible, which sell knowledge and which support mutual engagement. Similarly, between 2008 and 2010 HEFCE commissioned a series of reviews and evaluations which also suggested a nomenclature for core university KT activities. This included thematic activities which were primarily: people-based, community-based, problem-based and commercialisation-based (PACEC, 2008; PACEC, 2009; PACEC, 2010). Whilst all of the classifications referred to provide some indication of the behavioural skills and competences required in the KT process, the spectrum of activity which falls under the KT umbrella is best articulated by the metrics and indicators which are used to measure its performance.

In the case of UK HE, this is the annual Higher Education Business and Community Interaction Survey (HE-BCIS) which has been developed over several years through an iterative process as a means to '*describe and measure the range of knowledge based interactions between universities, research, teaching and the economy and society'* (HEFCE, 2016: 68). Like Jensen's (2009) summary (Figure 1 below), HEBCIS includes a combination of both income and non-income generating activities ranging from business engagement through networks and conferences, to complex research exploitation initiatives such as setting up academic spin-out companies and leading route to market activities. Given the breadth of activities which could be included in a third mission portfolio, how institutions interpret and position the KT agenda defines the skills they require to deliver it. For example, an HEI with limited research is unlikely to have the commercialisation of IP as a key priority, whereas one with a robust research base is more likely to be actively involved with exploiting *'novel-to market technologies'* from research outputs (HEFCE, 2016: 4). In both of these examples, different skills sets are

required resulting in the contents of the KT portfolio influencing the institutions' recruitment strategy.

Category	KT Indicator
Networks	• Number of attendance / presentations at a conference/seminar with industry (non-academic participants); • Number of PhD student exchanges (with industry); • Number of collaborative and contract research projects as a result of knowledge exchange or networking activities;
Continuing Professional Development (CPD)	• Number of CPD courses held and attendees at these courses; • Number of university-industry laboratory research exchanges; • Number of scientific and research training schemes for industry; • Participation feedback;
Consultancy	• Number and value of consultancy contracts; • Number of collaborative research projects generated by consultancies;
Collaborative research	• Number and value of contract research projects; • Length of client relationship; • Number of contract research projects which led to other flow-on knowledge transfer activities such as collaborative research, licensing and industry sponsored conferences;
Licensing	• Number of invention disclosures; • Number of complete standard patent applications; • Number of patents granted; • Number of plant variety rights; • Value of copyright licences; • Number and income from licences; • Long-term relationships created following licencing;
Spin-offs	• Number of spin-offs formed; • Value of revenue generated from spin-offs; • Value of external investment raised; • Market value at floatation (or initial public offering); • Exit market value (i.e. trade or sale or buy-out); • Survival rate / viability and growth rate of spin-offs;
Other	• Number of research student placements in industry; • Number of industry funded postgraduate positions / scholarships; • Number of staff working on commercialisation activity in dedicated and support roles; • Provision of training in research commercialisation; • Citation received (citation impact analysis) from articles and patents with industry co-author(s) or inventor(s); • Joint publications and inventions. (Modified from: Jensen, Palangkaraya and Webster, 2009)

Figure 1 Knowledge Transfer Indicators

Whilst setting the agenda for KT is primarily a leadership issue, once KT staff are recruited, what contribution, if any, do they make to further refining it and on what basis do they make their decisions? Do they adapt their skills to deliver the portfolio, or is the portfolio modified by them over time to reflect their skills and strengths?

1.1.4   Funding knowledge transfer in England

In the late 1990's the UK Government embarked on a series of funding initiatives allocated via HEFCE aimed at incentivising and strengthening the links between HE enterprise and the economy (See Figure 2 for an overview of KT funding since 1987). Building on the success of existing academic-industry initiatives such as the Rolls-Royce Research and University Technology Centres (2016), the ideology of transforming good

research into good business was further reinforced through the establishment of proof-of-concept seed funds for a discrete number of research intensive universities. The 1998 University Challenge consisted of £50M made up from contributions from the Wellcome Trust, the Gatsby Foundation, HM Treasury and HEFCE, and was aimed at accelerating the route to market for new and innovative technologies emerging from curiosity-driven research, either through increasing the number of licence deals and /or increasing the number of university spin-out companies.

HEFCE 3rd Mission Funding	(£M)	Year
HEIF 2011-15	600	2011-15
HEIF 4 (including final CKE fund of 8M for 2008-09)	404	2008-11
HEIF 3 (including CKEs)	238	2006-08
HEIF 2 (including Centres for Knowledge Exchange - CKE)	187	2004-06
Knowledge Transfer Capability Fund	9	2004-06
HEACF 2	10	2004-06
HEROBC transitional funding	10	2003-04
Higher Education Active Community Fund (HEACF) 1	27	2002-04
Higher Education Innovation Fund (HEIF) 1	78	2001-04
Business Fellows	1	2001-04
HEROBC 2	22	2000-04
Higher Education Reach-Out to Business & the Community (HEROBC)	62	2000-03
Science Enterprise Challenge	25	1998-04
University Challenge	50	1998-04
Enterprise in Higher Education [EHE Initiative]	100	1987-89
Total funding for Business & Community Engagement	1823	

Figure 2 Third Mission Funding 1987-2015 (Modified from the HEFCE website, March 2015)

In contrast to this, the Science Enterprise Challenge (SEC) resulted in the establishment of twelve SEC centres with a softer remit of '*specialising in the teaching and practice of commercialisation and entrepreneurialism in the field of science and technology'* (Department for Business Innovation and Skills, 2010) and thereby producing more entrepreneurial staff and graduates. Whilst the benefits of University Challenge Fund (UCF) and SEC funding were primarily felt by research-led institutions that showed commercial potential, the 1999 Higher Education Reach-Out to Business and the Community (HEROBC) programme (HEFCE, 1999b) provided an opportunity for a much wider range of HEIs to put in place the organizational infrastructure required to increase their capability to respond to the needs of business, and thereby contribute more to economic growth.

Building on the success of HEROBC, the HE Innovation Fund (HEIF) programme was introduced in 2001. Since then there have been a further three rounds, each call having a slightly different emphasis which reflected the Government's stance at the time. HEIF1

concentrated on developing KT capability across the sector (HEFCE, 2001), HEIF2 saw the incorporation of activities from UCF, SEC and the Higher Education Active Community Fund (HEACF) come under its umbrella and a focus on developing wide ranging KT activity as part of capacity building (HEFCE, 2003). HEIF3 saw the introduction of formula based funding linked to income generation, and focused on strengthening existing links and consolidating activity (HEFCE, 2005), and HEIF4 (HEFCE, 2008), not only reinforced the notion of consolidation, it also implied permanency and validation as the annual monitoring return (the Higher Education Business & Community Interactions Survey) was transferred to Higher Education Statistical Agency (HESA) and linked to existing statutory returns.

Although the rhetoric of the Conservative Liberal Coalition Government appeared to be one that supported the notion of a broad approach to university KT which has both societal and economic outputs, the funding reductions resulting from the 2010 Comprehensive Spending Review did not appear to support this view. For instance, during a lecture given by Right Hon. David Willetts, MP, Minister for Universities and Science at the Royal Institution, (9th July 2010) he cautioned against KT solely based on economic outputs and a reliance on technology and '*its exaggerated focus on IP and spin-outs'* (Willetts, 2010: 2). Yet a few months later the Department of Business, Innovation and Skills (DBIS) confirmed the HE funding arrangements for 2011-14 (Willetts and Cable, 2010) and stated that although the HEIF had been preserved in cash terms, it should only be used to reward and '*incentivise the highest performing institutions'* (Willetts and Cable, 2010: 4). The highest performers were seen as those institutions with large research and development capability, strong IP and commercial pipelines supported by robust venture capitalist networks. Under the Coalition Government, HEIF would be re-invented with funding allocations based on economic performance with the softer elements of KT such as community engagement falling outside the funding algorithm, thus a return to concentration of funding towards research intensive universities (HEFCE, 2011).

In July 2011, HEFCE announced that 63% of HEIs that had previously been in receipt of HEIF would have their funding reduced, and that 25% would receive no funding at all. This action sent two clear signals across the sector, first HEFCE and government would only be prepared to fund KT activities that involve income generation, and second, HEIs that either lost or had their funding reduced would have to pay for these activities themselves if they wished them to continue. The implication of this action for both HEIs and KT staff was considerable: the loss of corporate knowledge through job losses as

HEIs reviewed their investment into this area, and the potential loss of business relationships which had been developed through, and 'owned' by, KT staff.

It is against the background of the HEIF re-invention and re-alignment of funding towards HEIs with robust commercial pipelines and research intensity that this study is placed. This was a time when HEIs needed a clear understanding of the KT roles that exist in their organisation and the types of business engagement these staff have. They needed to know what is distinctly different about KT staff and understand what could happen if they were removed from the equation. For example, what is the nature of the relationship between KT staff and the businesses with whom they engage with on behalf of the university? Are these relationships personal or institutional or both, and in the absence of the KT staff how would these relationships change? Would business follow KT staff the same way that research sometimes follows the researcher as he or she moves between institutions (Shattock, 2015)?

1.1.5   Emergence of new identities

By the end of 2015, HEFCE and the Government will have invested £1.8billion (HEFCE, 2015) into the UK HE system to increase capacity to support KT. Of this funding a proportion is allocated towards specialist skills as shown in the 2008 SQW report *'Analysis of Institutional Plans for Round 3 of the Higher Education Innovation Fund (HEIF)'.* This concluded that approximately one third of the institutions planned to spend 52% of their allocation on staff costs specifically on '*KT specialists'* such as Business Development Managers and Technology Transfer Managers with *'an HEI-wide remit rather than buying out academic staff time'* (p.10). The KT indicators (Figure 1) appear to suggest that KT staffs' sphere of influence has the potential to be considerable both internally and externally with activities linking with both teaching and research. KT staff can be privy to highly confidential matters which in the private sector would be considered as commercially sensitive. They feed into and in some cases define fundamental commercial university protocols, regulations and frameworks which have an impact on the research and development working practices of the academic and student communities.

Since there is no agreed definition of KT staff, no role taxonomy or clear understanding about what, if anything, makes them distinctly different from other existing non-academic roles, the level of investment into this community by the sector is intriguing and raises several interesting questions. How do KT staff and their employers understand their roles? Are their 'work' constructs in alignment or not? Are KT staff practices distinctive or they a variation of an existing function such as research support? And finally, how do

they assess the commercially viability of academic know-how, and on what do they base their judgement?

1.2   The research question

The issues identified in sections 1.1.1-1.1.5 mainly highlight the economic and structural challenges associated with the HE KT agenda. Apart from a few notable exceptions such as Knight and Lightowler's (2010) exploration of KT staff in the social sciences and Robeson and Dobbins' (2008) review of life as a knowledge broker, there is an overall paucity of research in identify construction within the KT community in general. As a means to stimulate further debate, my research seeks to answer the following question:

> *How do KT staff in higher education construct their identities in an arena which is evolving and subject to strategic re-alignment?*

In answering this question, I also consider the following:

1. The factors which influence identity construction amongst KT staff;
2. KT staffs' understanding of their roles, and whether these understandings are in line with those of the institution;
3. How identities are expressed in the KT process; and
4. How KT staff might be distinguished from other groups of HE staff. Specifically, what if anything, makes them distinctly different and is this difference recognised by the individual and the institution?

1.3   Situating the self and acknowledging personal motivations

My interest in the research topic is two-fold. First, I have a personal interest, and second I have a professional one. My personal interest stems from my career history which includes ten years working in the KT arena, being a director of an institutional KT service with responsibility for the strategic direction and operationalisation of the KT agenda, and being a council member of the national Association for University Research and Industrial Liaison (AURIL). At the start of this study, I found myself at the cusp of a career change, do I continue working in the KT arena in a non-academic role, or do I cross the boundary to become an academic? If I cross the boundary how will the KT skills I have developed overtime be used, would they be required or would they be irrelevant?

Second, as a senior manager with leadership responsibilities for the selection, recruitment and retention of KT staff, I have experienced difficulties in recruiting staff with the right balance of academic and business skills that could work effectively within and across both communities. Together these positions, combined with a natural curiosity and interest about the individuals that work in this arena, in terms of their expectations

and understanding of the field in which they are operating, underpin my research motivations.

In this thesis, I acknowledge my role in the research as an active participant within the KT community and whilst I recognise that researcher bias could negate my research findings, (Yin, 2009: 72), I have taken the view that it can also add value to the process of theorising. This approach provided me with an opportunity to reflect on my openness, to question any pre-existing notions that I might have (Sanger, 1996; Simons, 2009) and incorporate 'me' within the research. Thereby conceding to Simons' view '*what right do we have, in fact to study others, if we do not also study ourselves*?'(p.81), and introducing an element of reflective practice into the methodology.

1.4   Structure of the thesis

Using a similar approach to that defined by Nicolini (2009) in his study of practice within telemedicine, I use a zoom-in, zoom-out approach in my research which allows me to move attention between the individual and the collective on a regular basis so that multiple perspectives could be taken into consideration during analysis and theory generation. In addition, where appropriate, each chapter ends with a set of theoretical propositions which summarise the key points discussed. These are later encapsulated into a theoretical framework in my concluding chapter.

Chapter Two considers the literatures associated with academic, professional and institutional identities and concludes that despite a number of commentaries describing university KT processes, governance and roles (Geuna and Alessandro, 2009; Knight and Lightowler, 2010), there is an overall lack of data on KT identity formation, and how this is related to practice. This gap within the KT research field is where I have positioned my study.

Chapter Three introduces and justifies the multi-site case study methodology I used to gather data about individual, community and the institutions' understandings and interpretations of KT roles, skills and operating spaces.

In Chapter Four, the characteristics of the interviewees are first considered as a single case through which trends and anomalies are identified. Later interviewees from four sub-cases universities are considered which provide a rich source of contextual positioning.

Chapter Five moves attention away from the individual to the institution and explores the cyclical nature of institutional change which occurs as a result of alignment, realignment and modification of KT agendas and services, in response to internal and external stimuli.

Chapters Six, Seven and Eight re-focuses attention on KT staff and considers capital, field and practice as understood by the individual and the institution, and comments on similarities and differences in understandings and the relationship between these and identity construction. Chapter Nine zooms out and shifts attention away from the institution to one where first, the individual's understanding of a KT profession is considered and secondly, the views of the KT community are considered.

Finally, in Chapter Ten, I conclude my thesis by answering my research questions and consolidating the emergent theories from the analysis and thematic chapters into one overarching conceptual framework which seeks to explain identity construction amongst KT staff.

1.5   Conclusion

This chapter introduces and positions the research topic within the context of a fast-moving agenda in a sector which exists within an environment of economic uncertainty. The relationship between HE and business is noted as being historically bound, but constantly evolving with regular reinforcement by successive governments stressing the importance of both parties working together to enhance social and economic prosperity. I commented on the pursuit of funding, and how this reflects a push towards entrepreneurial and commercial activities under an apparent acceptance of the sector's *'total immersion'* into the knowledge economy (Pauli, 2010: 3) and its positioning as a leader and driver for technological change (Wilson, 2012).

The emergence of a third stream of activity complementary to the existing missions of teaching and research is considered as a force for change in the HE sector which is based on the notion of KT. This is a notion which is based on the premise that knowledge is a mobile product which is transformative, and in most cases, can be exploited for gain. Whilst it is not solely about income generation, KT does enable HEIs to develop alternative income streams which could mitigate the risks associated with dwindling public sector funding, therefore most universities engage with agenda to some degree.

The challenge of terminology ambiguity and coherence is identified as a problem with multiple interpretations of KT. The unifying theme which emerges from the various definitions consulted is that KT is a process through which several different activities take place. Some of these activities have existed in the sector for some time and have simply

been re-badged (such as industrial research collaboration), whereas others are new and emerge from specific KT funding schemes.

Given the multiple stakeholders and organisational cultures involved with KT activities, the staff involved in this arena need to be able to act as a conduit between business and HE. They need the skills to 'do' business, whilst retaining the confidence of the academic community. In many respects, KT staff will naturally be conflicted: the internal role working with the academic will be quite different from the relationship management role with business. How these multiple identities are created, managed and co-exist within one individual or institution will emerge as part of the findings of this research. In the following chapter I review the literatures associated with identity and its construction in terms of what it is, how institutions and individuals create their own sense of identity, and how these are manifested in the workplace.

CHAPTER TWO

UNDERSTANDING THE LITERATURE

2.0   Introduction

Whilst the issues contributing to the formulation of the overarching research questions are commented on in the previous chapter; there remains one outstanding area which requires further clarification. That is, given the nature of the research topic, what subject area, discipline or intersection constitutes a home for this study, and therefore which literatures should I draw upon to help further develop the aims and objectives. As the focus of the research is that of identity construction amongst a community who are based within a particular sector and institutional type, the study is located at the intersection between identity studies (specifically notions of self and organisational identity (Wetherell and Mohanty, 2010)), institutional logics (Albert and Whetten, 1985; Popp Berman, 2012), and professional-occupational identities amongst non-academic staff in higher education (Allen-Collinson, 2006; Whitchurch, 2007).   Key themes which emerge from the literatures are drawn together in the conclusion in the shape of a rudimentary conceptual framework.   This framework will then provide the basis on which to explore identity construction within the KT community.   The framework is later adapted to reflect any emergent theories resulting from the data analysis and thereby addresses the methodological objective of re-shaping the conceptual framework.

2.1   Identity and the self

The self is not an organism since *'we don't have ourselves in the way that we have hearts and livers'* (Taylor, 1989: 35). It is an ephemeral concept which stimulates considerable debate within the fields of social and behavioral psychology, as explanations and understandings about the self in terms of what it is, how it is formed and the relationship between the self and society are sought (Goffman, 1968; Harré, 1998; Mead, 1934). For Mead (1934) the self is a multi-layered concept which is enabled and enacted through a conversation between an individual's "I" and "me". The "I" being a spontaneous consciousness, and the "me" being an object which is manipulated through learned socialisation as different social attitudes and situations are internalised (pp. 173-178). Therefore, it can be argued that the me constrains the I within social norms. Similarly, Goffman (1959) positions the self as a performance, with social interaction being the theatre through which individuals enact the roles and present themselves in line with audience expectations. Whilst both of these approaches imply an inherent duality within the self, Harré (1998) seeks to clarify Mead's and Goffman's theories further by suggesting a threefold self which encompasses the embodied self, the self-concept which is based on a *'loose knit cluster'* of beliefs about oneself (and is reflective of Mead's "I"), and the self which is presented to the external world (p.70).

A self which responds to differing social contexts suggests that first, individuals have a *'reflexive, multi-faceted self that is capable of adopting a variety of positions vis-à-vis organisation pressures and constraints* (Garrety, 2007: 94) and second, that individuals can have a *'provisional self'* which is a temporary solution to changing circumstances (Ibarra, 1999: 776).

Reflexivity within the self provides a route to explore the relationship between the self and identity construction since, according to Goffman, along with multiple selves, individuals also have multiple identities. For example, in his work *Stigma: Management of a Spoiled Identity* (1968), he suggests that individuals have a personal identity which is unique to their life history, a social identity (which reflects individuals' membership of social groups and categorizations such as being disabled or being a member of a specific occupation), and an ego identity (which is how an individual may feel about his or her situation). The difference between the self and identity being:

> …the self is a *process* and organization born of self-reflection, whereas identity is a *tool* (or in some cases a stratagem) by which individuals or groups categorise themselves and present themselves to the world (Owens and Samblanet, 2006: 206)

Identity theory reinforces the links with existing theories of the self by suggesting that the *'self is a collection of identities derived from the roles and positions occupied by a person'* (Hogg, Terry and White, 1995: 258-262), with these multiple identities instigating different behaviours in different roles (Burke and Stets, 2009). For example, in Ibarra's (1999) study of consultants and investment bankers, she noted that identity prototyping and identity mimicking were used to by individuals to experiment with provisional selves as part of adapting to new job roles (p.774). The mimicking was based on watching others in similar roles, which reinforces the notion that identity construction is *'a social and collective endeavor'* and *'not an individual odyssey'* (Lawler, 2014: 118). With identity contributing to *'our understanding of who we are, and who others are, and reciprocally, other people's understanding of themselves and others'* (Jenkins, 2008: 8). It is a self-categorization structure which links the self to membership of groups and communities. It provides a meeting point where discourses, practices and subjectivities intersect to form a position and therefore establishes a framework to understand and interpret the world (Hall, 2000; Taylor, 1989).

Whilst identity formation can be considered as a reflexive process or a project which is continuous (Barnett and Di Napoli, 2008; Jenkins, 2008), it can also be considered as a narrative which tells the story or plot of the individual. For Ricoeur (1983) narrative constructed identity is achieved through the act of *'emplotment'* (pp. 31-52) through which understandings and reformations of the world create a story on which identity is framed (Sitvast *et al.*, 2008). The story telling and narrative approach to identity construction and

positioning is particularly pertinent in the context of employment whereby work-related and professional identities are formed by participation in work activities (Dutton, Morgan Roberts and Bednar, 2010). In Van Der Mieroop's (2007) study of professional speakers two types of work related identities were noted depending upon the stories which were being told at the time. There was the institutional identity whereby speakers positioning themselves as representatives of their organisation, and there was the professional identity where they were presenting themselves as experts in their field. Van Der Mieroop concluded by suggesting that switching between identities was common and indicative of contextualized story telling.

Whilst Markus and Nurius (1986) suggest that there is no one *'authentic'* self since this would deny the possible selves which individuals interact with as a result surrounds and contexts (p.965), Westwood and Johnston (2011) suggest that that they do and that *'inauthentic identities'* also exist (p.787). Their study of employee engagement in workplace justice workshops revealed that some participants were not being true to themselves (authentic) but instead, were performing and conforming to political correctness (inauthentic). This notion of identity as a mechanism for conformity is something which Garrety (2007) had previously raised in her critique of organisational control and the self. She suggests that *real* or *genuine* selves could be considered as opposition to the *false* selves prescribed by management (p.100) as individuals undertake roles or respond to situations in ways in which they are not comfortable. In other words, the authentic self is the feeling and practice of being true to one's self and others, and inauthenticity is when this is compromised (Vannini and Alexis, 2008). One of the areas of exploration within this study focus on the use of narrative in KT identities, and whether they adopt an authentic stance in their practices or simply perform as per institutional expectations.

2.2   Institutional logics and identity

Given the multiplicity of the self and identity, and the authentic and inauthentic performances which individuals appear to give within different social constructs, how an organisation characterises itself, is, according to Albert and Whetten (1985), a contributing factor to self-identity amongst its members. Organisational identity incorporates '*statements of ideology, management philosophy, culture, ritual'* (Albert and Whetten 1985: 268) which provide a *'shared idea of a distinct, collective identity'* (Stensaker, 2015: 111). It can be manipulated to fit key strategic objectives (Fiol, 2002), create order (such as the mission group categories in HE), an image (for example the Russell Group) or label such as the Times Higher Entrepreneurial University of the Year award (Stensaker, 2015).

It is within the organisation's identity that the belief systems which shape behaviour within an institution is located (Friedland and Alford, 1991). These are the institutional logics, or as Friedland (2009) says where the *'ontological enactments'* of practice founded (p. 101). These are '*socially constructed, historical patterns of material practices, assumptions, values, beliefs and rules by which individuals produce their material subsistence'* (Thornton and Ocasio, 2008: 101). Simplistically, identity is who we are, and logics are how we make sense, reason and form values/judgements, therefore logics shape the conditions within which identities form.

Logics, like identities are multiple and dynamic and therefore subject to change and modification. There can also be conflicting logics within the same institution, occupation and or discipline. Albert and Whetten (1985) hold the HE sector as an example of this in practice when they suggest that the university is akin to an ecumenical council. Each faculty, college or department representing a different faith (the logics of discipline and practice) which co-exists in a *'federation of faiths'* within the institution (p. 284). There can also be areas of heterogeneity within conflicting logics. For example, Sauerman and Stephan's (2013) exploration into differing institutional logics amongst researchers based in industry and those based in academia revealed underlying differences in practice (the former being underpinned by commercial logics and the latter academic), but heterogeneity within individuals' publishing activity in terms of the desire for peer-recognition, knowledge accessibility and development of the research field.

The logics of HE are complex in that the overarching academic logic is one of the '*pursuit of knowledge for knowledge's sake'* (Murray, 2010: 348), whereas the logic of the primary funding agency for UK HE, the government, is one which is based on economics. This results in economically driven '*market-logic practices'* (Popp Berman, 2012: 261) as demonstrated through the emergence of academic capitalism which sees academics becoming more involved with market-led activities such as patenting, commercialisation of research outputs and enhanced university-industry collaboration (Slaughter and Rhoades, 2004). Whilst a dominant institutional logic can inhibit the introduction of new logics, in HE it can be argued that the logic which introduced the practices of academic capitalism have gained momentum and strength as the practices have gained credence and been legitimised (Popp Berman, 2012; Suchman, 1995).

For example, Vilkas and Katiliūté's (2014) study of a Lithuanian university demonstrates how the adoption of a business logic (a fiscal imperative for change), initiated new practices which improved the student experience through the introduction of

individualised learning plans. In this instance, that the decision to introduce a new logic was strategic, used to bring about organisational change and validated through modified academic practice. When Murray (2010) was reviewing how logics effect practice within a discipline, she focused on oncomouse (the genetically modified mouse used for cancer research) and noted that by patenting the oncomouse, the researcher had introduced differing logics within the field of mouse research. *'Conflict over interpretations of behaviour'* had emerged (p. 342) since oncomouse was no longer free and laboratories had to pay the company who held the patent to use it, and the research community's approach to sharing resources was irrevocably altered.

It is within this environment of logic hybridity, that is, *'the invasion of one logic by another'*, (Murray, 2010: 342) or the blending of logics that KT staff must navigate if they are going to successfully deliver the KT agenda. This requires them to understand how academic and market-logics co-exist, and work with and across the academic and non-academic communities in areas where logics may be blurred and differentiation unclear.

2.3   Academic capitalism

There is a considerable literature relating to the role of the university in the New Economy, the co-production of knowledge, and the emergence of academic capitalism (Gibbons 1994, Castells 1996, Slaughter and Leslie 1997, Bresser and Millonig 2003, Ylijoki 2003, Slaughter and Rhoades 2004), the translation of research into innovative products and new enterprises (Etzkowitz, Webster et al. 1998, Etzkowitz 2003, Etzkowitz 2003a, Etzkowitz and Dzisah 2008, Etzkowitz and Viale 2010), and the enablers and barriers to academic engagement (Rahm 1994, Gunasekara 2006, Massey 2009). Many of the findings of these literatures appear to support the developing presence of a commercial logic which suggests that the academy and its associated practices are changing in response to economically driven logics as part of the evolving knowledge economy.

Building on Castell's (1996) concept of a new economy which is informational (using a mode of production which is dependent on the ability to generate, process and apply knowledge-based information), global (because production, consumption and circulation are organised on a global scale between economic links) and networked (because of the global network of interaction between business networks), the theory of academic capitalism emerged as a means to explain the processes by which universities integrate with the new economy. It focuses on *'networks – new circuits of knowledge, interstitial organizational emergence, networks that intermediate between public and private sector, extended managerial capacity – that link institutions as well as faculty, administrators,*

academic professionals and students to the new economy' (Slaughter and Rhoades, 2004: 15).

Whereas academic capitalism appears to provide a platform on which to understand the corporatisation of HE as an outcome of integration, Etzkowitz, Webster and Healey (1998) argue that a second academic revolution has taken place since there has been a change in the purpose of the university, and that it is this which has enabled academic capitalism to flourish. Certified knowledge, they argue, has been *'combined with and reinterpreted as compatible with commercially orientated research'*, and the model of basic research to industrial innovation via a linear one-way knowledge flow structure has been replaced by a more sophisticated *'Triple Helix'* approach which focuses on the strength of ties amongst overlapping government, academic and industrial knowledge domains (Etzkowitz and Webster, 1998: 5). Whilst the Triple Helix theory provides a platform on which the roles, relationships and processes surrounding technological innovation can be considered, it is primarily based in the research arena and is not readily applicable to the exploitation of generic university know-how such as teaching and learning materials. In addition, there is little evidence to support the claim that a second academic revolution has taken place given the long-standing history of university and industry relationships. Although, there does appear to have been a change in the expectations of the outcomes of these relationships in that tangible and fiscal outcomes appear to be the dominant rhetoric.

In addition to the development of conceptual and theoretical lenses through which to understand and evaluate the links between academia and industry, there is a substantial amount of literature which focuses on the specific strands of third-stream activity such as technology transfer and commercialisation, and the impact these activities have had on university policies and practices' There does, however, appear to be a gap in the literature relating to ethics in KT which would merit further investigation (Arvanitis, 2008; Bozeman, 2000; Bubela, 2010; Chapple *et al.*, 2005; Choi, 2008; Tang, 2008).

Unsurprisingly gender has been highlighted as an issue that affects disclosure and licensing activity which it can be argued is reflective of the gender balance in science and technology disciplines. For example, in Thursby's study on licensing activity, out of a sample of 4500, only 8.5% were women, and they were less likely to disclose inventions compared to the men in the sample (Thursby, 2005). Under representation, although a factor, was not considered to be the only factor influencing academic entrepreneurship. Rosa and Dawson (2006) also identified that many women did not have the opportunity to participate in spinout activity. This, they argued, was due to a lack of external visibility,

limited or non-existent networks and level of seniority. The final element being a critical factor because the impetus for commercialisation in their study originated from external interest, and external interest tended to target senior academics, who were mostly male.

Along with having the opportunity to engage in KT and commercialisation activities, the need for the academic community to engage in the business logics of the institution is crucial. In the *'Degrees of Change'* study (Berkshire Consultancy Ltd, 2010) thirty Deputy Vice-Chancellors (DVCs) were asked to comment on the preparedness of their institutions for meeting the challenges posed by the impending funding reductions (which were estimated to be £3 billion (Woolcock, 2010: 2) at the time of the report). This included whether appropriate organisational infrastructures were in place that could support engagement, and if there was sufficient capability (skills and expertise) within the organisation to enable mutually beneficial knowledge exchange. Given that KT and innovation funding had been available for nearly a decade at the time of this study (*See Section 1.1.4: Funding knowledge transfer in England*), it revealed that although the DVCs recognised that investment from business is vital, they were still struggling to get academic engagement. For example, *'22% of respondents from Russell Group universities, with a more traditional, research-oriented culture, felt their staff actively oppose the move to a more commercial environment'* (p.1). This was further exacerbated by a perception that there was an apparent lack of business acumen within the senior management team which was further hampering progress since commercial priorities were frequently unclear.

Academic engagement is a key element of KT since the academic is the originator and, in some instances, the owner of the knowledge which has commercial potential and not the institution. Equally important is the role that institutional leadership play in setting the commercialisation strategic direction. If they are unsure how to respond or lead the KT agenda, or have limited business acumen, then KT staff may develop activities which are personalised and not reflective of or in line with institutional aspirations (irrespective of how well or poorly articulated these might be).

2.4   Knowledge transfer staff, contested roles and identity

Whilst complementary to the teaching and research missions, it appears that KT has several stand-alone activities that require skills and competences that are not traditionally found amongst academic and HE administrative staff roles and remits *(See Figure 1: KT indicators).* For instance, assessing market potential for products, licences and patents and negotiating commercial contracts with exploitation options could be considered as being distinctly different to transferring knowledge through teaching and learning, and

creating new knowledge from curiosity driven research. This difference appears to have manifested itself through the emergence of KT staff who, rather like research managers and administrators, appear to cross functional boundaries, often performing translational functions between constituencies (knowledge domains) within and outside the university (Allen-Collinson, 2006; Whitchurch, 2006a; Whitchurch, 2008).

Whilst there appears to be a growing body of work which seeks to explore the skills, attributes and characteristics of professional staff working in the third-stream arena, there remains uncertainty as to whether a new profession has emerged or whether existing roles have simply evolved to meet the challenges of the new context. For example, according to the 2007/8 UNICO survey (Lock, 2009) the remit of a technology transfer manager includes project management, marketing and sales which is a similar remit to that of a generic marketing manager, the only difference in this case being that one is located under the KT domain and the other is not. Likewise Zook's (2004) assessment of venture capitalist practices is equally applicable to the role of KT staff who work in areas of technology transfer – they are both *'tacit information brokers who acquire and create tacit knowledge about industries, market conditions, entrepreneurs and companies…This knowledge is then used to select companies and industries'* with the *highest potential for returns and assist them with their expansion'* (p. 628). Such synergy between roles appears to suggest that KT staff could be mobile across sectors and perhaps, this is where the root of any distinctiveness lies?

Much of the research to date has concentrated on the development of professional identities amongst research managers and administrators. Special attention has been paid to the emblematic nature of professionalism and the need for validity within the academic community, the linkage between identity and contested roles because of the blurring of boundaries between academic and professional domains (Allen-Collinson, 2006; Dobson, 2000; Whitchurch, 2007). Studies such as Allen-Collinson's investigation of social science contract researchers and Hockney's review of occupational knowledge amongst research managers adopt Bourdieusian stances with conceptual frameworks that are reflective of the notion of capital, habitus and practice (Bourdieu, 1990a; Grenfell, 2008; Webb, Schirato and Danaher, 2002). For instance, Allen-Collinson noted that researchers with knowledge obtained through disciplinary socialisation brought with them an '*armoury of theoretical and conceptual disciplinary knowledge'*, that is, cultural capital (Allen-Collinson, 2000: 162). This view was later expanded by Hockney who commented that occupational capital tended to be developed incrementally and experientially, as the occupational routines of *'doing research'* administration were learnt until an '*artful practice*' emerged (Hockey, 2009: 146) thereby expressing the concepts of habitus and

practice. Given the relatively embryonic nature of some of the work involved in this arena, are KT staff also developing an artful practice? How far is the KT community mimicking the experiences of other HE non-academic staff in the research community in developing their sense of being?

Much of Whitchurch's research incorporates the notion of *hybrid* professionals (Whitchurch, 2003: 61) that appear to cross boundaries and inhabit a *third space* (Bhabha and Rutherford, 1990; Lefebvre, 1991) which exists between academic and non-academic institutional domains (Whitchurch, 2006a; Whitchurch, 2008; Whitchurch and Gordon, 2010a). This is where Middlehurst (2010) suggests borderless, professional interdisciplinary and interprofessionalism is occurring. The third space, according to Bhabha (1994) provides an environment for groups from different domains to work together on specific projects in neutral territory. It enables the shared practices through which hybrid roles emerge. This idea of an in between shared space is similar to that of the interstitial organisations that Slaughter and Rhoades (1997) identified as mediating between the private and public sectors and which facilitate the co-creation of knowledge between the two parties. Klein, Taylor et al. (2013) understands third space as a place where the roles and responsibilities for faculty, teachers and community members are redefined as the knowledge base for teaching is restructured, whereas as others consider it to be as somewhere that teacher or practitioner and student teachers can collaborate (Gutierrez, Baquedano-López and Tejeda, 1999; Moje *et al.*, 2004; Phompun, Thongthew and Zeichner, 2013). The hybrid staff that feature in much of the third space research to date appear to be in roles that come from traditional teaching and research roots. It suggests a temporary migration of staff as they move from their discipline specific practice domains, to one where practices are shared. These are effectively time-restricted immigrants, whereas it can be argued that if third space exists, then some KT staff, especially those working in technology transfer and commercialisation, may have been directly recruited to work in the third space and are therefore the only true indigenous inhabitants.

Despite the ambiguity and lack of definition relating to the KT (Knight and Lightowler, 2010) through examination of the literature it is possible to identify several types of KT *modus operandi* : promoting, transforming, innovating and gatekeeping. Promoting includes facilitation between knowledge domains (Delmestri and Walgenbach, 2005; Hauschildt and Schewe, 2000; Knight and Lightowler, 2010; Lomas, 2007; Witte, 1977; Zook, 2004). Transforming includes the role of narrative in codifying and mobilising knowledge so that it is accessible and deployed effectively (Cranefield and Yoong, 2007; Harada, 2003; Holden and Von Kortzfleisch, 2004; Shaxon *et al.*, 2012). Innovating

requires KT staff to add value to knowledge by contextualising it to create new solutions (Rothwell, 1974) and finally, gatekeeping is acting as the *'knowledge interface between their own organization and other organisations'* (Cranefield and Yoong, 2007: 95). This last approach appears to suggest a command and control stance which is primarily concerned with the exploitation of knowledge networks (whether these be individually or corporately owned).

While studies such as Knight and Lightowler considers fluidity within the KT role as something that has '*the potential to produce highly creative*, *innovative and successful projects and ways of working'* and warns against the '*pinning down'* of knowledge exchange roles (p.553), a key element of this research will be to ascertain whether the descriptions which are implied in the literatures are replicated in this study or whether different roles and categorisations emerge, and if so, what?

2.5   Linking the literature to the conceptual framework

The theoretical underpinning for my conceptual framework draws on the work of Bourdieu and his philosophies on fields of practice (1985a; 1990a). I suggest that identity construction amongst KT staff is influenced by the capital they bring to the academy, the level of agency, that is, the freedom they have in developing individualised working practices (which are influenced by their past experiences and understandings), and the power constructs within which they operate. Of these three elements, my conceptual framework suggests that the space designated as mission critical has the greatest influence on identity construction and notions of the self since this includes institutional identity, the logics which define the practices within it and therefore how KT staff shape their occupational selves.

The term mission critical refers to any relationship, process, product and or role that is vital to the running of a business or organisation and without which the business would fail. Although the idea of mission criticality is closely associated with the IT industry and disaster contingency planning, it is also gaining recognition as an integral part of leadership and as a mechanism to ensure business continuity in a wide range of situations and environments (DeChurch, Burke et al. 2011). For example, in Lewis's reflection on mission criticality and the role of Chief Nursing Officers (CNO) she suggests that CNOs have *'the lion's share of accountability for patient safety, quality, and physician and patient satisfaction, as well as the usual executive role of oversight for efficient operations, financial stewardship, strategic initiatives, community relations and organizational culture'*. These she continues, *'are mission critical aspects for every organisation but especially so in healthcare'* because they have a direct impact on patient

well-being (Lewis 2009: 20). I would argue that the elements identified by Lewis are especially important in HEIs since similarly they can contribute to social and economic prosperity and improve the quality of life through knowledge creation, dissemination and exploitation.

Given the literature, it is possible to suggest that the mission critical space within universities is the area within which the senior leadership is philosophically located, the institutional logics are defined and where the mission of the institution is constituted, ratified and governed. It is the heart of the institution from which the strategic direction is set and all internal rules and regulations are determined. Through this mechanism the corporate being and the institutional family is defined, since it provides a basis for those working in areas considered to be at the heart of the institution with a sense of belonging and community. Conversely it also has the power to create institutional orphans and refugees for those located at the periphery or outside the core mission.

For example, the Key Information Sets (KIS), completion rates and results from the National Students Survey (NSS) are critical elements of many student recruitment strategies since arguably universities cannot exist without students. However, the same cannot be said for business incubation centres. Many universities can, and do, survive without them in which case it could be argued that staff working in these areas may be on the periphery or outside the core mission since what they do may not viewed as vital to the running of the business. In such cases, it could be argued that some staff may have a sense of isolation and boundarylessness (that is working outside the institutional field with its complex relationships, regulations and rules), whereas others may consider this to be a bonus which provides greater freedom and autonomy.

In view of this I am drawn to the conclusion that the mission criticality may be a foundation stone of the HE insider-outsider phenomenon (Stamper and Masterson, 2002) where it is possible to be working for an institution but not feel part of it. In addition, it could also be suggested by the literature that this community segregation and individual alienation is further reinforced in some institutions by internal funding mechanisms such as the differentiation between *'core'* and *'soft'* funded posts. That is, those posts funded from a permanent stream of funding such as the teaching block grant (hard (core) funding) as opposed to those funded by specialist time-restricted ones such as HEIF (soft funding).

In the framework, I suggest that KT identities constructed within the mission critical space have limited power since their practice is largely dictated by the management, that the capital they bring to the institution is largely unrecognised and the agency within which

they fulfil their roles is limited (Ibarra, 1999). Reflecting Garrety (2007) these would inauthentic KT identities because they change their persona and strategies to fit within institutional expectations and strategic directions. For example, Business Development Managers (BDM) need to be able to work within institutional, faculty and school boundaries and regulations to access the products, services and academic know-how they are required to market or negotiate with to generate business. They must adapt their roles and modify their ways of working to achieve this and get the job done. I would suggest that KT staff with backgrounds in HE management and administration are more likely to fall into this category because of their limited exposure to business. The power to act remains within the academic body, and that an inauthentic KT identity is reliant (if not entirely) on the good will of the academic community to allow them to exploit their work; the academic body 'bestows' the gift of IP to the BDM so that s/he can initiate, and lead the KT process. Therefore, the power remains within the academic community and can, by implication, be withdrawn at any time.
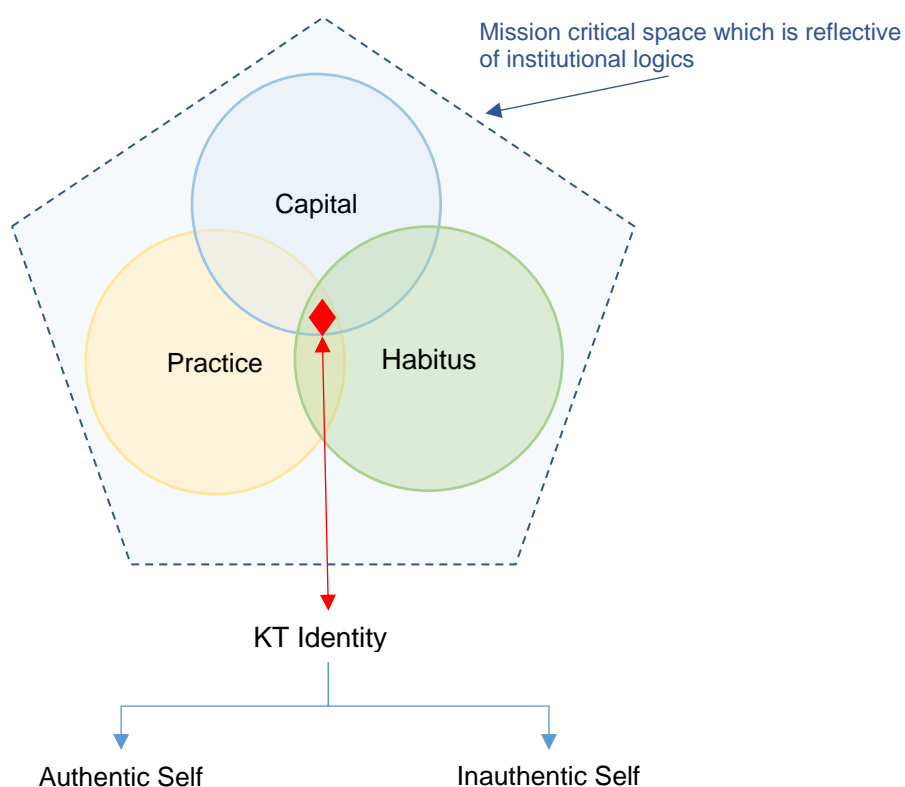
Figure 3 Conceptual Framework

In contrast to this, KT identities that are constructed outside the mission critical space or on the periphery have a limited sense of belonging. For example, those staff working in business incubation and commercialisation units are working in areas which may be considered nice to have rather than part of the business imperative. This is because the

funding of UK HE remains primarily via teaching and research grants. This leads to them guarding their capital and not offering it to the Institution unless there is reciprocity, and fosters in them a greater sense of agency and freedom. I call these authentic KT identities since they make very little attempt to change or adapt their persona to fit institutional logics and are being who they really are instead of '*performing*' an identity (Lawler, 2014: 116). I would suggest that KT staff working in the technology transfer and commercialisation arena with prior backgrounds in the private sector are more likely to fall into this category because of the uncontested nature of the practice in this area. The skills and competencies required for these roles may be significantly different to those traditionally found in HE and are, therefore, not easily challenged by the academy. All the propositions and assumptions outlined in this this initial framework will be explored in detail in the following chapters as part of my iterative theory generation approach.

2.6   Conclusion

This purpose of this chapter was three-fold. First it located the study at the intersection of three research fields: identities studies, institutional logics and the emergence of non-academic hybrid roles in HE. Second, it discussed the key findings in literatures which could influence identity construction. These included the role of the self and identity, and how institutional and organisational logics can contribute to individuals developing provisional selves as they take on new roles and remits. I also noted the existence of both academic and economic logics in HE which has resulted in differing interpretations within logics, as well as conflict between them. I suggested that there is an uneasy co-existence between the logics which KT staff are required to navigate around, and that they alter their practices in response to multiple stakeholder expectations. I commented on the growth of literature which suggests the development of hybrid roles emerging from a neutral and yet, collaborative third-space which resulted in the blurring of roles and practices between some academic and non-academic functions.

Finally, it proposed a conceptual framework through which to explore identity construction, and the relationship between the institution and the individual as '*true-to-self strategies*' are used as KT staff enact roles in response to management expectations (Ibarra, 1999: 778). The framework draws upon Bourdieu's (1985a; 1986) concepts of capital, habitus, and practice *(See chapters six, seven and eight for further commentary about these concepts)* and suggests that identity in KT staff working in HE is a manifestation and reflection of their location within the institution. The notion of mission critical activities is discussed, as is the impact of working in an area deemed not as vital to the running of the institution, and consideration is given to the impact this might have on an individual's sense of belonging.

In the following chapter, I discuss the methodological approach used to answer both the research questions *(See Section 1.1, page 7)* and the methodological objective *(See Section 2.0, page 23).*

CHAPTER THREE

RESEARCH METHODS AND METHODOLOGY

3.0   Introduction

This chapter describes the methodology I used to answer the research questions. First, I comment on the research design in terms of my ontological and epistemological positioning. I explore how using a multi-site case study approach; an iterative theoretical framework is developed that seeks to explain both diversity and uniformity within the findings. Second, I discuss the practicalities of data collection, the initial pilot phase findings, and the modification of the sample which occurred following the withdrawal of one of the case study universities. Finally, I comment on the initial findings derived from the pilot data collection exercise, and identify the main themes which emerged from the wider data analysis. These form the basis of the five theoretical chapters in this thesis: Cycles of Change *(Chapter Five)*, Capital and Identity Construction *(Chapter Six)*, Field and Context *(Chapter Seven)*, The Practice of KT *(Chapter Eight)* and Visions of a Profession *(Chapter Nine).*

3.1   Positioning the research

My research draws upon key themes in phenomenology and grounded theory (Creswell, 2007; Denzin and Lincoln, 2005; Miller and Brewer, 2003; Patton, 1990) since I am studying a community in a specific setting, and focusing on individuals' experience of a particular phenomenon. My approach to developing theory is an iterative process (Denzin and Lincoln, 2005; Guba, 1990) which is influenced by my set of beliefs. Those beliefs broadly reflect an interpretive assumption that '*reality is subjective and multiple as seen by participants*' (Creswell, 2007:17). My epistemological stance is one that acknowledges the collaborative nature of research. Specifically, the influence of the relationship that I, as the researcher, have with those being researched and the value-laden bias that I bring to the process (Creswell, 2007: 18). Although it could be argued that the act of situating the self within the research results in subjective rather than objective results, the value of self-reflection is evident in research such as Lal's (1999) feminist case study of sweatshops in Delhi. Through contextualising her identity and situating herself within her own research, she was ideally positioned to debate the insider-outsider tensions that she experienced as a result of her *'dislocation'* from the Indian context and being an '*Indian returning home'* (p108). Her experiences seem to suggest that flexibility and boundary transgression are integral within methodologies where '*one is faced with the need to constantly negotiate between positions of insider and outsider, rather than being fixedly assigned one or the other subject position'* (Lal, 1999: 108). Given my pre-existing relationship with the KT community *(See Section 1.3),* like Lal, the methodology I

employed had to be flexible enough to allow me to acknowledge, incorporate and reflect on my own insider and outsider identities within the research.

3.2   Case study approach

A case study can be defined as '*an empirical enquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used'* where control of subjects and events is not required (Yin, 2003: 23). It is a research strategy that '*defies social science convention of seeking generalizations by looking instead for specificity, exceptions and completeness'* (Reinharz and Davidman, 1992: 174) and can provide the researcher with a level of data granularity and description not readily available through quantitative methods. Therefore, the decision to use a qualitative case study methodology was influenced by the need for an approach that would support the exploration of identities in a discrete community. It also needed to provide a platform on which to gain an in-depth understanding of the different contexts within which KT staff are operating (Creswell, 2009; Eisenhardt, 1989; Miller and Brewer, 2003; Yin, 2009), and a framework which would enable me to use *'conceptual categories to guide the research and data analysis'* (Benedicte Meyer, 2001: 335) to generate theory (Gersick, 1988). These key research requirements resulted in the formulation of the case study design depicted below (Figure 4). This shows the links between the conceptual framework, the KT community, data collection and interrogation, and emergent theory.

Conceptual Framework	Informed by extant theory
Research Question/s	Who, what, where and why explorations
Case Study Methodology	Interpretivist theory generating approach
KT Community	Mixed KT community (pilot study) Institutional KT community (main study)
Data Interrogation	Iterative theorising process and emergent theory
Theory	Re-conceptualised framework

Figure 4: Research Study Design

3.3 Methodology

The methodology follows a multi-site approach (Herriott and Firestone, 1983). The *'unit of analysis'* that is the *'case'* (Grünbaum, 2007: 83-87), being the KT community within which multiple *sub-cases* (different types of KT communities) are explored. The rationale for this is two-fold. First, using multiple sites allowed data to be collected from a wide range of KT communities which, despite being in the same geographical area, appeared to be culturally and contextually different. Second, I considered that any theories emerging from the study may be more persuasive if underpinned by data drawn from several sub-cases instead of a single overarching one. In keeping with the multi-site method, I also selected a multi-source approach to data collection which comprised interviews, job description analysis and institutional document reviews which could provide access to rich sources of information (Glucksmann, 1990; Maynard and Purvis, 1994) that could later be used for triangulation purposes (*See Section 3.3.3*).

The main data collection tool for gathering the opinions, perceptions and experiences of KT staff was that of semi-structured interviews which, according to Stokes & Bergin (2006), have a number of key advantages. First, the *'circumstances of applicability'* (p. 28) which is the relevance of the individual's experiences and how she or he understands and positions them within the context of responding to the interview questions. Second, the degree of control that a researcher has over interviewee selection (although this can be challenged especially if like me, the researcher is using a snowball technique and relying on referrals); and finally, the attractiveness of being selected for interview. For some interviewees being identified as a person with opinions that are worth listening to and providing them with an opportunity to talk about personal perspectives and interpretations of institutional motives in what is understood to be a confidential and safe environment may be appealing.

However, there are risks associated with interview-based research. Some of these are logistical such as organising mutually convenient times to conduct an interview and validity of sampling. Others are more analytical and dependent upon the researcher's skills. Data manipulation due to careless prompting and biased recording of verbatim answers (Denzin and Lincoln, 2005; Patton, 1990; Silverman, 2000) could constitute a risk to the validity of the research. The main disadvantages for this study are understood to be those that are time-costly and those which had the potential to be theory-costly because of biased sampling and forced data analysis. The mechanisms I employed to mitigate these risks are described in sections 3.3.1 to 3.3.3.

3.3.1 Sample and selection criteria

I adopted a dual approach to sampling: one, which included a wide range of KT staff and institutions (the pilot study sample) and the other, which focused on four institutions (the main sub-case sample). The rationale for the two different approaches was defined by the aims of each data capturing exercise. The purpose of the pilot study was to test the interview questions in terms of focus and clarity, spot emerging themes and to identify any omissions and or areas which would merit further investigation which the literature had not previously highlighted. The purpose of the main data collection exercise was to develop the findings from the pilot study, explore identity construction in more depth as a result of refined questioning, further develop baseline themes and to generate theory.

Institutional criteria

The pilot study included KT staff from universities, Public Sector Research Establishments (PSREs), KT networks and associations. The main study comprised universities that were in London and the South East of England. Institutions were categorised by mission group categorisation (a self-selecting peer group indicator), HEFCE QR allocation for 2010/11 (a research excellence indicator), and HEIF allocation 2011/12 (a KT indicator). The benefit of this approach ensured that any theory I developed would be based on data drawn from a wide range of sources and contexts (Pettigrew, 1990), plus it provided a mechanism to mitigate any personal bias I may have about KT staff and the positioning of KT within their institutions.

Interviewee criteria

The criteria for the interviewees was that they had to either work or have worked in a KT role in a UK publicly funded university (or in the case of the main study, one of the case study universities), or a KT network or a PSRE. A KT role was one which was either linked to specific KT funding, or a generic post with strategic and or operational responsibility for KT. In addition, I interviewed two expert witnesses to strengthen the comparative examination between those staff who were new to working in KT, those who were established (more than two years in post) and those that had moved out of it (either to a new area of work or retirement).

Selecting the interviewees

The interviewees for the pilot study were selected through convenience sampling via a KT network. The network had eight hundred members of which twenty expressed an interest in the research, and twelve who participated in the study. Whilst recognising that the drawbacks of this methodology such as self-selection bias and the interested nature of the individual, I considered the benefits of using convenience sampling exceeded the

risks. For example, this approach gave me quick and easy access to a group of KT staff whose experiences, understandings and knowledges of KT would be able to provide a theoretical baseline which could modified and developed as my research progressed.

The interviewees for the main case study universities were selected via snowball (chain) referral (Biernacki and Waldorf, 1981) through a 'gatekeeper' who was the first interviewee for each institution and took on the role of locator for the institution. This approach enabled the sampling of cross-functional teams who had been identified by someone in a leadership role and had a thorough understanding of the KT landscape in the institution being examined. I considered my gatekeepers to function like Biernacki and Waldorf's *'informants'* (1981: 152) in that they had significant experience of the area in question and were therefore in a position to comment on and challenge any assumptions I might inadvertently have made. However, whilst this approach appeared to add credibility to the process in the eyes of some of the interviewees since their participation had been recommended by a senior manager, it also raised the prospect of locator bias for me. In an attempt to mitigate this, I sent pre-interview emails to nominated interviewees to verify their eligibility. Using this approach, two potential interviewees were deemed ineligible.

3.3.2   Issues of timeliness and currency

In addition to the richness of the data that can be acquired from interviews, another factor which influenced my data collection methodology was the timeliness of the research in general. As indicated in Chapter 1, the *'time frame'* (Pettigrew, 1990: 271) for my research was limited because my research subject was undergoing major changes in terms of funding and future. The rapid expansion in KT activities followed by the sudden reduction (and in some cases the complete withdrawal) of HEIF funding in 2010, resulted in a series of organisational changes, restructures and post closures. Therefore, I felt an increasing sense of urgency to capture the stories around the impact of the changes on the KT community before the legacy knowledge dissipated. Institutional responses to the catalytic nature of KT is explored in more detail in Chapter Five – Cycles of Change.

3.3.3   Issues of robustness, validity and generalisability

There are a few criticisms that relate to the use of case study research strategies. For example, the multiple nuances of the research case might not be fully explored due to limitations of the case study context (Hyett, Kenny and Dickson-Swift, 2014). Additionally there may be a perception that case study research may lack rigour and validity when compared to quantitative research methodologies (Creswell, 2009; Stake, 2005). Validity being *"how you establish the warrant for your work; whether it is sound, defensible,*

coherent, well grounded… [and] worthy of recognition".(House, 1980: 250). However, this is pertinent to qualitative and quantitative research alike since both have the potential to be manipulated to achieve a desired output.

For example, until 2008/9, the statutory return – the Higher Education Business and Community Interaction Survey (HEBCIS) - that all institutions in receipt of HEIF funding had to submit to HEFCE had no robust mechanism to validate the source of institutional quantitative or qualitative data. The survey included a perception questionnaire which asked institutions to rank their activities in terms of breadth and embeddedness, and a financial return which focused on KT income generated (actual and in-kind) from commercial transitions. Both of these data collection tools were, and still are, the subject of on-going debate in terms of their ability to capture the softer cultural aspects of KT (Richmond, McCutcheon and Cullen, 2008; Rossi and Rosli, 2015). Equally, the validity and robustness of the findings which are considered by some scholars as being underpinned by ambiguous terminology which is open to interpretation at an institutional level (García-Aracil and Palomares-Montero, 2010; Molas-Gallart and Castro-Martínez, 2007). Whilst the transfer of the annual monitoring of HECBIS from HEFCE to the Higher Education Statistics Agency (HESA) has improved the robustness of the data to some extent (due to the financial returns being linked to institutions' audited accounts), the robustness of the qualitative data remains subjective. Thus, it can be argued that KT as a 'case' has a history of reliability and validity challenges that I needed to take into consideration when reviewing and analysing institutional data.

In 2003 Miller and Brewer commented that the lack of objectivity and generalisability linked to case study research had resulted in the methodology being regarded as the '*poor relation'* in the world of research (p23). Whilst acknowledging that case study samples are normally too small for generalisations, the counter argument to this is that multi, or collective, case studies are more sensitive to cultural and social interactions. Additionally, through the use of replication logic the robustness of the findings can be strengthened (Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 2009). According to Yin (2009) replication logic is an integral part of the methodological design and requires the researcher to select case studies that either a) predict similar results or b) predict contrasting results. This logic, he says '*is similar to the way scientists deal with conflicting experimental findings'.* He goes on to argue that conducting six to ten case studies within a multiple case design, which incorporates literal or theoretical replication, is '*analogous with conducting 6-10 experiments'* (p54). In this study, I used a form of replication logic since my sample included multiple sub-cases comprising individuals and institutions that

had similar or contrasting responses to the KT agenda such as evolving practices and responses to changes to funding regimes.

The validity and generalisability of my case study methodology could be further strengthened by the process of triangulation which would provide me with the opportunity to explore the case study from different perspectives. Through interrogating, comparing and contrasting multiple data sources, I anticipated the emergence of themes that would be sufficiently robust to support the development of theory (Creswell, 2007; Stake, 2005; Stavros and Westberg, 2009). According to Yin (2009), the use of multi-source evidence in triangulation identifies '*converging lines of enquiry'* which enables the case study findings to be more convincing (p114) since it *'overcomes the intrinsic bias that comes from single-methods, single-observer, and single-theory studies'* (Denzin, 1970: 313).

According to Patton (1990) there are four types of triangulation:

1. *Data triangulation* requires comparison and crosschecking to ensure the consistency of data from different sources. For example, in Stavros and Westberg's (2009) exploration of relationship marketing in Australian Sporting organisations four data collection tools were used: structured interviews to explore the issues around marketing strategies in these organisations; participant observation to capture behavioural data from both internal staff and external client meetings; a review of any available pre-meeting documentation; and finally, information that was available in the public domain such as press releases and promotional literature. Triangulation of these data sources confirmed the existence of critical incidences that galvanised the adoption of relationship marketing which would not have been verifiable singularly;

2. *Investigator triangulation*, requires different investigators to gather information from the same situation to corroborate credibility (Gliner, 1994: 85), an example being, Dunn's (1980) research on knowledge utilization in which coders had practical experience in applying definitions to coding categories, and all coding conflicts were dealt with by the project coordinator to maximise reliability of the instrument and ensure consistency of coding;

3. *Theory triangulation* uses different theoretical perspectives to look at the same data, for example, marketing theories in the context of education management. Theory triangulation is demonstrated in Stokes' (1999) thesis on the marketing of primary schools and Lewis's (1998) study of theory development using existing case studies; and finally

4. *Methodological triangulation* requires the researcher to compare data from qualitative research with that from quantitative methods. For example, Jasso-Aguiler's (1999)

study of Waikiki hotel maids compares data obtained from both qualitative (unstructured interviews) and quantitative methods (questionnaires provided to house keepers and co-workers) to help validate staff training needs which had been previously identified in the research.

With the exception of investigator triangulation, I have incorporated elements from all of the above methodologies into my study to a greater or lesser extent although triangulation of qualitative data across the interview transcripts was the primary method.

3.3.4   Ethical considerations

The ethical framework for my study was informed by the British Education Research Association Revised Guidelines (2004) and the Missenden Code of Practice (2002), the latter of which is linked to ethics and accountability in third mission activities. If one accepts the premise that *'qualitative researchers are guests in the private spaces of the world'* (Stake, 2005: 459), then the role of the researcher is to respect and protect that private world and ensure that participation in the study is not detrimental to either the individual and/or the institution. Some of the challenges I faced were related to my own membership in the community that I was investigating and therefore clear boundary setting to protect all parties, myself included, was required. I addressed this in the following ways:

Inadvertent misuse of information

To avoid inadvertent use of information obtained through 'off-the-record' conversations with colleagues; I had discussed the focus of my research at a number of open KT forums and meetings. Not only did this ensure transparency but also provided KT staff with the option not to engage in discussions or commentary around the research subject. In addition, as part of the interviewee induction process, I explained the purpose of the study, the level of influence any new research might have on the sector and the risks associated with this. For example, all interviewees were informed that any theory arising from the exploration into the KT community is the *'researcher's interpretation of events'* (Simons, 1989: 118) and constructed from other people's understanding of *'what they and their compatriots are up to'* (Geertz, 1975: 9). I highlighted the prospect that findings emerging from the study could be used as either a positive or negative resource depending on the motives of the reader and that any external judgement calls are made beyond my control. A key message to all interviewees was that any research, like surgery, is not completely risk-free and although mechanisms can be employed to mitigate and manage risk, nothing can remove it in its entirety.

Ensuring informed consent

To address issues relating to voluntary and informed consent, the right to withdraw at any stage, privacy and confidentiality, all interviewees were asked to sign a consent form prior to any data collection. The consent form included an overview of the research, the intended beneficiaries of the research and my assurance of confidentiality and anonymity. Although it was not anticipated that any sensitive data would be collected, in the event of this occurring, anonymity mechanisms were implemented such as coded questionnaires and transcripts (with code details stored separately from transcript files) and all electronic files were password protected *(See Appendix 3 for the Consent Form).*

Managing commercial sensitivity

Whilst voluntary consent was sought from interviewees before formal data collection began, given my insider position at the time[2], it was also necessary to ensure that all participants were aware of these associations to avoid accusations (or misunderstandings) that I would use the study as a means to access privileged information to gain commercial advantage. With this in mind, I offered all interviewees the choice of using Confidentiality and Non-Disclosure Agreements (NDA) to assure commercial confidentiality during meetings and interviews. One interviewee requested a commercial NDA prior to participating in the study.

3.4   Pilot study and the initial data capturing exercise

The pilot study was undertaken between April and June 2010 and comprised twelve interviews. The key aim of the pilot was to test the interview topic guide, collect some data about trends that could be used as a baseline for future interviews, and adjust the interview strategy accordingly.

The interviewees included representatives from a wide range of KT backgrounds. All the interviewees had some responsibility for KT activities within their institutions and organisations, and all but one was working in the KT arena at the time of the interview. One of the expert witnesses had recently retired following a twenty-year career in university technology transfer and commercialisation transfer. The interviewees were categorised hierarchically based on points of separation from the Vice Chancellor, Managing Director or Chief Operating Director. The rationale for this was that job titles are inconsistent across the sector, and not indicative of position or level of seniority within the institution, whereas hierarchical location provided a more reliable approach that was

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[2]Personal Insider position - a director responsible for third mission strategy in an HEI, a council member on a national university-business association, and an active member of a HEFCE/BIS HEIF working group.

easily replicable *(See below Figure 5).* Pre-interview questionnaires were used to capture key personal details such as gender, educational attainment level, career histories and KT responsibilities *(See Appendix 4 for the Pre-Interview Questionnaire)* whilst key institutional documents and examples of job descriptions were analysed to understand the context within which the interviewee worked.

Level	Indicative Titles & Roles
1	Vice-Chancellor; Managing Director or Chief Operating Officer
2	Deputy Vice Chancellor; Pro Vice Chancellor
3	Director or Head of a directorate
4	Assistant Director or Head
5	Team or Section Leader
6	No line management responsibilities

Figure 5: Interviewee Management Categories

3.4.1 *Approaches to analysing and interpreting the pilot data*

All the interviews were recorded, transcribed and coded before analysis. The general approach to coding was basic in terms of reading through the transcripts, highlighting similarities and differences, and grouping key comments into six broad thematic categories relating to identity construction which were subsequently refined following the main data collection exercise. These included:

1. The skills*,* experience and knowledge that KT staff bring to the institution, and both the individual and institutions' understanding of these;
2. The positioning of KT within the institution including the physical, hierarchical and political location of KT, and the influence this appears to have on KT staffs' sense of belonging;
3. The autonomy and freedom to operate that KT staff either have or would like to have*;*
4. The multiple strategies and identities that KT staff appear to adopt to engage in the KT agenda,
5. The role of recognition, credibility, and validation in practice; and
6. The rules, regulations and relationships which influence and shape KT practices.

3.4.2 *Modifications to the data collection toolkit*

Whilst the pilot study did result in provisional themes for me to explore, I subsequently revised the sample frame and methodology before the main data collection exercise. This was both to reflect changes in the case study sample and the need for a mechanism to capture any additional feedback I received from interviewees outside the formal interview setting.

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❖ *Sample modifications:*

The 1992 university that had been used for the pilot study withdrew from the project because of significant infrastructure changes. In July 2011, the institution's HEIF 2011-15 funding allocation was reduced by more than 40 percent. This resulted in a re-alignment of the KT portfolio together with a review of posts, roles and remits. Interviewees (including the gatekeeper) that had been identified as participants for the main study were either no longer working at the institution, or were in the process of being redeployed within the University. Consequently, a new 1992 institution was approached and subsequently included in the main study. This institution was also based in the South East and had also suffered considerable funding reductions (47.8%) resulting in closure of posts and was now running a much smaller KT operation. The apparent vulnerability of KT roles in the 1992 institutions because of funding reductions post HEIF2011-2015 within this study, led me to consider a different approach to sampling for this category of institution. I decided to include data from both 1992 institutions because it provided a unique opportunity to explore the responses of two similar institutions that have received the same level of funding reductions but had adopted two very different KT strategies.

❖ *Environment and follow-on contact memos*

The semi-structured interviews proved to be successful in unlocking a rich source of data, but the moments prior to the start of the interview frequently provided unexpected revelations about the institution in terms of its location within the sector and the style of leadership of KT operations from the perspective of the interviewee. In view of this, I introduced an ad hoc environment memo system to capture my impressions of these moments as an *aide memoire* that I could draw upon during my analysis. All interviewees were invited to have follow-up interviews with me, and although most did not take this offer up, two did and subsequently sent me emails and material they considered might help my research. This included CVs and letters of introduction to other KT staff whom the interviewees suggested I might like to approach for inclusion into the study.

3.5 The main data collection

The main data collection exercise took place between August 2011 and July 2012 during which time twenty people were interviewed. Each interview lasted between 45 and 75 minutes with follow-up telephone calls or emails where further clarification about particular issues or events was required. Four (12.5%) of the interviewees took the initiative and emailed me after their interviews without any prompting. The rationale for this appeared to be a desire to clarify or explain the comments that they had made during the formal interview and to share new observations and reflections that had been stimulated through the interview process. For example, the comments I received from

Sophie (Sp_K.E. Network, L1) through which she attempts to explain why she believes the future for KT staff is secure:

> You set me thinking last night re academics & future of KT if academics want to do it all themselves. Reason why I have a few concerns is that I was actually mentored & taught TT/KT by 4 enterprising Profs! An economics Prof who ran the consultancy arm of the Uni's commercial company & who employed me (very distinguished charmer), an Engineering Prof who had numerous licences and was involved with early spin-outs (one is a highly successful PLC) – great with business – always taught that patents are not the best way to make money. A Physics Prof and PVC who had been sent in to be a liaison between a commercial company and Uni senior management, and a C who had me foisted upon him unwillingly & who had no liking for sharp-end commercialisation but he had tons of innovative ideas for income generation… So maybe that's why I don't fear the future for KT professionals – Need both KT academics and KT professionals for the future well-being of the sector (SOPHIE, Sp_K.E. Network, L1)

For the main data collection exercise the themes identified in the pilot study formed the basis of an expanded coding structure which was loosely mapped against Bourdieusian concepts of capital, habitus and practice (Bourdieu, 1985a). Whilst I used a manual system to analyse and code the data from the pilot study (*See Section 3.4.1),* given the large data set resulting from the main study I decided to use computer-assisted qualitative analysis software (Nvivo). I did the initial data coding manually, and subsequently imported the marked-up documents from both pilot and main data collection exercises into NVivo. This included audio files, transcripts, job descriptions, and institutional policy documentation. The benefit of using NVivo was that it allowed me to organise and manage the documentation through colour coding, tracking and version control whilst I compared and contrasted large data sets by research phase (pilot, main), by type (individual and collective), and by case institution.

The codes were also further developed and categorised as being descriptive, interpretive or pattern. *Descriptive codes* included factual comments about processes, regulations, institutions and remits and therefore '*entailed little interpretation'* (Miles and Huberman, 1994: 57). The language within the descriptive codes included sentences which implied actions that had taken place within regulated or process-related situations. These contained definite terms such as 'the structure is' and 'the rules are'. *Interpretive codes* included comments where the interviewee associated his or her own interpretation of their actions to a situation or an event based on their understanding of the world, their beliefs and values. For example:

> Two of those had just gotten their PhDs and they had the technology that we needed. So they were the manifestation of bringing technology in'. (JOHN, RG: L3)

> I think one of the things I have said to myself when I was looking through your questionnaire is, part of the problem in universities is that it is managed by people who don't know the first thing about managing. (SOPHIE, Sp_K.E. Network: L1)

The above examples are personal opinions about two different situations. The first is John's (RG: L3) *description* of staff with PhDs as the manifestation of the ideal employee

in a high growth technology based company. The second comment from Sophie (Sp_K.E. Network: L1) is her *interpretation* of the factors contributing to what she considers to be a lack of skilled KT managers. The third type of code, *pattern* coding included those comments and statements within job descriptions and policy documents that implied repetition. This was most noticeable within the institutional documents whereby response patterns resulting in organisational changes were identified (*See Chapter Five*).

In addition to the refinement of codes, the approach in the main study included coding of all triangulation data (interviews, job descriptions and institutional documentation), and involved three distinctive phases:

Phase 1:   *'Data condensation'* (Tesch, 1990): This involved an initial read through of all interview transcripts to identify similar phrases, ideas and themes. The data was reduced into broad categories (top-level codes) which formed the basis of a parent coding framework.

Phase 2:   *'Data interrogation'*: This involved a line-by-line analysis of the interview transcripts and the development of extensive network of child nodes (sub-codes) underpinning the parent codes.

Phase 3:   '*Node consolidation'*: The final phase included reviewing the coding hierarchy, removing duplicate nodes and consolidating nodes where there was an obvious cross-over.

Coding of the job descriptions focused on the key job purpose section which summarised the role and remit of the post rather than a descriptive task list which appeared to be more formulaic (possibly as a result of the Hay and Higher Education Role Analysis (HERA) evaluation frameworks (Educational Competencies Consortium Ltd, 2016)). Coded institutional documentation included participating institution's Higher Education Innovation Fund (HEIF) business plans for rounds three, four and five. Where no HEIF plan was available, I focused on the strategic plans which generally included commentary about the positioning of KT within the institution. By drawing on these documents a picture of how the KT agenda had evolved at an institutional level in terms of strategic fit, mission criticality and institutional investment was identified.

I tested the coding integrity through cluster analysis using Jaccard's similarity index (Greaves, 2016). This revealed that the coding was uniform in that there were no obvious outlying nodes and implied that my approach to coding had been consistent. At the end of this process, both the data from the pilot and main data collection exercises had been organised into an analytical framework that consisted of eight parent nodes, two hundred and twenty-five child nodes through which more than one thousand elements were coded. These were further developed and provided the basis on which the thematic

chapters were developed.   The evidence used to support my findings and theory
generation included:

Cycles of change:
Code:
  1. Power relations
  2. Space
	Incorporates the findings from the analysis of the institutional data such as strategic documents, funding body allocations, HESA FSR returns, institutional KT business plans, and KT staffs' personal experiences of organisational change in their institution.

Capital and identity construction
Code:
  1. Capital
  2. Power relations
	Emerged from interviewee transcripts (especially the biographical and career histories elements), the pre-interview questionnaires and KT job descriptions. Core themes in this chapter include the role and use of capital, (social, cultural and symbolic) and how these appear to influence credibility within and without the institution.

Field and context
Code:
  1. Space
  2. Staff & institutional perceptions
  3. Staff origins
	Comprises evidence from interviewee transcripts and institutional structures to explore individual and collective understandings of the KT field. It also captures the personal accounts and explanations of the motivations and drivers which attract staff to work in the KT arena.

The practice of KT
Code:
  1. Ways of working
  2. Staff roles & remits
	Explores the evidence from the interviewees and their descriptions of their working practices, and the organisational structures which inform working boundaries through managed operational spaces.

Visions of the self Code: 1. Professional identity	Presents evidence from data drawn from KT membership associations (web sites, correspondence, legal documents such as articles of association) along with comments from individuals about the nature of a KT profession.

Further explanation of the focus of the evidence within the coding is depicted in Figure 6.

PARENT	DEFINITION
1. Capital	Themes and phrases linked to cultural, social and symbolic capital
2. Power Relations	Descriptions of power relations within and outside the organisation and between the various communities with whom KT professionals interact
3. Professional Identity	Definitions and personal understandings about distinctiveness, including KT staff characteristics (such as language and terminology) and the key factors influencing the persona
4. Space	Interviewees' political, hierarchical and physical location within the organisation and their peers
5. Staff & institutional Perceptions	Interviewees' perceptions and understanding of the world in which they work
6. Staff Origins	Interviewee career pathways together with push and pull factors that attract people into KT roles
7. Staff Roles & Remits	Interviewees' descriptions of their roles and remits of their job at the time of the interview
8. Ways of Working	Interviewees descriptions, rationales and justifications for their way of working (includes practices, strategies and tactics)

THEMATIC CHAPTERS

CYCLES OF CHANGE

CAPITAL & IDENTITY CONSTRUCTION

FIELD & CONTEXT

THE PRACTICE OF KT

VISIONS OF THE SELF

Figure 6: Overview of Coding Framework and Thematic Chapters

3.6   Conclusion

This chapter set out to justify the selection of and demonstrate the appropriateness of my chosen methodology. Whilst acknowledging the many challenges associated with the case study methodology, and given that this study focuses on the individual and his or her relationship with the institution, there was a requirement for a methodology which would enable the voices of all parties to be heard. Without this level of discourse sensitivity assumptions about social constructs, individual and collective understandings of practices and power relations could be imposed with the '*real complexity of social life*' being overlooked (Bourdieu and Passeron, 1990: 4) and any subsequent theory generation undermined. This negated the use of a positivist approach which due to the emphasis on hard numerical data and '*deductive theory testing from existing knowledge*' (Carr, 1994: 716), I considered to be more suitable for measuring KT activities than explaining and understanding the who, what, and how elements of the KT community.

Whilst the one of the strengths of the methodology is the way in which it enabled me to explore a specific community in-depth (and to some degree in isolation), the main weakness is that isolation in which the experiences of the end-users (the academic and business communities) of KT staffs' skills and knowledge are not considered. This I suggest is a limitation which could be addressed through further research (*See Section 10.6*). The benefits of moving from a manual system to a computer-assisted qualitative analysis software package like NVivo was that it helped me to manage the collection of a large data set of diverse background material more effectively. The primary drawback was that it was time consuming to learn, and it became too easy to focus on the minutiae of coding, and lose the bigger picture. To mitigate against this, I regularly created memos which summarised groups of codes, and these helped me consolidate findings, and develop the themes which later became the theoretical chapter headings.

In the following chapters, I present the findings of the data collection exercise in three different ways. First, I consider the characteristics of the interviewees. Second, I comment on patterns of organisational activity which appeared to have taken place in response to various internal and external stimuli which resulted in the positioning and repositioning of KT within the case study institutions, and changes in the delivery mechanisms required to realise institutional KT agendas. Finally, I explore the thematic elements and bring all the findings together to create one overarching theoretical proposition that seeks to explain identity construction amongst KT staff.

CHAPTER FOUR

COMMUNITY CHARACTERISTICS

4.0   Introduction

Given the structure of the case study methodology (an overarching case, the KT community, within which four university sub-cases are explored), the presentation of interviewee characteristics attempts to replicate this dual pronged approach. Thus, the community is initially considered as a whole before attention is focused on the case study universities' interviewees. I comment on the generic characteristics of KT staff and suggest that despite the business facing nature of many KT roles, a significant number of staff in this study appeared to have limited experience of working in or with business. In some instances, the interviewees' KT roles were their first formal introduction to business engagement. I also note that the percentage of interviewees with higher level qualifications such as doctorates appears to be similar or exceed those of academics working in some post 1992 universities (Higher Education Statistics Agency, 2012c; Tight, 2012a). This suggests that the KT community in this study is an academically skilled workforce. Finally, I consider the breadth of activities that KT staff appear to be engaged in both within and outside the institution and suggest that many of these activities foster boundary transgression across existing academic and non-academic functions *(See Chapter Eight for issues pertaining to contested practices and spaces)*. Finally, I describe the context within which the interviewees from the case study universities were working, and provide an overview of the individual KT services (line management and key functions). These later contribute to the formulation of a model which seeks to explain organisational change initiated by institutional responses to the KT agenda *(See Chapter Five, Section 5.6)*.

4.1   Generic KT interviewee characteristics

The total number of semi-structured interviews undertaken during the study was thirty-two and is shown in the table below (Figure 7):

Case	No. interviews conducted	Phase
Pilot Group	12	Pilot
Russell Group	5	Main
1994	5	Main
1992	5	Main
2005	5	Main
Total	**32**	

Figure 7: Research Sample Frame

The empirical data for the study came from a short questionnaire which each interviewee was asked to complete prior to the interview. This was used to capture the following data:

- demographic data (age, gender and educational attainment);
- career and past employment data (public and private sector experience); and
- current employment data (role, remit and position in the management hierarchy).

Title	Alias	M/F	Age	Lev.	Institutional Category A	Institutional Category B
1. Director (Enterprise)	SUSANNE	F	40-49	1	Sp_K.E. Network	N/A
2. Director (Enterprise)	SOPHIE	F	+50	1	Sp_K.E. Network	N/A
3. Head (Knowledge Transfer)	RACHEL	F	40-49	4	Sp_K.E. Network	N/A
4. Director (Enterprise)	ED	M	+50	1	Sp_K.E. Network	N/A
5. Head (Corporate Ventures)	JO	F	+50	4	PSRE	Research Intensive
6. Director (Enterprise)	MAY	F	40-49	3	PSRE	Research Intensive
7. Director (Enterprise)	LIZ	F	+50	3	Plate-Glass	Research Squeezed
8. Director (Enterprise)	LEE	F	40-49	3	Cathedral	Research Embryonic
9. Director (Enterprise)	AMY	F	40-49	3	Russell Group	Research Modest
10. Pro-Vice Chancellor	MONTY	M	+50	2	1992a	Research Modest
11. Business Development Manager	NICK	M	40-49	6	1992a	Research Modest
12. Pro-Vice Chancellor	HENRY	M	+50	2	1994	Research Ascendant
13. Director (Research & Enterprise)	JOHN	M	50+	3	Russell Group Case	Research Intensive
14. Head (Research)	ANGIE	F	50+	4	Russell Group Case	Research Intensive
15. Head (Operations)	MICHELLE	F	40-49	4	Russell Group Case	Research Intensive
16. Head (Incubation)	DANIEL	M	40-49	4	Russell Group Case	Research Intensive
17. Business Development Manager	ANDY	M	40-49	6	Russell Group Case	Research Intensive
18. Director (Research & Enterprise)	JACK	M	+50	3	1994 Case	Research Ascendant
19. Head (Research & Enterprise)	ALICE	F	40-49	4	1994 Case	Research Ascendant
20. Head (Technology Transfer)	PETER	M	+50	4	1994 Case	Research Ascendant
21. Knowledge Transfer Manager	JANE	F	40-49	5	1994 Case	Research Ascendant
22. Business Development Manager	BOB	M	+50	6	1994 Case	Research Ascendant
23. Vice Chancellor	MARCUS	M	+50	1	1992b Case	Research Embryonic
24. Head (Knowledge Transfer)	EMMA	F	40-49	5	1992b Case	Research Embryonic
25. Knowledge Transfer Manager	ANNETTE	F	+50	6	1992b Case	Research Embryonic
26. Knowledge Transfer Manager	LENA	F	30-39	6	1992b Case	Research Embryonic
27. Business Development Manager	SARAH	F	30-39	6	1992b Case	Research Embryonic
28. Pro-Vice Chancellor	MIKE	M	+50	2	2005 Case	Research Embryonic
29. Head (Enterprise)	ANNE	F	40-49	4	2005 Case	Research Embryonic
30. Enterprise Manager	CHRIS	M	40-49	6	2005 Case	Research Embryonic
31. Enterprise Manager	LINDSEY	F	20-29	6	2005 Case	Research Embryonic
32. Enterprise Consultant	INGRID	F	+50	1	2005 Case	Research Embryonic

Figure 8: Interviewee Alias, Gender, Management Level and Institutional Type

The total sample frame is shown above (Figure 8) and consisted of thirteen men (40.6%) and nineteen women (59.4%), the majority of whom were above 40yrs (n=29: 90.6%). In terms of management level representation, the majority of KT staff (75%) were Level 3 and below. The eight interviewees working in the senior management roles (Level 2 and

above) were either Vice Chancellors, Pro-Vice Chancellors or Directors of specialist KT networks based outside traditional university reporting structures. For example, one interviewee was a Director of a KT network which was an alliance of twenty-three higher education and research institutes (SUSANNE: L1), whilst another was the director of a national KT association (ED: L1).

In addition to categorising institutions by mission group, each institution was also categorised according to its research activity. This was based on the amount of externally funded contract and collaborative research income generated per academic in 2010/11 (Higher Education Statistics Agency, 2012: Staff - Table 1; Research Grants & Contracts - Tables 5a and 5b; HE-BCI Part B - Table 1). Thus, institutions' research activity profile was grouped under the following headings:

1. Research Intensive   >£50M pa
2. Research Ascendant   £20-£50M pa
3. Research Squeezed   £10-20M pa
4. Research Modest   £5 - 10M pa
5. Research Embryonic   < £5M

Whilst one of the drawbacks of this approach includes an assumption that all academic staff are engaged in securing research and development income, and engaged at the same level, it did allow me to identify trends which suggested institutional stratification beyond the initial self-selectivity of the mission groups. As such, it revealed that research intensivity within the Russell Group (RG) institutions in this study is not uniform. In 2010/11 the pilot study RG university had a research and development income of £6,682 million (*circa* £14.00 per academic pa.) compared to the case study RG institution's income of £127,554 million (*circa* £53.00 per academic pa.) for the same year (Higher Education Statistics Agency, 2012).

4.1.1 Years in post

All bar five of the interviewees (15.6%) had been in their current role for more than one year (Figure 9). Closer examination revealed that many of the interviewees were in roles that had undergone regular review and amendments, with additional responsibilities, changes in title and line management being key features. The evolution of roles and remits appeared to be related to institutional responses to both internal and external KT policies. For example, Chris (2005: L6) had worked in his institution for thirteen years where he initially started as a marketing assistant for equipment and facilities hire. This role was later absorbed into the enterprise and employability department and modified to include providing business and marketing advice to graduate start-up companies and to the local businesses community. In essence, Chris experienced a shift from selling the

physical assets of the university to selling the intellectual assets of the university. These intellectual assets included his own know-how, and those of the academic community. *See Chapters Five and Eight for further discussions relating to institutional changes and the impact of they have on roles and practices.*
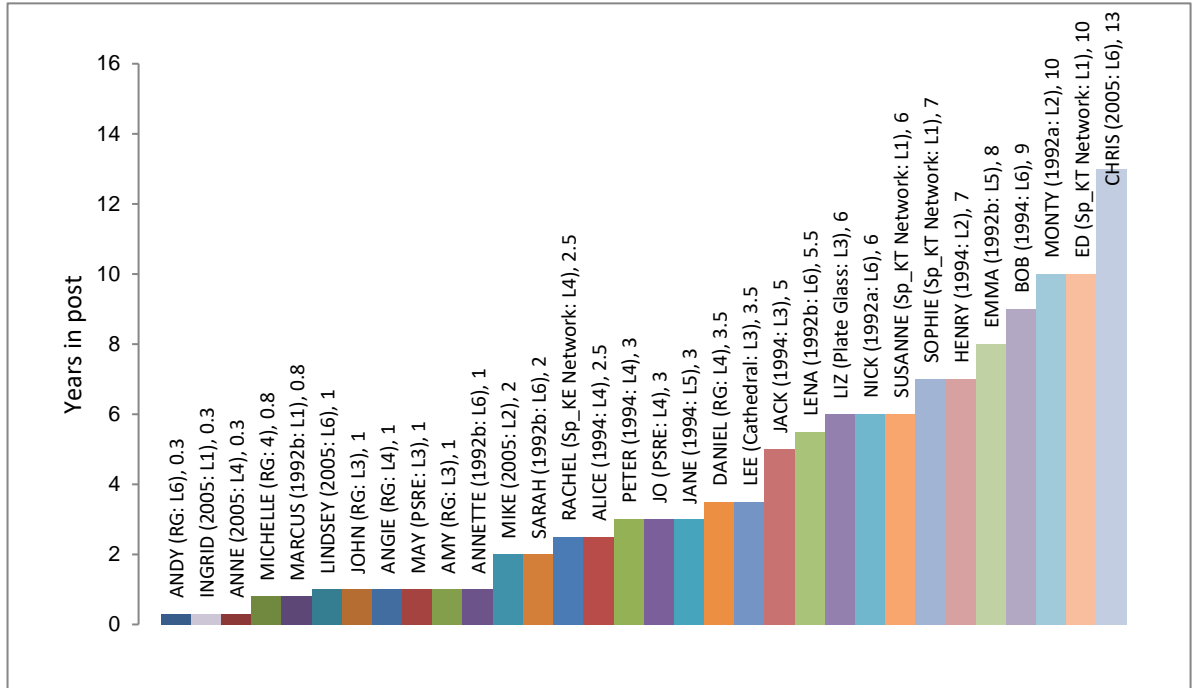
Figure 9: Interviewee Years in Post

4.1.2   *Private and Public Sector Experience*
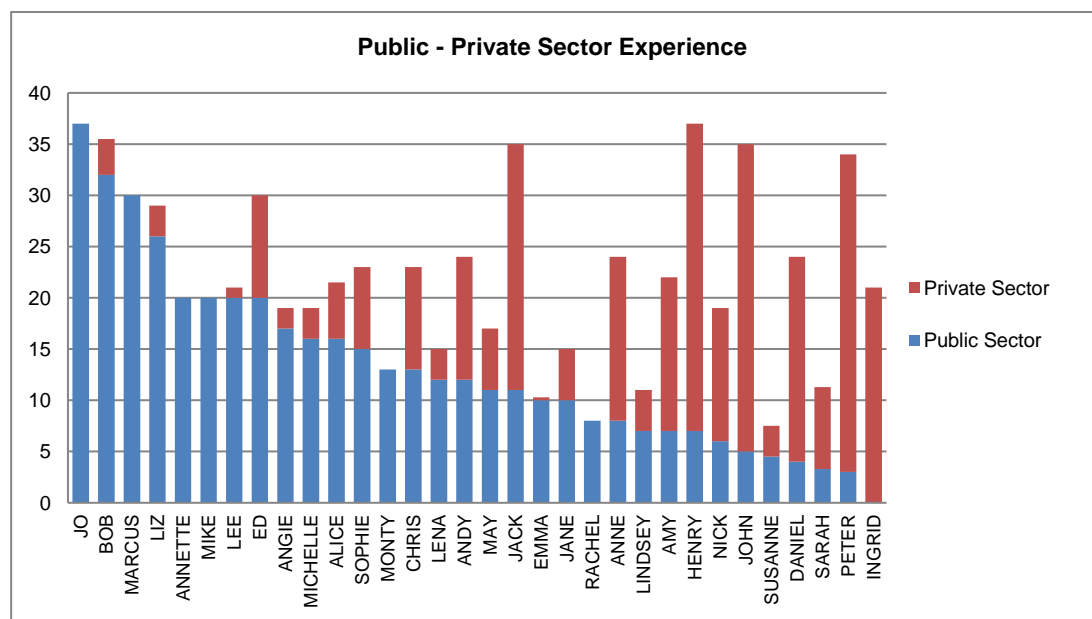
Figure 10: Private and Public Sector Experience

The ratio of interviewees public private sector experience is depicted in the chart above (Figure 10) and suggests a general trend whereby public sector experience dominates the career profiles of the interviewees at the time of the data collection exercise.

The majority of interviewees (43.7%) had between ten and twenty years of public sector experience. Although 34.3% of this experience was outside the university system, that is universities, a small proportion of staff had worked in HE funding and government bodies such as HEFCE (MIKE, 2005: L2) and Regional Development Agencies (MONTY. 1992a: L2). Therefore, these interviewees appeared to have been engaged in the KT arena prior to formally moving to an institutional KT role. The challenges and symbolism associated with recruiting staff with what could be considered as insider knowledge about the future direction of government and HEFCE policy is considered in Sections 6.4 and 6.5.

Despite business experience or experience of the university-business interface being identified as an essential skill within the sample of job descriptions I reviewed, it was interesting to note that 53% of interviewees claimed to have five years or less experience of working in the private sector or with business in general of which 18.7% had no experience at all. These without any private sector experience were mainly interviewees in senior positions with responsibility for either leading institutional KT agendas (Pro-Vice Chancellors), leading specialist strands of activity within commercialisation functions (Head of Corporate Ventures) or acting as the primary link between the institution and business (Head of KT).

Those interviewees that had significant private sector experience (twenty years or more) had either been self-employed or held directorship positions in industry:
- self-employed business advisory services (INGRID, 2005: L1)
- worked in banking and financial services (DANIEL, RG: L4)
- worked in manufacturing (JOHN, RG: L3 / JACK, 1994: L3 / PETER, 1994: L4)
- worked in telecommunications (HENRY, 1994: L2)

The bulk of the private sector experience was found amongst those interviewees working in the Russell and 1994 Group case study universities which is also where the highest proportion of industrial contract research and IP income was found (Higher Education Statistics Agency, 2012: Research Grants & Contracts - Tables 5a and 5b; HE-BCI Part B - Table 4).

For a detailed summary of interviewees' private and public sector experience including sector specific information see Figure 11.

Time in private sector	(n)	Overall %	Male (%)	(N=13)	Female (%)	(N=19)
No Experience	6	18.8	23.1	3	15.8	3
<1yr	1	3.1	0.0	0	5.3	1
1 - 5yr	10	31.3	7.7	1	47.4	9
6 -10yrs	5	15.6	15.4	2	15.8	3
11 - 15yr	3	9.4	15.4	2	5.3	1
16 - 20yrs	2	6.3	7.7	1	5.3	1
21 - 25yrs	2	6.3	7.7	1	5.3	1
26 - 30yrs	2	6.3	15.4	2	0.0	0
>30yrs	1	3.1	7.7	1	0.0	0

Time in public sector	(n)	Overall %	Male (%)	(N=13)	Female (%)	(N=19)
No Public-Sector Experience	0	0.0	0	0	0	0
<1yr	1	3.1	0	0	5.6	1
1 - 5yr	5	15.6	23.1	3	10.5	2
6 -10yrs	8	25.0	15.4	2	33.3	6
11 - 15yr	7	21.9	30.8	4	15.8	3
16 - 20yrs	7	21.9	14.3	2	27.8	5
21 - 25yrs	1	3.1	7.1	1	0.0	0
26 - 30yrs	1	3.1	0.0	0	5.3	1
>30yrs	2	6.3	7.1	1	5.6	1

Area	(n)	Overall %	Male (%)	(N = 13)	Female (%)	(N=19)
Business & Financial Services	8	25.0	7.7	1	36.8	7
Creative Industry	2	6.3	7.7	1	5.3	1
Defence industry	1	3.1	7.7	1	0.0	0
Games Industry	1	3.1	7.7	1	0.0	0
Hospitality & Tourism Industry	1	3.1	0.0	0	5.3	1
Manufacturing Industry	8	25.0	30.8	4	21.1	4
Pharmaceutical Industry	4	12.5	7.7	1	15.8	3
Telecommunications	1	3.1	7.7	1	0.0	0

Area	(n)	Overall %	Male (%)	(N = 13)	Female (%)	(N=19)
School	2	6.3	0	0	10.5	2
F.E. Education	1	3.1	0	0	5.3	1
HE - Government policy	3	9.4	15.4	2	5.3	1
Local & Regional Government	3	9.4	0.0	0	16.7	3
National Health Service	1	3.1	7.7	1	0.0	0
Public Sector Research	1	3.1	0.0	0	5.6	1

Company owner	(N)	Overall %	Male (%)	(N=13)	Female (%)	(N=19)
Business & Financial Services	3	9.4	0	0	15.8	3
Creative Industry	2	6.3	7.69	1	5.3	1
Games Industry	2	6.3	7.69	1	0.0	0
Manufacturing Industry	4	12.5	7.69	3	0.0	0

Figure 11: Employment Experience

4.1.3   Qualifications

Data about educational qualifications were categorised in line with the National Qualification Framework and the Framework for Higher Education Qualifications. (See Figure 12 below):
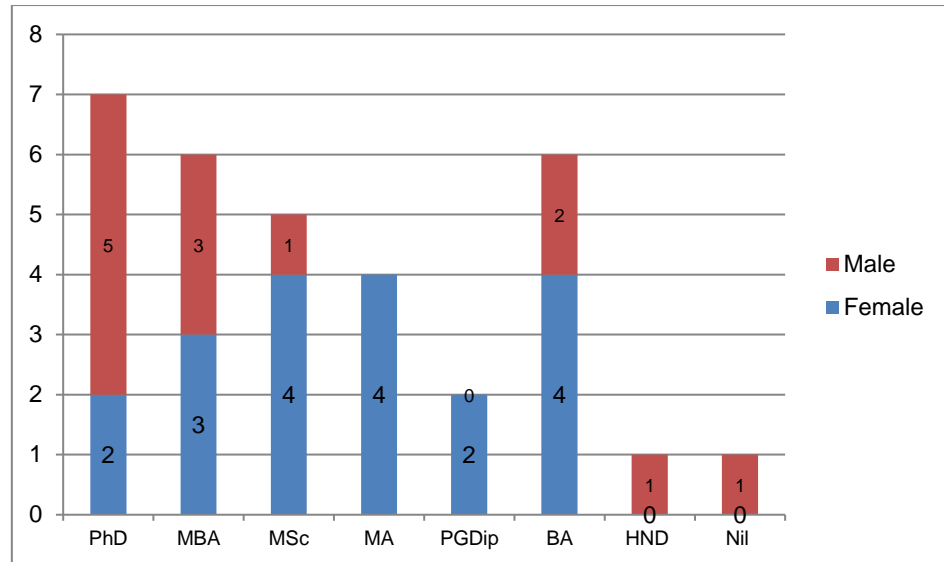
Figure 12: Educational Qualifications

Twenty-three percent of those interviewed were found to have a doctorate which is a similar percentage to some of the post-1992 institutions identified in Tight's (2012) review. In this he noted that within this category of university between 20% and 50% of academics had PhDs with the number falling to below 10% in some of the post 2000 institutions (p5). Similarly, 53.3% of the interviewees had a Master's degree which again is higher than the 2010/11 sector average of 21.1% (p6). Not only do these findings resonate with Tight's study of the sector in general, they also suggest that staff in KT roles in this study are as well qualified (if not more than) their academic colleagues.

Whilst Knight and Lightowler (2010) considered ownership of PhDs amongst KT staff as a means to adding legitimacy to their roles, they also considered it to be a *'double-edge sword, leading to confusion about responsibilities, and the temptation to re-enter academia'* (p550). Issues relating to ambiguity of roles and responsibilities was identified as an area of concern by the interviewees, but the temptation to return to academia was not. Those staff who had previously been in academic roles and moved into non-academic KT roles such as May (PSRE, L3) who commented that she had chosen a KT career pathway because she did not want to be an academic any more. Individuals' drivers and motivations for working in KT are discussed in depth in Section 7.4.

4.1.4 KT activities

KT activities were first categorised under fifteen headings (See Figure 13) and then organised by gender. The aim of this approach was to capture the breadth of interviewee activities and identify any patterns within them.

Activity	Definition	%
Knowledge Transfer	*Developing university – business initiatives such as government funded KT projects.*	78.1
Business Development	*Developing new business across a broad spectrum of activities, (including key account management and bid writing)*	71.9
Technology Transfer	*Commercialisation of intellectual property (patents, licences) and company creation (academic spin-in and spin-outs)*	53.1
Research Development	*Identifying and coordinating responses to funding calls (including leading on, or assisting with submissions and partnership documentation*	50.0
Student & Graduate Entrepreneurship	*Business skills training and development (how to start and grow businesses) for students and alumni*	46.9
KT / TT Training	*As above for the academic community with the aim of supporting academic entrepreneurship*	46.9
Business Incubation Services	*Leadership or management of business incubators (including organising business mentoring and access to funding opportunities*	40.6
Project and/or Programme Management	*Management, administration, monitoring and reporting progress against targets*	40.6
Community & Civic Engagement	*Strengthening links between the institution and its community through mutually beneficial knowledge exchange such as public lectures, exhibitions and supporting local cultural events*	37.5
Research Management	*Central management, administration and oversight of research projects (including REF and impact*	34.4
Economic Regeneration Initiatives	*Participation in local and government funded networks and initiatives such as Local Enterprise Partnerships*	31.3
Workforce Development	*CPD, bespoke and generic short course development for business*	28.1
Legal Contract Management	*Drafting, negotiating and oversight of legal procedures and agreements (including Confidentiality Agreements, Licences, Equity and Shareholding agreements.)*	25.0
Equipment & Facilities Hire	*Promoting institutional physical assets and overseeing the hiring process*	15.6
Science and/or Research Park Management	*Management and administration of Science and / or Research Park facilities*	9.4

Figure 13: Knowledge Transfer Activities

Overall there was general concordance of activity with the majority of interviewees participating in generic KT and business development activities. However, in the interview transcripts, the use of these two terms appears to be interchangeable which it can be argued is indicative of an inherent ambiguity within the KT arena. This is particularly apparent as interviewees discuss their practice and how their activities are

positioned within the institution. *See Section 8.3, 8.4 and 8.5 for further discussion on the practice of knowledge transfer.*

Although there were slight gender differences (female interviewees were more likely to have general KT within their roles, compared to males who were more likely to have technology transfer and commercialisation), the differences were minimal and not statistically significant as shown below in Figure 14.
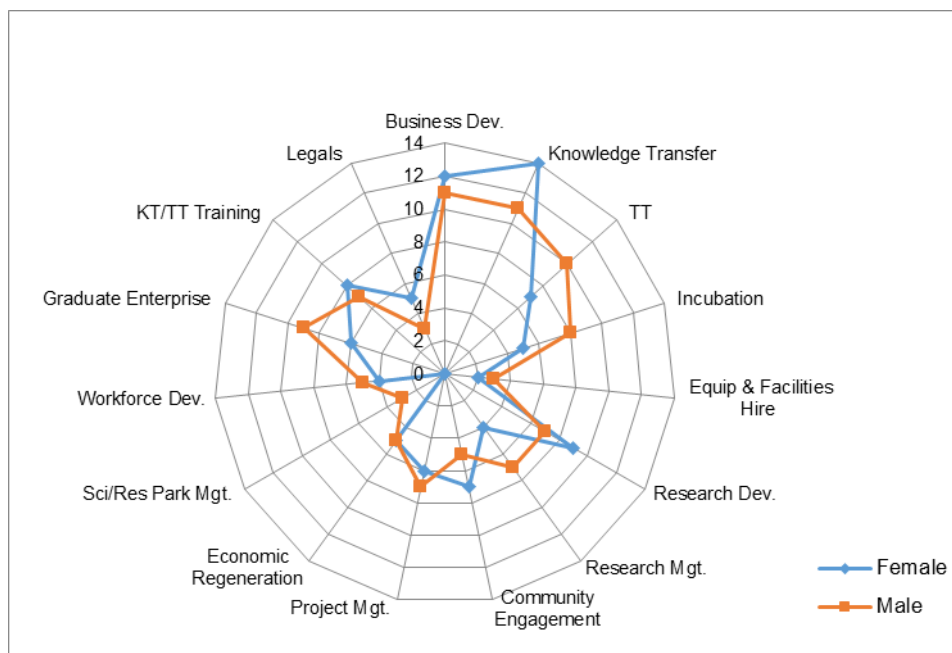
Figure 14: Knowledge Transfer Activities by Gender

Whilst I understand these minor differences to be reflective of the interviewee sample in that the technology transfer and commercialisation interviewees were mainly male, they should also be considered within the context of the interviewees' respective universities which were research intensive or ascendant with large science, technology, engineering and mathematic (STEM) faculties. Gender issues in STEM amongst the academic community is recognised as an area of concern in terms of the recruitment, retention and career progression of women (Science and Technology Committee, 2014; White and Massiha, 2016). For example, Tartari and Salter's (2015) study of gender differences in business engagement identified the *'male dominated nature of industry'* (p1187) and limited connectivity as a barrier to female participation, whereas Whittington and Smith-Doerr (2005) links it to not having the opportunity to understanding the process of engagement. The question is, in a larger study would similar gender issues be present in STEM related activities amongst female KT staff, or would KT emerge as a gender-neutral activity, and if so why is this?

4.2   Case study universities' interviewee characteristics

Whilst the previous sections considered the generic characteristics of the entire sample, the following sections provide descriptions of the interviewees from the four case study universities.

4.2.1   The Russell University

The RG interviewees were drawn from the institutional Research and Enterprise Service. Two of the interviewees were locally based: one in a faculty and the other in the business incubation unit which is located on a research park, the remaining three were based in the central service located on the main campus. All of the interviewees were worked in different KT areas and had quite diverse roles and remits *(See Figure 9.).*

The Director was responsible for setting the strategic direction of the service; the Head (Research and Enterprise) was responsible for leading the teams tasked with implementing the strategic plan at faculty level and included shared line management of the Business Development Managers. The Head (Operations) was responsible for business processes and continuity. This included overseeing the contractual elements of KT such as drafting and negotiating contracts, managing the intellectual property portfolio (which included patent management) and monitoring and reporting progress against set targets (such as compiling the HEBCIS return on behalf of the University). The staff which reported to this post were primarily inwards facing and responsible for the back-office operations. In contrast to this, staff reporting to the Head (Research and Enterprise) were all externally-facing and responsible for leading and developing university business engagement. The Head (Incubation) was responsible for managing the university's business incubator which was designed to support start-up and early stage academic businesses. It provides access to resources and support services such as office space, reception services, introductions to potential investors, and business mentoring through a network of sector specific experts. The nature of the Head (Incubation) role requires the post holder to have a large network of contacts which can be drawn upon to provide support and guidance, and therefore demonstrable connectivity, networks and memberships.

The central service was hierarchical in nature with clearly defined governance and management structures (Figure 15). The only staff which appeared to work within a matrix structure split line management were the Business Development Managers who were faculty based but had their workload priorities agreed by both the Head (Research and Enterprise) and the relevant Dean.

Figure 15: RG University Knowledge Transfer Operating Structure
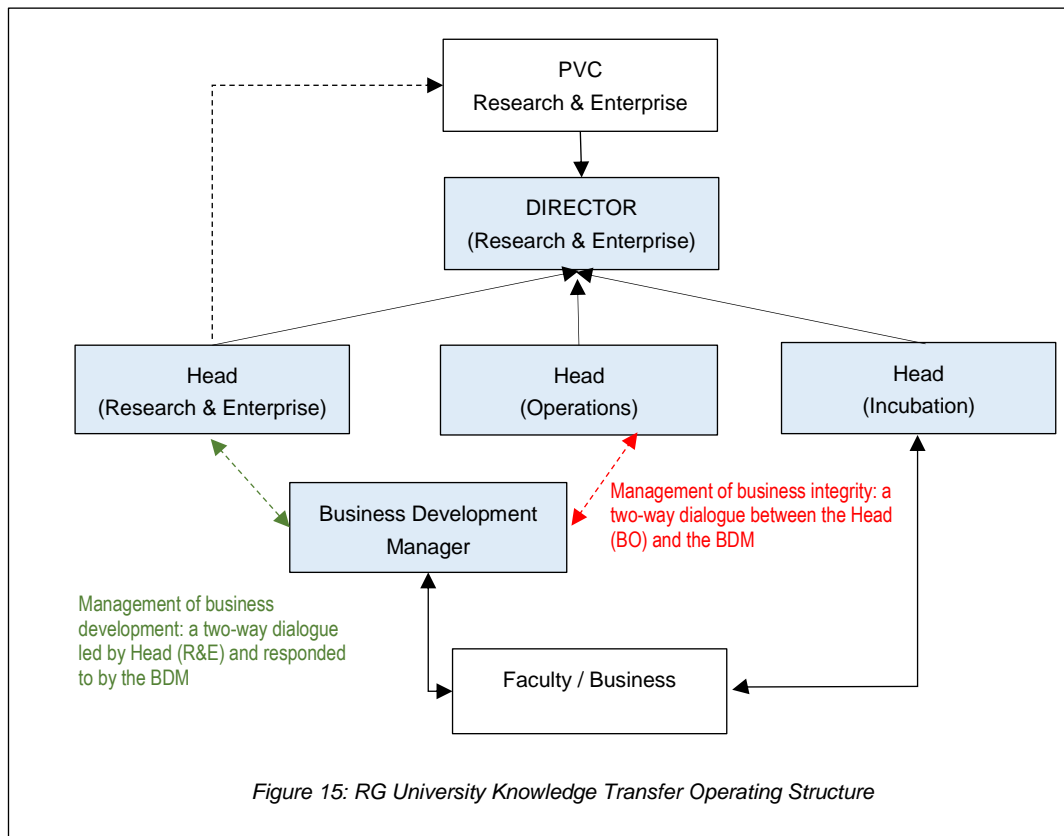
4.2.2. The 1994 University

Like the Russell University, the 1994 University interviewees were drawn from the institutional Research and Enterprise Service. This, too, was physically distributed with the Business Incubation Service being located on the Research Park and the core department on the main campus. Whilst both the Director and Head (Research and Enterprise) roles were comparable to some extent with those in the Russell University in that one was strategic and the other was responsible for implementing strategy, there were some obvious differences (See Figure 16).

First, the 1994 Head (Research and Enterprise) had a wider research remit beyond leadership of the business development function which included line management of all centrally based pre-and post-award staff, and responsibility for research development and coordinating institutional the REF activities. Pre-and post-awards management being a finance function which involved the costing and pricing of research grants and contracts (pre-awards), and project monitoring, auditing and closure activities (post-awards). Second, this post had three-way split line management. The post holder was accountable to the PVC Research and Innovation (research management, governance and REF coordination), the Chief Operating Office (research grants and contracts income and expenditure) and the Director of Research and Enterprise (coordination of alignment between research, business development and KT activities).

Whereas the 1994 Head (Research and Enterprise) has some similarities with the RG post, the 1994 Head (Technology Transfer) was completely different and has no obvious counterpart. The Head (Technology Transfer) was responsible for exploiting the institutional commercial portfolio. This included managing the intellectual property and patent portfolio, developing and overseeing route to market strategies for research outputs, identifying commercial partners and accessing proof-of-concept and investment funding for University and academic technology based products and services. The essence of the post was about exploiting technology, know-how and academic expertise. In the RG university, this function appeared to be led by the Director of Research and Enterprise and actioned through the Business Development Manager roles who were responsible for the exploitation of IP emerging from the Faculty to which they are assigned. In addition, the role of the Head (Business Operations) did not exist in the 1994. Instead there was a separate legal function which included five contract managers who were responsible for the legal integrity of KT activities.

Figure 16: 1994 University Knowledge Transfer Operating Structure
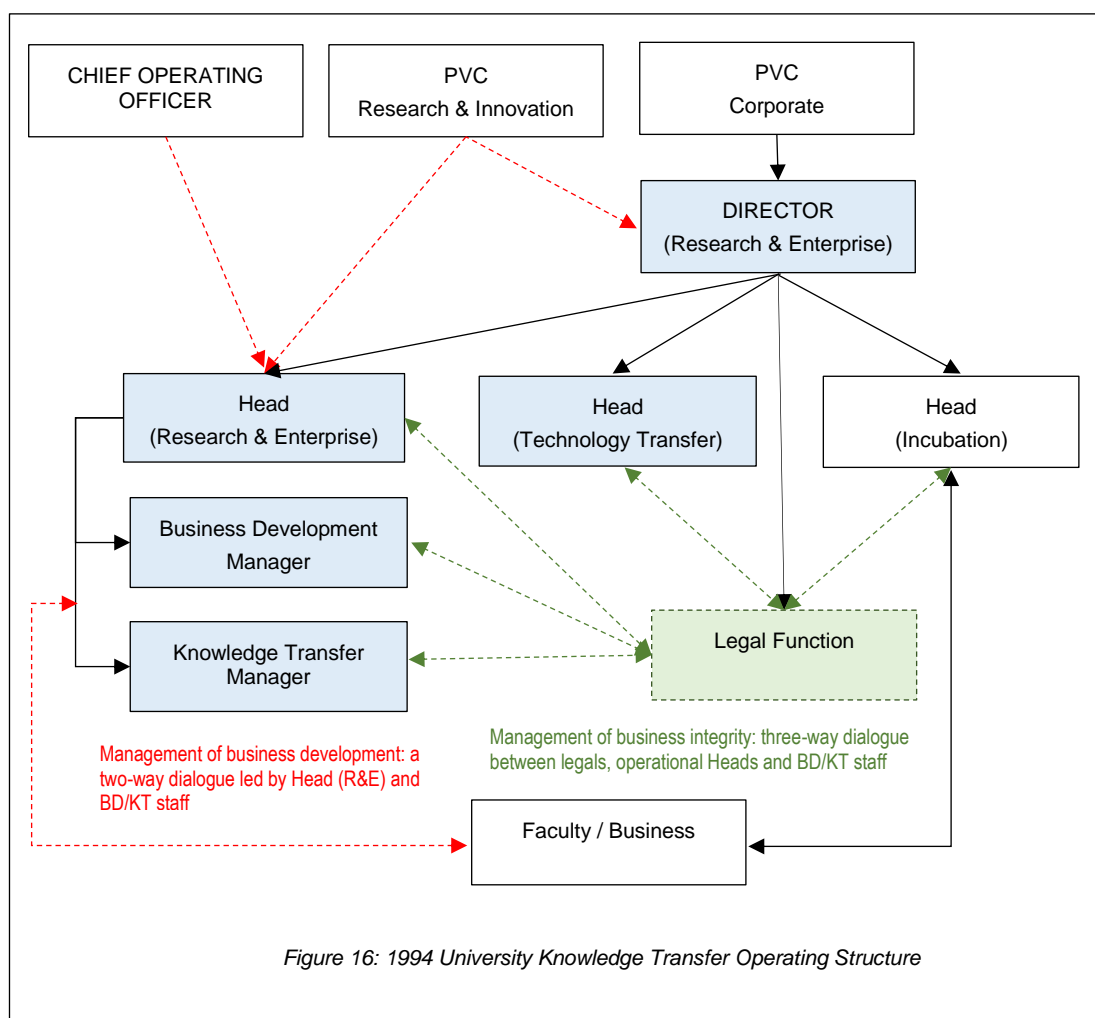
The roles of the KT and the Business Development Managers were similar in that both were tasked with income diversification and generation activities but the *'modus operandi'* appeared to be distinctly different. The KT Manager tended to focus on discrete and reasonably formulaic KT schemes such as the ESRC KT Fellowship Scheme and Knowledge Transfer Partnerships (Innovate UK, 2016) (both of which are regulated and process driven), whereas the Business Development Manager concentrated on income generation relating to business and industry collaborations, partnerships and exploratory initiatives in addition to selling teaching and learning products such as CPD training and short courses and equipment and facilities hire. In essence, the BDM was the 'rain-maker' and the legal team the glue to ensure business integrity.

4.2.3   The 1992 University

The 1992 interviewees came from a central KT service which had a hub and spoke structure in which the business development function was devolved to the Faculties whilst the central department retained leadership and oversight (See Figure 17). With an embryonic research income (less than £5 million pa), the research development and management function was separate to that of KT, with the Director of Research and the Director of Enterprise both reporting to the PVC Research and Enterprise. The working relationship between the two directors was primarily around identification and allocation of income to strands of activity; that is, the process of deciding if external income could be classified as research income or not. Since neither the PVC or directors were able to participate in the study, the Vice Chancellor was approached. At the time of the interview the Vice Chancellor had been in post for one year and was still at the stage of getting to know the University and deciding on the strategic vision for KT. Despite having a background in the National Health Service and no private sector experience, he recognised the role of universities in economic development and the challenges this brings to the academy in terms of the availability of skills and priorities. Even at the early stage of his strategic planning, he was positioning KT as a conduit between business and academia. He had identified that it would require staff with sufficient business acumen to be comfortable and able to work across the boundaries.

The Head (Knowledge Transfer) was tasked to develop and grow the University's KTP portfolio and all the staff under her remit were focused on this area of activity. Initially this appears to have been a highly-regulated service which provided bid and project management services to the academic community. The funding for their posts was considered 'soft' *(See p.33 for an explanation of hard and soft funding)* and dependent upon the number of projects they had running at any given time. In many respects, the Head (Knowledge Transfer) and the Knowledge Transfer Manager (KTM) appeared to have had more in common with non-tenured academics whose contracts and continued

employment are linked to '*soft money that is time limited'* (Fernández-Zubieta, Aldo Geuna and Lawson., 2016: 94). The Business Development Manager was a new role which was introduced in 2009 and was similar to those in the Russell and 1994 group universities in that it was focused on income generation and diversification.

Figure 17: 1992 University Knowledge Transfer Operating Structure
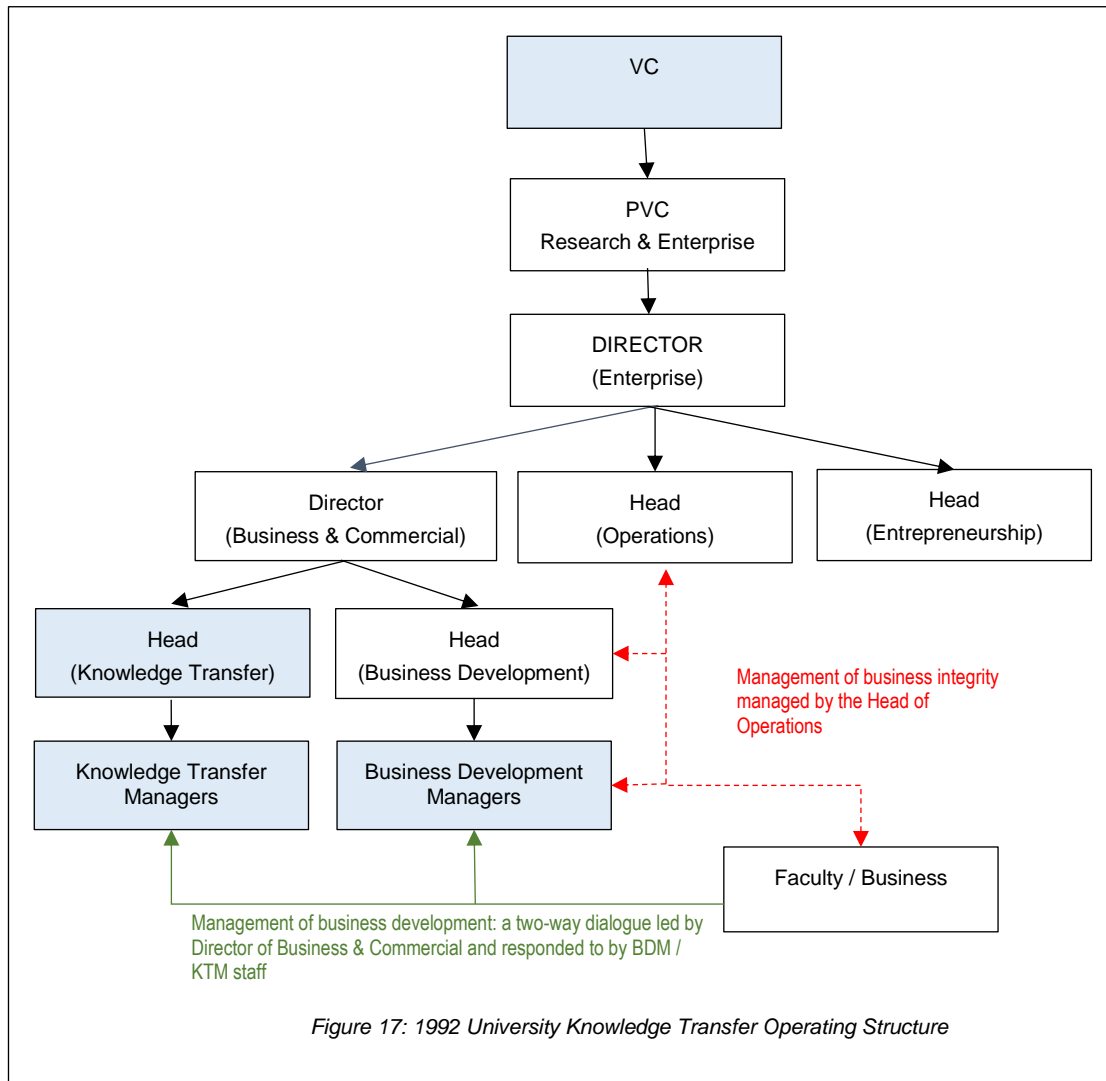
4.2.4 The 2005 University

Operationally, the 2005 University was the only KT service aligned with employability and enterprise. The service was considered to be a student-facing service first and foremost, with enterprise being aimed at business skills development for the local and regional business community (See Figure 18). Strategic oversight was the responsibility of the Deputy Vice Chancellor (Research, Enterprise and Employability). In some respects, the structure reflected the immaturity of the university and its history. The University was formed from the amalgamation of a group of further education institutions, it was predominantly a teaching and learning institution with limited academic research

capability. See Section 5.4 for an overview of KT stimulated organisational changes within the 2005 university.

According to the Head (Enterprise and Employability) her role was to develop the KT infrastructure, work with the DVC to stimulate a research base, strengthen the focus of KT on graduate enterprise and enhance employability prospects through building relationships with the local and regional business communities. There was a clear distinction between employability managers and enterprise managers. The former provided traditional careers advice to students and graduates, and the latter support for internships, placements, and student (and staff) consultancy projects.

The Enterprise Consultant was a fixed term contract brought in by the Head (Enterprise and Employability) because she was concerned about what she considered to be a lack of business engagement experience within her team. Therefore, the primary function of the consultant was to upskill both academic and KT staff whilst delivering some key KT projects. Ingrid (the Enterprise Consultant) identified the staffs' inexperience of working across the university-business interface as one of the most challenging elements of her role, and that even careers advice and guidance was somewhat detached from the real world of business "*we've got graduates or people who are just about to graduate, applying for jobs who do not know how to put a job application together and that for me is scary.*

Figure 18: 2005 University Knowledge Transfer Operating Structure
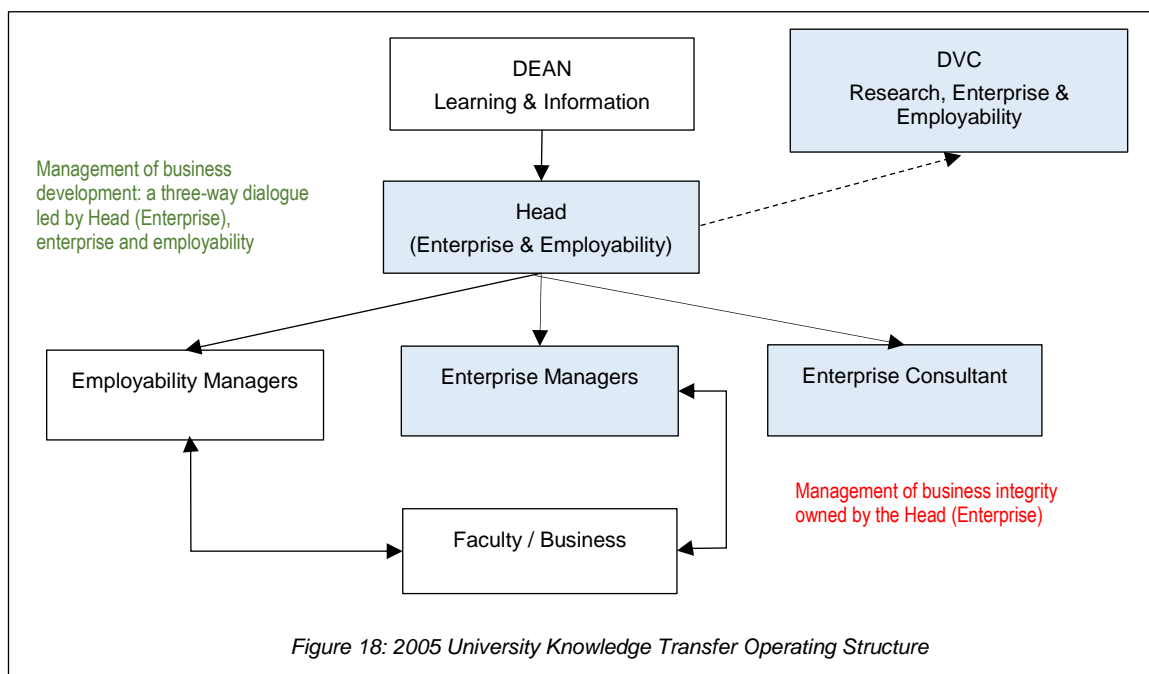
4.4   Conclusion

The sampling methodology provided access to interviewees from a wide range of backgrounds and organisational contexts. The inclusion of data from both the pilot and

main study interviewees enabled me to identify similarities and differences. These included issues relating to interviewees' experiences and engagement in business, and how recruitment strategies may not always result in the appointment of staff with experience of working at the university-business interface. I also noted that a number of KT staff are highly qualified, who could be eligible for an academic appointment but were attracted to KT and chose this area of work instead. The mapping of the case study universities' departmental structures revealed that KT infrastructures are not uniform. Instead they reflect the institutional positioning of KT in terms of line management, form and function.

CHAPTER FIVE

CYCLES OF CHANGE

5.0   Introduction

Previously I discussed the characteristics of the interviewees who participated in the study, in this chapter I describe the case study universities and look at the institutional positioning and re-positioning of KT between 2000 and 2012. Initially, I consider each university individually and identify various cycles of change. Then I identify a set of philosophical constructs which are present in all cases to a greater or lesser extent and suggest that these represent generic institutional responses to internal leadership and HE funding regime changes (HEFCE, 2001; 2003; 2005; 2008; 2011). I comment on the commonalities and differences in terms of each institutional KT platform (organisational infrastructure), the role of KT funding in testing new initiatives and the emergence of new KT roles in response to a perceived skills shortage. Given that the interview data collection started in academic year 2010/11, the financial data used in this chapter is drawn from the audited accounts of the same year. The rationale for this is to ensure that the financial data used reflects the context within which the interviewees were working at the time. Finally, I draw the key elements together and suggest a conceptual framework whereby KT is presented as a catalyst for change which enables strategic and organisational re-alignment. Through the process of institutional change, new structures (departments, teams and relationships) and new identities and jobs (staff and specialist practices) emerge which are tasked with leading and delivering the KT agenda.

5.1   The Russell University

The origin of the Russell Group (RG) University was established in 1862 when a wine merchant left a £40,500 legacy to the City's Corporation to be used for the advancement of Natural History, Astronomy, Antiquities, Classical and Oriental Literature. The institution became a University College in 1902 and received its Royal Charter making it a University in 1952. By 2012, it stated that it was in the top fifteen of the RG league table with a global reputation for research and development in (amongst other areas) marine engineering. At the time of the main data collection exercise in 2012, the University offered a broad curriculum ranging from the Humanities to Medicine, and had 20,705 full time students and more than 2,610 part time students (Higher Education Statistics Agency, 2012b). With 5420 FTEs (48% academic and 52% professional) and a staff student ratio of 13.5 (Higher Education Statistics Agency, 2012c; The Complete University Guide, 2011), it was one of the UK's highest income generating universities with a reported a surplus of £15.1 million in 2010/11(Higher Education Statistics Agency, 2012a). A complete breakdown of income is detailed in Figure 19 below.

In terms of the funding from HEFCE, for the academic year 2010/11, the University received a total grant of £104,185,221 million, of which £56,888,469 million was the teaching allocation, £45,396,752 million the QR allocation, and £1.9 million the HEIF allocation (HEFCE, 2010: Table 12). In terms of research income, sponsorship from Research Councils accounted for 46.1% (£43,221m) and Charities 14.7% (£13.839m); the remaining £36,564 (39%) was from other external sources such as industrial sponsorship although there was some funding from other public sector organisations such as NHS Healthcare Trusts and Primary Care Trusts (RG University, 2011b).

2010/11 INCOME SOURCE	£ millions
Funding Council grants	122,204
Academic fees & support grants	131,351
Research grants & contracts	93,624
Other income	85,354
Endowment income & interest receivable	4,407
Total income	**436,940**

Figure 19: RG University Income 2010/11 (Source: RG University, 2011b)

Whilst the reputation of the University appears to be based on its teaching and research pedigree, the role of KT, innovation and enterprise has gained prominence since 2001 and appears to be firmly embedded within the institution's mission statement and corporate strategy. For example, the launch of the Strategic Plan in 2010 commented that leadership in enterprise, KT and business engagement was critical if the University was going to achieve its 2015 goal of improving its international research standing whilst delivering *'research with impact'* (RG University, 2010: 11). As part of the preparations for the 2014 Research Excellence Framework (REF) exercise the university further reinforces the importance of KT in its HEIF 2011-2015 institutional strategy by claiming that it is an institution which is *'open for business'* and *'a proven partner of choice for industry, the public and third sector'* (p5).

The RG University's timeline for third-stream funded KT activities is depicted in figure 20 and starts in the early 2000's with successful submissions to the Science Enterprise Challenge (SEC), the University Challenge Seed Fund (UCSF) and Higher Education Innovation Funding (HEIF). These three strategic funding streams provided a core of resources on which the foundations of the RG university's KT platform is built. The KT platform being the infrastructure, that is, the people, processes and programmes through which KT activities are delivered. The evidence suggests that the development of the KT platform is the result of an iterative approach to organisational change, as the university formulates ideas, tests them, and refines them before rolling-out and/or embedding across the university. Through analysing the university's HEFCE returns, strategic plans

and mission statements, it is possible to chart the rise of KT and its gradual evolution from a transient to permanent activity. This has been achieved through cycles of change which have primarily been enabled and driven by economic factors. Key features within change cycles include the philosophical positioning of KT (which is how the institution interprets the KT agenda and the activities contained within it), and the physical and strategic location of KT as the institution attempts to find the organisational and structural fit in terms of operating space and alignment with existing and future activities. The RG university appears to have three distinctive KT cycles:

1. KT for the commercialisation of research;
2. KT as a mechanism for income generation and diversification; and
3. KT as an embedded activity alongside teaching, research and graduate employability.

Cycle 1 – KT for the commercialisation of research

Whilst the SEC fund enabled the university to focus attention on developing the *entrepreneurial skills* of its staff and students and the UCSF provided the *investment* required for the commercial exploitation of research, it can be argued that it was the HEIF1 funding which enabled them to build the *infrastructure* to support and bring these activities together in a coherent manner.

In 2001, the university was awarded its first round of HEIF funding. This was a collaborative bid with three other universities, one RG university based in the South West of England and two 1994s (again, one in the South East of England and one in the South West of England). There had been a pre-existing partnership with the two South West partners under the SEC programme which meant that there were established working relationships at Vice Chancellor level before the HEIF submission. The thrust of the HEIF1 proposal was the establishment of four identical business incubation units underpinned by harmonised business creation investment policies and procedures. The intention being that an academic from either university could spin-out a company in any of the four incubation units without noticing any difference in approach or support.

Cycle 2 – KT as a mechanism for income generation and diversification

Under the auspices of the HEIF2 programme, the RG university and their existing HEIF consortium sought to expand their joint activities. Instead of working together on one strand, the partnership embarked on an ambitious programme of work which would attempt to harmonise seven strands of activity. This included:

1. Continuation of the successful incubation service which provided a spin-in as well as a spin-out service and provided an environment for business and academia to collaborate on innovation (product and service development);

2. Introduction of standard technology transfer protocols and procedures to strengthen negotiation and deal making abilities and ensure greater financial return on commercialisation activities;

3. Shared services for enterprise education programmes for students, academics and local businesses which would contribute to economic prosperity through enhanced business skills;

4. Communities of practice for business development and consultancy services which also included a cross referral-brokerage infrastructure the intention being if one partner did not have a required expertise, they would refer the request to one of the partners that did;

5. Encouragement of cross institutional multidisciplinary research groups to harness sufficient critical mass to secure large scale collaborative industrial research projects (*See Section 6.2.1 Existing and Evolving Networks)*;

6. A common approach to marketing third stream work to raise the profile of the institution and its partnership activities to current and future stakeholders; and

7. The establishment of a KT metrics group that would develop the expertise necessary to inform HEFCE and Government debates about monitoring and tracking KT activities.

The RG university's strategic aim at the time appeared to be one of strengthening its position in the market as a leader in technology transfer with a spin-out track record of high growth, high technology academic companies.

> 'Since 2000, fifteen spin-out companies have been created of which three have been listed on the London Stock Exchange with a combined valuation of £103.5m, £65.6m of venture capital and £32.5m of public money has been raised and none have failed' (RG University, 2006: 2)

The income generation and commercialisation potential of technology transfer was further reinforced by a strategic relationship with IP Group, a UK intellectual property ("IP") commercialisation company *(IP Group, 2012).* According to John (1994: L3), the benefit of this relationship was access to sufficient commercial investment which enabled him to focus attention on spin-out companies with potential and ambition. KT success being defined as "*a string of well-funded spin out companies that were successful and brought prestige and money back to the university".*

Cycle 2 also saw the introduction of key alliance management in an attempt to increase the level of industrially funded research. The rationale for this was two-fold: first, the assumption that the stronger the relationship with business, the greater the opportunities there will be to leverage different types of income (research, consultancy and employer-led teaching programmes) and second, a growing awareness of increasing competition for research funding from traditional government sponsored sources and the need for the

university to consider diversifying its income streams. The notion of being able to work closely with a business on several levels was inherent within this philosophy.

Cycle 3 – KT as an embedded activity alongside teaching, research and graduate employability.

The third cycle sees an affirmation of KT as a generic process which is inherent within all aspects the university's mission. It is not a standalone activity nor is it simply driven by financial transactions; instead it is integrated within the core missions of teaching and research and is aligned with other more traditional professional services such as careers. The links with research have moved beyond income diversification and exploitation to one of being the primary mechanism through which research impact can be orchestrated and demonstrated. In the RG university, the 2014 REF provided KT with the validation it needed to move from a peripheral income generation activity, to one which sits within the research life cycle. This is evident through the structures which emerged at the time, for example, the 2014 REF exercise was coordinated by the Director of Research and Enterprise in consultation with the PVC Research and Enterprise, with the faculty based KT staff working closely with the academic community to identify research impact opportunities as well as new business.

With regards to addressing the employability agenda, the RG university has incorporated elements of KT into both undergraduate and postgraduate education through enterprise education programmes (accredited and non-accredited) and initiatives which support the development of employability skills through KT. Over the last decade, the KT service infrastructure has changed considerably: it has gone from a standalone specialist technology transfer service, to a converged research and enterprise service with satellite units based in the faculties. Some activities which were traditionally based in the KT portfolio have been decoupled and moved to other areas. For example, the HEIF funding for student and graduate start-up activities have been devolved to the Student Union, whereas the KT training for doctoral students and academic remains under the remit of the central research and enterprise department but firmly based within the research support and development functions. For a summary of the cycles of change (actual and forecasted) see Figure 20.

Figure 20: RG University KT Cycles, 2000/11 (Actual) - 2012/15 (Forecast)

	CYCLE 1	CYCLE 2	CYCLE 3
THEME	**KT for the commercialisation of research o** ▪ KT consortium funding used to create a network of business incubators at each of the member institutions. The main intention for participation being to have an exploitation vehicle through for the commercialisation of research outputs ▪ KT used to position the university as a leading player for technology transfer ▪ Strengthening position in the market as a university with a robust technology transfer & spin-out pipeline	**KT as a mechanism for income generation and diversification** ▪ KT used as a mechanism to introduce strategic alliance management for industrially funded R&D, and to encourage inwards investment into the region through cluster relationships ▪ KT used to realise commercialisation potential and a strategic partnership with IP2IPO* established ▪ KT SEED-Funding used to invest in nascent businesses and leverage access to new income generating activities	**KT as an embedded activity** ▪ KT aligned with teaching, research and employability ▪ KT funding used to further develop R&D around Research Council Grand Challenge thematics which required industrial partners (national and international) ▪ KT re-positioned with the research life-cycle to include the development of collaborative research opportunities, and be a contributing factor in REF impact case studies through developing partnerships with local and regional business who could provide evidence of impact ▪ KT as a mechanism to support graduate retention, and attract skilled researchers which could contribute to regional development through applied R&D and increasingly the availability of higher level skills to business ▪ KT as a lobbying tactic enabling the university to actively engage with and inform governmental innovation policy
ACTIVITY	▪ Incubation services ▪ Technology transfer ▪ Enterprise partnerships ▪ Business development ▪ Consultancy services	▪ Incubation services ▪ Technology transfer ▪ Enterprise partnerships ▪ Business development & consultancy services ▪ Consultancy services ▪ Regional development ▪ ***Research collaborations*** ▪ ***Corporate relations*** ▪ ***Enterprise education (for staff & students)***	▪ Incubation services ▪ Technology transfer ▪ Enterprise partnerships ▪ Business development & consultancy services ▪ Regional development ▪ Research collaborations ▪ Corporate relations ▪ Enterprise education ▪ ***Employer engagement & employability*** ▪ ***Workforce development***

INTERNAL STRUCTURE	• Minimal engagement within the institution beyond the VC's Top Management Team • Standalone central Enterprise function with minimal operational interaction within the university despite specialist sector specific Innovation Managers being allocated to work with each Faculty • Revenue sharing to reward academic enterprise	• Unchanged	• Converged Research and Enterprise unit function incorporating research governance, pre-and post awards, REF, collaborative research development) • Faculty based Enterprise Managers replace Innovation Managers albeit it with similar sector specific expertise • KT part of the academic promotion system with funding set aside to buy out academic time to stimulate activity • Student enterprise (entrepreneurship education and graduate start-up support) devolved to the Students Union to lead
EXTERNAL STRUCTURE	Science Enterprise Challenge		
	University Challenge Seed Fund (in partnership with 2 other HEIs)		Partnership reconfigured to include the HEIF partnership
		Science Bridges (collaboration with the HEIF partnership & UC San Diego and Irvine)	
	HEIF (in partnership with 3 other HEIs)		

* IP2IPO (later called IP Group)

5.2   The 1994 University

The 1994 Group university was selected for two reasons, first I personally knew the university and had access to the key gatekeepers, and second, it was a member of the same HEIF1 partnership that the RG university belonged to. This provided me with an opportunity to compare and contrast the different approaches to KT within a partnership situation, and assess whether or not these differences are reflected in the identity constructs of their KT staff.

Originally a technical college based in London that provided education and training to the poor, its academic reputation steadily grew to the point in 1956 where it was one of the first colleges to be designated a college of advanced technology. Shortly afterwards the Robbins Report (1963) proposed that the college along with the other colleges of advanced technology, should expand and become a university awarding its own degrees. By the mid-sixties, the university had outgrown its London site and moved to the South East of England. Unlike the RG university (which was based in an urban area with limited scope for estate redevelopment and had to wait for a brown field site before it could develop a research park), the 1994 university created theirs at the time of the relocation. Therefore, the links, services and accommodation to support university-business engagement was in place three decades before the HEIF knowledge / technology transfer agenda emerged. The decision to establish a research park appears to be one of serendipity:

> It was partly through serendipity in that we could get the land, had good people etc… but more fundamentally, we had at the time a moment where the leaders were determined to reduce their dependence on the state for funding. The dramatic cuts around 1980 led to xxx losing something north of 20% of its funding overnight and the VC and the council of the day determined that they would never get caught like that again... so they set up the RP and xxxx. Good thinking on their part... HENRY, 1994: L2

The 1994 university offers a broad range of subjects, spanning science, engineering, human sciences, arts, business management and healthcare sciences claims to be a leading 'professional' university. In the academic year 2010/11, the university has 13,585 full time and 2690 part- time students and 3025 FTE staff of which 51% academic, and 49% professional (Higher Education Statistics Agency, 2012c). The staff student ratio at the time was 17.9 (Higher Education Statistics Agency, 2012c; The Complete University Guide, 2011). In 2010/11 the university reported an income of £211,591m and a consolidated surplus of £10.9m. In terms of funding, the university received a total HEFCE grant of £42,252,183m of which £24,141,724m was the teaching allocation, £16,210,459 the QR allocation and £1.9m the HEIF allocation (HEFCE, 2010: Table 12). The reported £27,926m research income, sponsorship from the Research Councils (UKRC) accounted for 40%, the

EU (specifically Framework 7 programmes) 36.9%, industry 11.3% and Charities 4.9%. The remaining 6.9% was from the Government bodies, the NHS Healthcare Trust and Primary Care Trusts. See Figure 21 below:

2010/11 INCOME SOURCE	£ millions
Funding Council grants	47,781
Academic fees & support grants	77,891
Research grants & contracts	27,926
Other income	44,022*
Endowment income & interest receivable	13,970
Total income	**211,591**

Figure 21: 1994 University Income 2010/11 (Source: University-94, 2011)

The income from the Research Park is reported as 'other income' and accounts for *c.* £12.3m of the total (28%). Despite the level of HEFCE research related stimulation funding and the diversity of income sources available to develop the university's research activities, there is evidence to suggest that this is an area the university is struggling to maintain (See Figure 22). The 2010/11 Financial Statement acknowledges this and states that research income is *'static and disappointing'* but that delays to the start of projects, the loss of grants which moved with the grant holders to other institutions, and the freeze on awards during the 2010 Comprehensive Spending Review were contributing factors (p.4)

Year	Research Income £000	£ Variance	% Variance
2001/2	£ 22,511.00	BASELINE	
2002/3	£ 22,317.00	-£ 194.00	-0.86
2003/4	£ 24,810.00	£ 2,493.00	11.17
2004/5	£ 27,903.00	£ 25,410.00	12.47
2005/6	£ 27,404.00	-£ 499.00	-1.79
2006/7	£ 31,702.00	£ 4,298.00	15.68
2007/8	£ 30,906.00	-£ 796.00	-2.51
2008/9	£ 28,451.00	-£ 2,455.00	-7.94
2009/10	£ 27,612.00	-£ 839.00	-2.95
2010/11	£ 27,926.00	£ 314.00	1.14

Figure 22: Research Income Trends

Despite being in the same partnership as the RG university, the basis on which KT activities began in the 1994 university is significantly different. First, the 1994 University's bids for both the Science Enterprise Challenge Fund (SEC) and University Challenge Seed Fund (UCSF)

were unsuccessful and second, the existence of the research park provided the university with space and a rudimentary KT infrastructure. The failure to secure UCSF funding was considered to have *'placed the university at a disadvantage'* (Henry, 1994: L2) and resulted in the university introducing its own small Seed Fund which was later developed under subsequent funding rounds. Whereas the RG university developed its KT platform on improving entrepreneurial capability (SEC) and investing in technology transfer and commercialisation (UC and HEIF), the 1994 Group university appears to have aligned theirs with aspirations for the Research Park. Its existence, according to Henry (1994: L2), demonstrated that the university was *'naturally opportunistic, entrepreneurial and forward thinking'*. The research park was presented as a mechanism to attract business into the area, provide new avenues for the commercialisation of IP through university-business collaborations, and enable the university to contribute to the economic prosperity of the region improving graduate retention. Through analysis of the 1994 university documentation two distinctive KT cycles were identified:

1. KT as a mechanism for income generation and diversification; and
2. KT as a mechanism to drive regional economic development.

During the interview, Henry explained that during cycle 1 the focus has been on income generating to minimise the effects of reductions in public sector funding, but over time and with each subsequent funding round, the emphasis changed with a more holistic approach to KT replacing the original fiscal one. This was reflected in the university strategy at the time which stated that the university was committed to working closely with its students, '*business, government and civil society to aid the transition of knowledge to the benefit of humanity'* (University-94, 2012: p4).

Cycle 1:   KT as a mechanism for income generation and diversification
Although the research park was considered successful, the link between the businesses located on the park and the university was not strong. There did not appear to be any comprehensive strategy to encourage collaboration between the two parties with the university being presented as a landlord rather than potential partner. The introduction of the Higher Education Reaches Out to Business and the Community (HEROBC) initiative enabled the university to begin to address this situation. The funding was used for *'a complex marketing strategy which was basically a very expensive profile raising exercise – but it did the job, the university did become more engaged with business and vice versa"* (Henry, 1994: L2). In addition, HEROBC funding was used to leverage European Structural Funding to develop a series of business skills training programmes which were delivered either on the main campus (thereby encouraging business to visit the university) or the research park

(thereby encouraging potential tenants to explore the accommodation and university owned services available).

It was against this campaign of raising awareness of the expertise that existed within the university that the HEIF1 Incubation partnership was formulated. The university had been offering business incubation services for high tech start-ups together with a package of flexible workspace and business support since 1986, but it had nothing specifically set aside to support academic enterprise. The HEIF1 business incubation partnership enabled the university to establish a unit located on the research park for academic spin-out companies. The partnership, however, was not a partnership of equals. There were four main HEIs involved, three of whom were already partnering in a SEC and UCSF collaboration, when the 1994 university joined the partnership for the Incubation programme, there was a sense that it was *"the poor relation, junior to the others"* and it had to *"earn its stripes"* (Jack, 1994: L3) to validate its position and value to the partnership.

The location of the incubation unit and the general KT staff who were also based on the research park resulted in a perception of it being an 'insider-outsider' service (Stamper and Masterson, 2002). There appeared to be three core areas of marginalisation. First, a team of Business Development Managers (BDM) had been appointed to liaise between business and the faculties and stimulate collaborative KT initiatives. These staff were based on the research park and not within the faculties they served. Second, faculties had not been consulted or involved with defining the BDM remit or on the selection panels which resulted in some degree of suspicion. According to Bob (1994: L6) the Faculty greeted him *"With distrust. I think because they thought their research money was paying for our wages… Trouble was no one really knew what we were supposed to be doing".* Third, a specialist Technology Transfer division was established which although located under KT services appeared to be regarded as being of more value in terms of their skills and expertise. This caused tension between KT central services and the academic community as it became evident that some TT staff were on professorial salaries and there was a perception that they had considerable influence within the university's senior management, compared to professors based in faculties.

Cycle 2:   KT as a mechanism to drive regional economic development
The re-positioning of KT as a mechanism to drive regional development appears to have been in response to Government (Technology Strategy Board, 2010; Willetts, 2010) and the emphasis on the role of universities in developing regional social and economic prosperity. This theme appears in the HEIF2011-15 Institutional Strategy, as something where the

university considers it can deliver best value: *'the university has a long track record of supporting sub-national growth, beginning with the foundation of its highly successful Research Park, which now contributes over £1 billion p.a. to the regional economy… this is where we see can deliver value'* (1994 University, 2011: 4). In 2006/7, KT services were transferred on to the main Campus and located in the same building as all other core professional service units. This move served to reinforce the alignment of KT with the other core missions of teaching and research.

As the competition for research funding increases the need to strengthen existing and develop new relationships remains pivotal to the 1994 university's entrepreneurial aspirations. The incubation partnership continues to thrive as together the partners have gathered sufficient critical mass to secure additional funding and develop strategically advantageous alliances. For example, inwards investment schemes such as Office of Science and Innovation (OSI) funded Science Bridge award aimed to develop links and commercial relationships between high growth companies, technology based research and development clusters in America and similar clusters in the South of England. The commitment to regional development by encouraging businesses to invest in the area was further demonstrated when the 1994 university introduced two flagship initiatives. First, a strategic corporate relationship management programme which was aimed at developing alliances with a discrete number of high profile FTSE 100 companies which could then be used to accelerate the commercialisation of research outputs, and second, the establishment of a Business Angel 100 club which aimed to assist nascent businesses to secure investment funding by drawing on the expertise which existed within the university's alumni network.

In terms of the organisational structure, KT services in the 1994 university is a mirror image of its RG university partner. It is a converged research and enterprise service with an incubation hub for academic enterprise and student enterprise is located and delivered through the Students Union albeit with an emphasis on retaining graduate companies in the region rather than developing employability skills. For a detailed summary of the cycles of change, see Figure 23.

	CYCLE 1	CYCLE 2
THEME	**KT positioned as a mechanism for income generation and diversification** ▪ KT used to position the university as a leading player for technology transfer and commercialisation activities ▪ KT consortium used to establish a network of business incubators at each of the member institutions which are linked into the local and regional business communities. ▪ KT positioned as an income diversification method and an emphasis of KT with financial returns as a result of effective IP management & exploitation ▪ KT used to realise commercialisation potential and a strategic partnership with IP2IPO* established	**KT positioned as a mechanism to drive regional development** ▪ KT used as a mechanism to introduce strategic alliance management for industrially funded R&D and encourage inwards investment in the region, this includes participating in the establishment of a regional IP bank to facilitate the exploitation of university R&D ▪ KT funding used as to establish an Angel Network to secure investment for nascent businesses ▪ KT positioned as part of the research life-cycle and a contributing factor in REF impact case studies through developing relationships and partnerships with local and regional business communities who will be able to provide evidence of 'impact' and thereby strengthen REF case studies. ▪ KT activities internationalised through specific initiatives aimed at developing regional links through sector clusters such as Space ▪ KT positions the university as a leader in innovation through the partnership in a national Innovation Centre ▪ KT as mechanism to support graduate retention within the region
ACTIVITY	▪ Incubation services ▪ Technology transfer ▪ Enterprise partnerships ▪ Business development & consultancy services ▪ Student enterprise	▪ Incubation services ▪ Technology transfer ▪ Enterprise partnerships ▪ Business development & consultancy services ▪ Regional development ▪ Commercial collaboration ▪ Enterprise education ▪ ***Project management***
INTERNAL STRUCTURE	▪ Standalone central department responsible for a satellite business incubation unit located away from the main campus. This was later expanded to include pre & post awards management (but not research governance) and legal services.	▪ Incubation unit retained on the research park, all other KT functions transferred to the main campus. Research support is split between in two areas. Pre & post award management which is later transferred to central finance where it becomes research administration services.

	- Minimal engagement within the institution beyond the VC's Top Management Team and limited Faculty/School engagement - Revenue sharing to reward academic enterprise, and funding set aside to buy out academic time to stimulate activity	- Research development stays within Research & Enterprise Research governance added. The department is officially renamed as Research & Enterprise. - Major restructure and reduction in staff numbers, with Innovation Managers being replaced by sector specific Business Development Managers (sales force). Technology Transfer function is streamlined in preparation for separation should it become sustainable ***Institutional project management service introduced.*** ***Associate Deans R&E introduced to lead academic KT*** ***10% of the academic workload model allocated to KT***
EXTERNAL STRUCTURE		Science Bridges (HEIF partnership with UC San Diego and Irvine)
	HEIF partnership with 3 other HEIs initially for Incubation Services which later expanded across several areas of KT activity including a shared SEED-Fund	

5.3   The 1992 University

The study includes data from two 1992 universities. The first one had participated in the pilot study and had intended to extend their involvement to the main study. However, as a result of a significant HEIF funding reduction in July 2011 (approximately 47% reduction as a result of HEFCE''s introduction of a performance related algorithm) and a subsequent cost saving exercise, it was decided by the Director of Research and Enterprise that it would be inappropriate for the university to remain in the study. Therefore, an alternative 1992 university was approached and although this too had experienced significant funding reductions, it had prepared for this eventuality and had completed its cost saving exercise in readiness for the start of the HEIF 2011-2015 programme. The selection criteria for the substitute 1992 remained unchanged. The university had to be based in London and the South-East region, it had to be part of the same Mission group as the pilot study 1992 university (the Alliance group) and it had to have a *similar* HEIF income stream (an exact match was not possible due to the HEIF allocation model which is based on institutional performance).

The 1992 university began as a polytechnic with a reputation for delivering vocational education in civil and aircraft engineering. The university now has five faculties, four campuses and provides a broad curriculum. In 2010/11 the university had 27,600 students 80% of which were full time and 20% part time (Higher Education Statistics Agency, 2012b), 5455 FTE staff, (52% academic and 48% professional) and a staff student ratio of 19.8 (Higher Education Statistics Agency, 2012c; The Complete University Guide, 2011). In addition, the university also reported 1560 'atypical' FTEs that were primarily associate lecturer staff on temporary contracts or hourly paid lectureships. As one of the most financially robust 1992 Universities, it reported an income of £210.118m and a surplus of £20.6m in 2010/11 (University-92, 2011: 9). In terms of HEFCE funding, the university received a total grant of £71,676,614m of which £66,116,927m was the teaching allocation, £3,737,578m the QR allocation and £1.822,109m the HEIF allocation (HEFCE, 2010: Table 12). However, unlike the RG and 1994 universities, the QR allocation was more than the research income generated by the university. Of the declared research income, £946k came from Research Council contracts, £275k from Charities and £2,329m from 'other' sources (of which approximately £800,000 came from Knowledge Transfer Partnerships). See Figure 24.

2010/11 INCOME SOURCE	£ millions
Funding Council grants	81,298
Academic fees & support grants	95,154
Research grants & contracts (RG&C)	3,550
Other income	29,064
Endowment income & interest receivable	1,052
Total income	**210,118**

Figure 24: 1992 University Income 2010/11 (Source: University-92 2011)

Like the 1994 university, the 1992 university appears to have two distinctive KT cycles:

1. KT as the means to support the local Small-to-Medium (SME) business community through entrepreneurship; and
2. KT as a mechanism for income generation and diversification.

Cycle 1:   KT as the means to support SMEs

The university began to formalise its KT activities in 2004 following three successful applications for HEIF2 funding. The first award was for an institutional plan that was based around three areas of activity aimed at supporting local engineering and technology based SMEs. This included:

1. The establishment of a spin-in company scheme to stimulate academic enterprise through partnership with a regional inventor community;
2. The creation of a centralised KT Office and the expansion of the KTP portfolio to include the arts and creative industries initiatives; and
3. The development of a flexible Work Based Learning (WBL) framework for engineers wishing to obtain CEng status who did not have the necessary educational qualifications.

The driver behind this strategy was the Dean of the Faculty of Engineering who led the institutional HEIF bid. The rationale for the spin-in company scheme appears to have been informed by the paucity of the university's research:

> We had to do something, we couldn't draw down any of the funding, we had no research, and we had no IP, so let's work with people like inventors who do. If we help create their companies or go into partnership with them we can claim them in our institutional return, bring in some income and hopefully stimulate some collaborative work" (Annette, 1992b: L5).

The KT Office and the WBL teams were originally administrative units within the faculty and both operations were transferred into central services along with the Dean as a result of the HEIF award. This was the start of re-positioning KT as an institutional activity.

In parallel to the institutional submission, the university developed two HEIF partnerships, one with ten other HEIs in the South-East Region which focused on providing proof-of-concept funding to the academic community, and the other with seven London based HEIs which aimed to establish a Centre for Knowledge Exchange (CKE). The Proof-Of-Concept partnership was led by the Dean, whereas the CKE bid was led by a Senior Lecturer based in the Faculty of Business. Once awarded the academic, like the Dean, transferred into the central service along with his team to lead the entrepreneurship strand of the CKE on behalf of the CKE consortium. While the institutional bid focused on supporting the SME community and stimulating business engagement, the CKE initiative focused on three core strands of activity:

1. An academic Proof-of-Concept SEED fund;
2. The development of four sector specific business networks to encourage collaboration; and
3. The establishment of an entrepreneurship skills centre to support student enterprise across the consortium.

The dual funding approach to Proof-of-Concept funding was similar to that adopted by both the RG and 1994 Universities in that all three universities had access to more than one seed-fund to support academic and local enterprise.

Tensions between the KT service and the faculties appeared to emerge by the way in which the KT budgets were administered with the central department being responsible for the agreeing faculty allocations, monitoring academic performance and releasing funds once targets were met. (*See Section 8.3.2 for further commentary about the role of KT staff acting as validators and making judgements about academic know-how).* Therefore, instead of a service department being in a supportive role to faculties, it was in a position of feeding into and approving academic KT workloads and financially rewarding success. In addition to financial power, there were also differences in approach to teaching and learning which resulted in the KT service developing a quasi-faculty status. When the WBL unit transferred into the central service approximately 250 part-time students were registered on the negotiated learning pathway. Separate enrolment, student progression procedures, examinations boards and quality assurance structures were developed to support these students that were being taught outside traditional university teaching and learning structures. This appears to have been a source of on-going friction between professional and academic services that was finally resolved under a HEIF3 change management programme when all teaching and learning functions were devolved to the Faculties.

Cycle 2: ***KT as a mechanism for income generation and diversification***

As mentioned above, until HEIF 3 the KT platform in the 1992 university consisted of a central service with two distinct areas of activity that had conflicting priorities which were strategically and operationally independent of the university. Whilst the engagement between the KT service and the local SME community appeared to be strong, this was not reflected across the university in general since SMEs did not have to interact with the academic community to access HEIF funded business support. Herein lies an anomaly, whilst positioning KT services as a central support service might appear to be seen as a signal that KT is an institutional responsibility, the lack of an obvious champion in the Vice-Chancellor's Management Team (VMT) suggests that centralisation for this university was more about linking the technicalities of the KT process together, and not changing ideological and philosophical positions. The KT mission with all its associated activities appears to have been working on the periphery of the university with no obvious academic buy-in until 2008 when new management was appointed with the remit to embed KT and enterprise within the university.

During the 2008-2011, KT services underwent significant re-alignment and re-focusing as the process of embedding began. The restructuring business case alludes to both internal and external drivers. First, there appears to have been some recognition by the VMT and Governors' that leadership was essential if the university was going to maximise its entrepreneurial potential the department was placed under the leadership of a PVC Research and Enterprise thereby mirroring the leadership structure of the Russell and 1994 universities. Second, it was agreed that at a time of increasing competition for funding, the university needed to engage with *'business in its broadest sense'* and focus on opportunities that had *'realistic prospects of generating tangible results and incremental income streams'* (University-92, 2009: 2). Finally, there was acknowledgement that KT could be part of the research lifecycle, from inception (linking business to researchers) to fruition (exploiting the research outputs, initiating activities and gathering evidence of research impact).

To revitalise the KT mission, many of the original activities on which the institution's HEIF bids were based ceased and new ones more in line with the sector were introduced. For example, the spin-in scheme was terminated and replaced by a business development function that would focus on income generation and diversification, and costing and pricing models were introduced to stimulate academic consultancy which took into consideration market sensitivity. In addition, the centralistic nature of the service was further diluted when a hub and spoke infrastructure was implemented resulting in each faculty having their own bespoke KT team. Institutionally, academic engagement was formally incentivised by ring-

fencing time for KT activities through the academic workload model and KT criteria were introduced into the professorial promotion system (although no one had been promoted through this route despite it being in place for three years).

Under the auspices of cycle 2 a proportion of all KT activities were diverted to support the REF impact agenda through stimulating business engagement around potential REF case studies. However, unlike the Russell and 1994 group universities, the research base of the 1992 was (and remains) relatively embryonic with an annual RG&C income of approximately £3.5m (including PhD studentships) which means that exploitation opportunities were limited when compared to other universities. The appropriateness of aligning KT services to research under these circumstances was questioned by Emma (1992B: L4) who commented that *"to be able to exploit research, you have to do research, and we don't do much here, we need to develop business first"*. With the rise of the employability agenda, cycle 2 also saw closer alignment of non-accredited enterprise education with the university's teaching mission. This appears to be an attempt to raise the university's position in the league tables through improving graduate employability prospects in readiness for the release of the Key Information Sets (KIS). The impact and effectiveness of the 1992's devolvement and embedding strategy was under review when the data collection exercise began but the early indications were that there has been some success. For a detailed summary of institutional change cycles, see Figure 25.

Figure 25: 1992 University KT Cycles, 2004/11 (Actual) - 2012/15 (Forecast)

	CYCLE 1	CYCLE 2
THEME	**KT positioned as the means to support Small-to-Medium Enterprises** • KT used as mechanism to position the university's as partner for SME business creation and providing solutions to sector skills gaps • KT partnerships used to position the university as leaders in entrepreneurship education across the region • KTPs entered into as a means to add critical mass to the university's offering	**KT positioned as a mechanism for income generation and diversification** • KT used to consolidate the university's position as partner for SME community and providing solutions to sector skills gaps • KT considered as a process in developing REF impact case studies and generating income through collaborative research activities • KT used to consolidate and strengthen institutional approach to graduate
ACTIVITY	• Business creation (specifically spin-in activity) • KT projects • Student enterprise • Student placements and internships (careers) • Work-based learning • Business support	• Business creation (spin-in and spin-out) • KT projects • Student enterprise • Student placements and internships (careers) • ***Employer engagement & workforce development***** • ***Business development*** • ***Consultancy services*** • ***Technology transfer*** • ***Enterprise network management***
INTERNAL STRUCTURE	• Transfer of staff from the Engineering Faculty to create a centralised KT unit • Transfer of staff from the Business Faculty to the KT unit to lead a student enterprise strand of activity for the CKE consortium and establish a virtual Entrepreneurship Centre on behalf of the Consortium • Revenue sharing protocols established to reward academic enterprise • Funding set aside to buy out academic time to stimulate activity and stimulate academic-business engagement • Minimal engagement within the Institution with limited support from the VC Top Management Team	• Core structure changed slightly, business creation and spin-in activity stopped. Central service re-focused on income diversification and business development. The central department is streamlined into three areas, research and business development (an externally facing sales force), business operations (an internal back office support) • Business Development Managers introduced (located in the faculty but reporting to the Centre • Internal governance structure introduced for KT which is equivalent to the institutional Research Committee • KT embedded into the academic promotion system and 20% of the academic workload model allocated to KT • Work-Based learning is transferred to the Faculties and comes under the Institution's teaching & learning remit

		• Student placements function is transferred to Careers & Employability Services
		• Some Faculties introduce Assistant Deans for Research & Enterprise
		• Employer engagement & workforce development added in response to the Govt. & HEFCE's emphasis on higher level skills development
EXTERNAL STRUCTURE	HEIF2 (SEED fund and business creation partnership with 10 other HEIs)	
	HEIF2 (Centre for Knowledge Exchange partnership with 7 other HEIs)	

**The term Workforce Development was first used in Cycle 2 and encapsulated the commercialisation of the teaching and learning portfolio and growth in activities such as M Level Continuous Professional Development, Short Course and flexible Work Based Learning programmes.

5.4 The 2005 University

The fourth university in the study was one which was awarded university status in 2005. The origins of the university can be traced back to a private School of Arts that was founded in 1856 which through a series of mergers with local colleges resulted in the university being incorporated as a HEI in 1989. By 2010/11, the university had 10,405 full time students and 8,940 part-time students (Higher Education Statistics Agency, 2012b). With 1350 FTEs (51% academic & 49% professional), it has one of the highest Staff Student Ratios in the sector at 21.2 (Higher Education Statistics Agency, 2012c; The Complete University Guide, 2011). The 2005 university is primarily a teaching and learning institution with limited research being undertaken by the academic community. For example, in 2010/11 the university reported a RG&C income of £695k of which £629k was from a single FP7 award (2005 University, 2011a: 10). See below Figure 26.

2010/11 INCOME SOURCE	£ millions
Funding Council grants	42,216
Academic fees & support grants	42,149
Research grants & contracts (RG&C)	695
Other income	15,825
Endowment income & interest receivable	471
Total income	**101,356**

Figure 26: 2005 University Income 2010/11 (Source: 2005 University, 2011a)

In terms of HEFCE funding, the university received a total block grant of £36,937,217m in 2010/11 of which £35,782,651m was for teaching and learning, £295,821m for QR and £858,745m for HEIF. The dominance of teaching and learning is evident in its mission and supporting strategies which reflect the vocational nature of the institution and the emphasis it places on supporting the local and regional economy through higher level skills development. According to the strategic plan, the university is a *'provider of education, learning and skills, characterised by the effective integration of theory and practice'* (2005 University, 2011a: p10) and in the HEIF2011-2015 institutional strategy the notion of developing skills for to enable socio-economic prosperity is reinforced:

> 'Our HEIF 5 strategy focuses on three elements strongly aligned to mission: close to industry continuing professional development, student start-up companies, and social-community based student enterprise (notably volunteering)'(2005 University, 2011b: 2)

Cycle 1   KT as a mechanism for skills development

The 2005 university was not eligible to apply for HEFCE knowledge transfer funding until 2006 which meant that they had the opportunity for developing their KT platform with the benefit of learning from the experiences of other universities.

Despite securing three tranches of HEIF funding, the 2005 university only had one clearly identifiable KT thematic cycle. This, it can be argued, is the result of the consistent alignment of KT activities to the student employability and higher level skills development agenda (Confederation of British Industry and Universities UK, 2009). Such clarity around the purpose of KT and how it fits within the culture of the institution makes this case distinctly different from the other universities in the study. Having said this, on closer examination of the documentation and the 2005 interviewee transcripts, it would appear that whilst this university had a philosophical fit, it experienced similar challenges with the infrastructure as the other case universities. As Mike (2005: L2) explained, when he started at the university he had to *"start all over again to bring the KT service back into line so that the KT staff could focus on what the university needed".*

The 2005 university experienced structural evolution between 2006 and 2012 as the KT platform was modified in response to the changing focus within the graduate skills and employability agendas (Department for Business Innovation and Skills, 2009; Secretary of State, 2011) and changing senior management within the Vice Chancellors team. For example, during the first HEIF award, the 2005 university setup specialist KT centres within each of the three faculties which were supported by KT Fellows. The KT Fellow roles were new to the institution and were aimed at individuals with specialist commercial knowledge and business experience. The remit was to develop and deliver KT activities that would support the business community by linking university expertise and graduate skills with local demand, and provide business skills services to inventors and micro-businesses (five or less employees) that were lacking marketing and commercialisation expertise. In addition, a central KT service was established to draw together the activities under one umbrella where monitoring and reporting on the implementation KT strategic plan was undertaken. This approach replicated the hub and spoke approach that has also been adopted by both the RG and 1992 universities.

Subsequent HEIF rounds saw consolidation of KT activities around the university's core strands of continuous professional development, student enterprise and start-up businesses. The central KT team were merged with those from the career department to ensure fluidity across the skills and employability services in an attempt to provide a comprehensive offering to students (from careers advice to start-up support), and to business and community partners (from graduate recruitment at one end of the spectrum to specialist KT projects at the other). At the time of the data collection exercise, the KT platform in the 2005 university

comprised a centralised service with four teams: one externally facing, two internally facing and one which sat between the two and acted as a conduit between business and academia. These included:

1. An externally facing *Business & Community Engagement* team with responsibility for encouraging business to recruit graduates from the university and sourcing internship and 'engagement' opportunities for students such as consultancy projects;
2. An internally facing *Faculty Employability Support* team with responsibility for working with the academic community to embed employability into the curriculum;
3. An internally facing *Student Employability* team responsible for providing careers advice and guidance and organising placements and internships; and
4. An *Enterprise Support* team responsible for encouraging and supporting student and graduate enterprise, managing a creative industries business incubation hub, and providing entrepreneurship education to the local business community.

For a detailed summary of change cycles, see Figure 27.

Figure 27: 2005 University KT Cycles, 2006/11 (Actual) - 2012/15 (Forecast)

	CYCLE 1
THEME	**University positions itself as a specialist in supporting the creative industries** ▪ KT embedded and aligned to teaching & learning (specifically the expansion of CPD and short courses) ▪ KT positioned as a conduit for business skills development which will contribute to local and regional social and economic prosperity ▪ KT considered to be key to forging new links with FE (specifically collective design & delivery) ▪ KT as a mechanism to enhance student employability (specialising in graduate start-ups and being a supplier of skilled graduates for the creative industries)
ACTIVITY	▪ Business development ▪ Consultancy Services ▪ SME Support Services including Product Development & Networking (primarily in the creative industries) ▪ Continuous Professional Development & Short Course Development ▪ Enterprise & Entrepreneurship Education ▪ Student Placements ▪ Staff Innovation Support Scheme (including a proof-of-concept fund)
INTERNAL STRUCTURE	▪ All Faculties submit business plans for HEIF initiatives ▪ Creation of a centralised Community & Enterprise Office which was later restructured to become Enterprise & Employability, with 3 core stands of activity – Business & Community Engagement, Student Employability and Enterprise ▪ Funding used to augment and expand existing university marketing services ▪ Establishment of 4 Faculty based enterprise centres specialising in Innovation & Design, Media, Professional Development and Maritime Management ▪ HEIF allocation panel constituted to approve requests for funding, monitor and track progress against targets with funding set aside to buy out academic time to stimulate activity and stimulate academic enterprise along with specialist KT training & development opportunities for staff ▪ Revenue sharing to reward staff with time set aside to buy out academic time to stimulate activity and stimulate academic-business – this was later augmented by a programme of awards and incentives focused around strategic KT priorities
EXTERNAL STRUCTURE	(HEIF3 partnership with 12 other HEIs)

5.5 Commonalities and differences between cases

When considering the four case universities together, there were some commonalities and some differences. Commonalities included an iterative approach to the development of KT platforms which appears to be in response to the re-focusing of funding body priorities. These are evident through the expansion, retraction and realignment of KT services as institutions sought to incorporate new policy directions and KT agendas within existing institutional cultures. All of the universities appeared to assume that different skills and knowledge were required to those traditionally found in the HE sector and thus allocated a proportion of funding towards the creation of new KT roles to mitigate against a perceived skills shortage (See Figure 28). These new posts were predominantly professional service staff contracts such as BDMs and IP Managers.
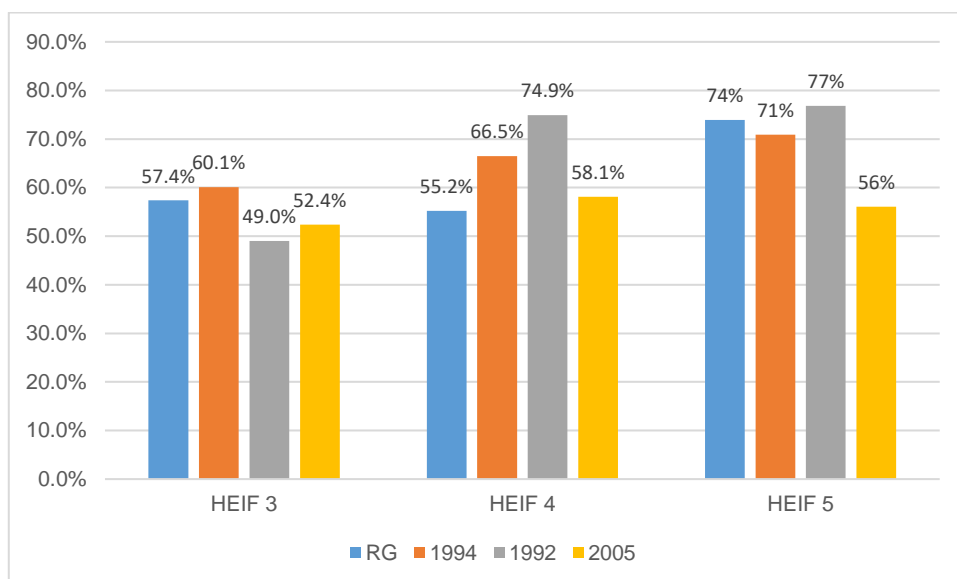
Figure 28: Percentage of HEIF Income Spent on KT Staff Salaries

A universal perception about the non-traditional nature of KT is further demonstrated through the ring-fencing of funding to *'buy-out'* academics to which all of the universities employed to a greater or lesser extent. Whilst this strategy appeared to be aimed at stimulating engagement, it also rewarded and acknowledged that some academics had pre-existing links to industry with successful track records of collaboration. Whilst these relationships had been established before the various KT policies emerged (HEFCE, 2009; RCUK, 2006), their existence supports HEFCE's position that KT is closely aligned with teaching and research (HEFCE, 2011) and undermines any assumptions that could be made that KT is a new phenomenon within higher education (*See Chapter Eight for discussions about practice and contested spaces).*

In addition to new roles, infrastructure development, and capability building, all of the universities also used KT funding to experiment with initiatives that could enhance business engagement, provide leverage, secure research funding and enable income diversification. For example, the RG university used KT funding to *'pump prime new initiatives which may be perceived initially as high risk'* (RG University, 2011a: 12), the 1994 university used KT funding to establish venture capitalist networks, the 1992 university used KT funding to underwrite joint ventures with local entrepreneurs and the 2005 used KT funding to develop skills training in consultation (and competition) with their local Business Link service.

Differences were noted within the KT propositions that were related to the research, technology transfer and commercialisation capabilities of the case study universities. Overall, four KT propositions were identified, three of which all of the universities referred to in their various KT business plans and mission statements (See Figure 29). These included positioning KT as a mechanism for income generation and diversification, economic regeneration and graduate employability.

RESEARCH CATEGORY (Intensive, Ascendant, Embryonic)	RI	RA	RE	RE
Knowledge Transfer proposition:	RG	1994	1992	2005
- Income generation & diversification	X	X	X	
- Research life cycle	X	X		
- Economic regeneration (*Incl. business skills, SME support*)	X	X	X	X
- Graduate employability (*Incl. graduate start-ups*)	X	X	X	X

Figure 29: KT Propositions by University and Research Category

The fourth proposition which located KT within the research life cycle was, as anticipated, a key feature for those universities with research bases which had commercial potential and had been highlighted by successive government bodies and agencies for significant funding. In the RG and 1994 universities which were categorised as *Research Intensive* or *Research Ascendant,* technology based incubation services were established to encourage and accelerate the exploitation of academic capitalism. These formed the foundation for future tranches of KT funding as cross functional services were introduced and new commercialisation and exploitation opportunities identified *(See Section 4.1 for institutional research categories).*

5.6   Theorising the findings relating to cycles of change

In this study, KT has acted as a catalyst for change within the universities. This supports Slaughter and Rhoades' (2004) theories about institutional responses to academic capitalism, and the emergence of boundary spanning units aimed at strengthening the

links between higher education, business and the *'state'* (p.23). For example, the RG and 1994 universities' incubation centres and the SME support services of the 1992 and 2005 universities were initiated and further developed by KT funding. The individuals, their roles and operating structures were aimed at facilitating the commercial exploitation of academic capitalism, and through this contribute to the economic prosperity of both business (through skills and the commercialisation of academic know-how) and the institution (through diversification of incomes streams).
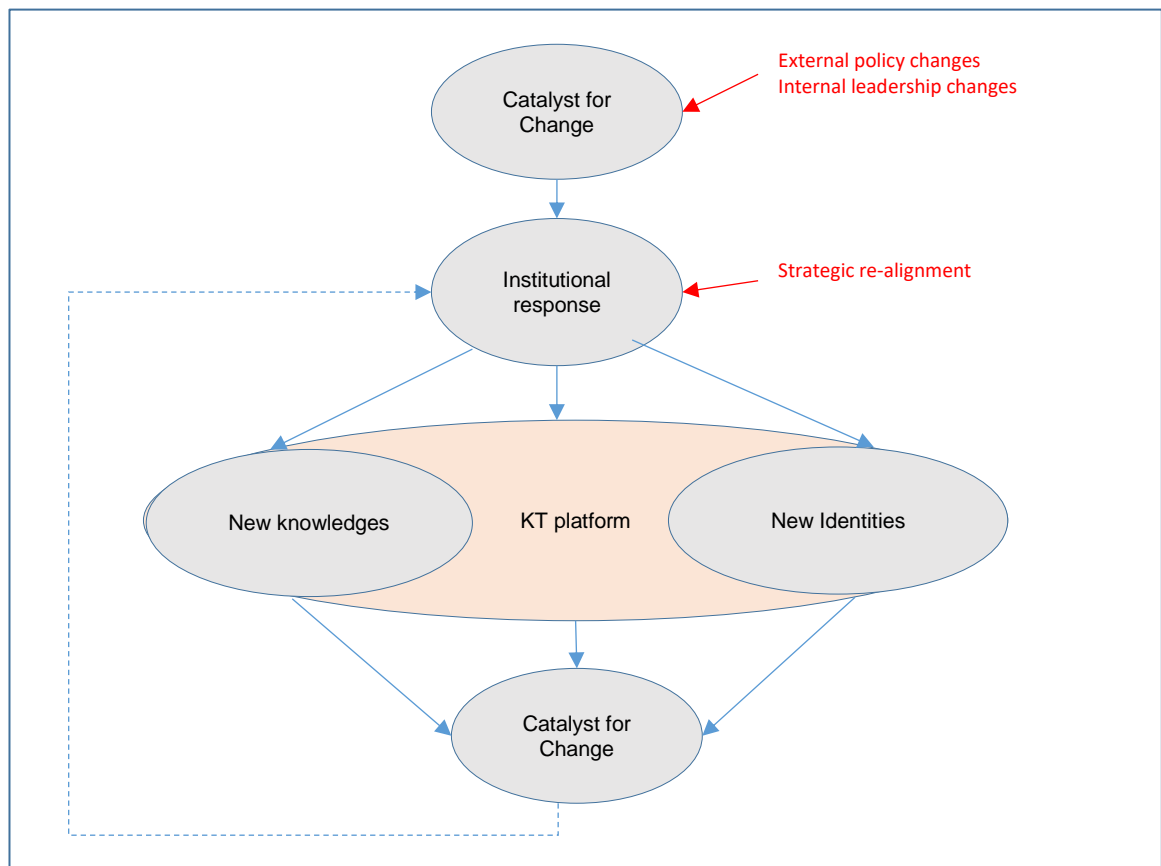
Figure 30: KT Change Catalyst

The conceptual framework above (Figure 30) encapsulates five elements, which appear to be present within the case study universities. It assumes that KT activities and associated processes, stimulate and lead elements of institutional change. Definitions for the terminology in the diagram are given below:

1. ***Catalyst for change*** refers to both internal and external factors such as changes in funding regimes, governmental policy (external) and/or institutional leadership (internal) which necessitate an institutional response;

2. The ***Institutional response*** is the re-alignment of priorities which results in the investment and disinvestment of activities. For example, the creation of a Business Development Unit could be an investment, whereas the switching from creating companies to licensing IP could be considered as disinvestment of one

activity to the benefit of another *(See Section 6.2.1 for interviewees comments about the changing nature of KT and the re-prioritisation of KT within universities)*;

3. **New knowledges** are those which are identified and designated as having increasing importance and therefore understood to be *'valid'* in terms of *'usefulness for exploitation potential and closely aligned with government and funding body priorities'*;(Shore and McLauchlan, 2012:280). For example, the re-focusing of research towards priority areas such as those outlined in RCUK Grand Challenges (http://www.rcuk.ac.uk/research/xrcprogrammes/);

4. **New identities** are those individuals and new roles which emerged as part of the KT agenda such as Intellectual Property Managers, KT Managers; and finally

5. The **KT platform** includes the operating spaces (infrastructure) that emerge or evolve from existing ones that support KT activities.

5.7   Conclusion

In conclusion, although the case study universities provided access to four distinctly different types of KT environments, there were similarities as well as differences. All of the universities had first-hand experience of the evolving nature of KT. This is evidenced by the cycles of change which emerged from analysis of the multiple iterations of business plans which each university produced in response to changing policies. These plans were used to set and refine the strategic direction of the institutions' KT agendas. All of the universities also experimented with different types of business engagement initiatives and adopted a wide range KT positions aimed at making use of institutional strengths whilst retaining individuality. The catalytic nature of KT, as described in the conceptual framework *(See Figure 30),* enabled structural and philosophical debates to occur and a route through which the universities could respond to calls for them to contribute to *'reducing the country's fiscal deficit'* (HEFCE, 2011: 6) whilst mitigating the risks to them associated with reductions in public sector. Despite the bespoke nature of the KT platforms, each university appeared to develop specific roles to help deliver their strategies with between 49%-70% of their KT funding being allocated towards salary costs.

Whilst this chapter has focused on providing a description of organisational change, it also provided evidence suggesting that KT has provided an *'opportunity for creating structures and spaces of identity'* (Shore and McLauchlan, 2012: 271). In the following chapters, the qualitative data from both the pilot and main study interviews is used to explore the relationship between the individual and institution. Specifically, the various understandings and interpretations of KT, the expectations of each party in terms of their relative value, and the role these play in identity construction.

CHAPTER SIX

CAPITAL AND IDENTITY CONSTRUCTION

6.0   Introduction

In the previous chapter, I suggested that a series of cycles and modifications to university KT services and agendas had taken place in response to changing funding policies at institutional and national level. In this chapter, I focus on the interplay between the various forms of individual and institutional capital and how these influence identity constructions amongst KT staff. First, I consider the role of social capital (Bourdieu 1986) and whether there are levels of disconnect between the type and depth of social networks KT staff have in terms of what they have, and the institutions' understanding and expectations of these connections. Second, I examine the role of cultural capital, that is, the specialist knowledge and experiences that KT staff are believed to bring to the academy, and the type of activities that KT staff with limited cultural capital are prepared to undertake in an effort to gain capital 'credit' (Bourdieu, 1990b: 284). Third, I comment on the dynamic nature of symbolic capital (Bourdieu 1986) and consider the basis on which symbolic capital is accumulated. I explore how it is vested to the individual by the institution based on the perception that KT staff will bring high value capital to the academy and how this in turn, enables self-regulating KT groups to be established. Lastly, I theorise that in addition to individual and institutional situational contexts and location (both of which are 'positioning' influences) identity construction is affected by three conditions: a person's individual capital, institutional leadership capital and an institution's academic capital which together provide exploitable knowledge assets, and positions KT staff as the people responsible for its exploitation. I suggest that when these three are in alignment, a unified institutional KT identity emerges.

6.1   Capital

Bourdieu bases his view of social constructionism theories within concepts of capital, field, and habitus. Capital refers to the assets and resources that an individual accumulates over time and consists of four distinctive types: social, cultural, symbolic and economic. These capitals influence and define the positions that people hold in society and are the mechanisms by which advantage and power is either assumed, given or taken (Bourdieu, 1986; Côté, 2005; Siisianen, 2000). Whilst there was evidence to suggest the existence of economic capital within some of the participants of this study in terms of the freedom it offers for their choice of work, analysis of the data suggested that it was the presence of social, cultural and symbolic capital that had the greatest influence on identity construction.

6.2 Social Capital

Social capital refers to networks of influence or support based on group membership, friends, or other contacts. It can be considered as the sum of resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalised relationships (Bourdieu, 1986; Bourdieu, 1989; Bourdieu, 1990b; Bourdieu and Wacquant, 1992; Halpern, 2005). For Nahapiet and Ghoshal (1998) social capital is the *'knowledge and knowing capability of a social collectivity'* (p245) which according to Halpern results in *'shared understandings of how to behave'* (Halpern, 2005: 3). It can facilitate the *'actions of actors',* create an advantage for individuals or groups (Burt, 2005: 4; Coleman, 1988: S98) and provide favourable social identities (Barron and Markman, 2000: 107). Horizontal social capital refers to individuals who occupy similar social locations in network, whereas hierarchical social capital refers to networks which link individuals who occupy different social locations (Flora and Flora, 1993). An example of the latter is the work of Schulman and Anderson (1999) who use the notion of paternalistic capital to explain the hierarchical structure of the Cannon Mills community in North Carolina.

Bourdieu considers social capital in the context of the individual who is driven by self-centredness (Bourdieu, 1986; Bourdieu, 1989; Bourdieu, 1990b; Coleman, 1988), whereas Putnam places it within the context of the community. He sees it as a mechanism of social integration through networks and associations where *'the norms of reciprocity and trustworthiness'* result in civic engagement (Putnam, 2000: 19). These notions of reciprocity and trustworthiness are discounted by Bourdieu since he argues that the interested nature of social capital precludes reciprocity because all actions are undertaken with self-interest in mind. Instead of trustworthiness he suggests that a capital of recognition exists which is based on mutual cognition and recognition.

Within the study there appeared to be more evidence of Bourdieu's approach than that of Putnam's in that memberships of the various types of networks appeared to be driven by individual needs first and institutional (community) needs second, and even then the 'community' needs appeared to be based on self-interest since they were frequently linked to an individual's recognition of and desire for success in the workplace.

6.2.1 Existing & Evolving Networks

The relationship between developing (either through evolution or creation), maintaining, and disengaging from an existing network is dictated by the relative value which an individual assigns to it. This was most apparent amongst the two male KT Directors who

worked in the 1994 and RG universities (Jack 1994: L3, and John RG: L3): both had clear views about network usage and the circumstances leading up to network degradation and obsolescence. Jack commented that on starting his job, he had been selective in what networks he had kept going because he only wanted to keep the useful ones *"to help me with developing the strategy"*. These were mainly HE networks which he was using as a sounding board to discuss his ideas about developing his department with an established peer-group which he trusted.

This notion of network irrelevance was supported by John who identified that a relationship with a network is a two-way mechanism and that reduction in value can be seen from both the individual's point of view "*I have less need of those networks*" and that of network members, *"most of them have very little interest in dealing with the activities I am involved with in the UK*". Factors leading up to disengagement included time (the impact of time on the currency of the network), distance and constituent changes:

> The other major contribution to my diminished involvement is the changes in people. Many of the people in Silicon Valley that I was connected with have died, retired or changed interests etc. Being so distant with only occasional physical contact, it has been pretty difficult for me to develop new contacts within these networks. JOHN: RG: L3

The networks that both Jack and John describe when they started their roles as KT Directors include a mixture of 'bonding' and 'bridging' networks. Bonding being those which included relationships with people from similar backgrounds, cultures and community interests, and bridging being those which included links and relationships with people who are unlike one another (Oztok, 2013; Putnam, 2000; Woolcock, 2001). However, over time it appears that a re-categorisation of their pre-directorship networks may have taken place in response to fluctuations in their engagement with them with the result that some of Jack and John's bonding networks have evolved into bridging ones and vice versa. In essence, they had become strangers in their original communities whilst becoming members of new ones.

On appointment to their current roles, all of the senior staff (L3 and above) considered themselves to be well connected and believed that their connectivity was recognised and valued by their employers. Connectivity together with network robustness and density does appear to have been a critical factor in recruitment for some staff. For example, Henry (1994: L2) explained that he '*really, really wanted Jack because he was linked to people in the City, he was well connected with big business…."* and because of this, he had been happy to wait for Jack until he was ready to join the university. Similarly, both Amy's and John's 'connectivity' also appeared to be an important feature in their recruitment: John had a track record in securing large scale venture capital funding "*I*

decided who I wanted to be the investor… I had Inner West, Sevin Rosen... these are two big Silicon Valley US investment venture capitalists" whereas Amy who had previously won an award in the film industry suggested that her status and position within the industry had enhanced her employability prospects within the HE sector. As she points out:

> I wouldn't have known that universities were working with companies and external partners but assume one of the reasons I was recruited was because I had direct experience of working in media, and the university needed that expertise. AMY: RG: L3

These examples seem to indicate that those responsible for recruiting these particular KT staff either recognised the value of their social capital or had attributed symbolic value to, and were influenced by, the networks these staff belonged to. It can be argued that the universities were working to a capital accumulation plan reflective of Nahapiet and Ghoshal's (1998) view that social capital creates new intellectual capital and that capital density enables market advantage. In which case for universities, the better connected KT staff are, and the more skilled they are at engaging with networks, the greater the opportunity to leverage these connections for the benefit of the organisation.

6.2.2   Filling Holes & Creating Networks

Network leverage appears to be take place in three ways: first, identifying potential partners for collaborative activities, second, influencing change through contributing to the development of economic policies and third for sharing good practice. In terms of collaborative activities, there was considerable evidence to suggest that one of the roles KT staff are expected to fulfil is that of a network creator where a structural hole or a gap between networks exist (Burt, 2004). Structural holes, according to Burt (2002) provide individuals with competitive advantage as new networks are formed by the process of filling the holes, and *'an opportunity to broker the flow of <u>information</u> between people, and <u>control</u> the projects that bring people together from opposite sides of the hole'* emerges (p.208). For example, when discussing the sort of networks linked to John's place of work he commented that established networks and associations such as the Confederation of British Industry (CBI), the Institute of Directors (IOD) and the Chambers of Commerce were *"O.K."* but there had been a gap in the local and regional business engagement infrastructure and new networks needed to be developed around the Local Enterprise Partnerships (LEPs) if his university was going to be in a position to exploit this potential funding avenue. The result was that he had been *"personally engaged in creating them"*, and appeared to have the power to define the network, lead it and exercise power by approving membership to the network.

Filling in network holes through the creation of new networks was a strong feature in all interviews since skills and connection brokerage was understood to be central to KT

activities and a tangible mechanism through which staff can demonstrate their value to stakeholders. For example, Bob (1994: L6) had an extensive network of contacts working in the HE sector which he had developed over a considerable period of time: he had a reputation for having a *"little black book full of useful people to know".* At the time of the interview for this study he was preparing to leave his role as a Business Development Manager to start a new job as a Research Development Manager and was in the process of actively 'repurposing' his contacts. He was doing this by identifying those who had existing connections to his new employer (specifically asking them who they are working with, what are they working on and the challenges they are facing them so that he could start to plan how he could help). He was also identifying those contacts that had the potential to add-value to the new employer but required an introduction, and was setting the scene for future initiatives to present to his new employer. The aim of the repurposing activity was to promote his networks to his new employers, and by default, demonstrate the value of his connectivity.

> It's looking at links and appropriate opportunities. Some have been stored for up for years e.g. Mark who is now a consultant but was in Formula 1 at Ferrari, Jaguar/Red Bull and recently Williams (Automotive) was at Queen's…. So I can link him with Brian who was at Imperial in (Aero). Brian recently met Patrick (my new boss) at an event. I now need to get Brian in contact with Mark to do some business. See how it spreads?   I can do that with all my networks. So the themes start to disappear as the network gets larger. BOB: 1994: L6

For Bob, network engagement appeared to be based on the notion of general reciprocity which was both advantageous to him and to his network colleagues. Through drawing on his own research experience and match-making activities he was able to identify and connect individuals' research strengths and synergies, and by doing this he was able to identify new research funding avenues based on a wider research base and support 'his' researchers with applications. Reciprocity for Bob's contacts was the opportunity to participate in collaborative initiatives, access funding avenues which previously may not have been open to them and expansion of their overall networks and connectivity. Bob's network practices enabled him to contribute to the development of new areas of research through a position of leadership and be seen to be a key 'actor' in process of securing funding. Part of this was his ability to access new networks, and to modify his existing networks whilst divesting himself of redundant contacts which appears be reflective of Coleman's functional definition of social capital in that it is a relationship of multiple entities which can *'facilitate the certain actions of actors'* (p. S98).

Whereas Bob mainly used his contacts for income generating purposes, Rachel created and participated in networks that she could use as instruments to *influence social change*. Having previously worked for local government she had accumulated social capital through facilitating dialogue between various government agencies such as the Greater

London Authority and local communities, this, she considered to be the most effective and transparent way of feeding back into policy development.

> Big part of my role was to try and build infrastructure by having communities of interest and networks of interest across different localities. RACHEL: Sp_K.E. Network: L4

Although her example of social capital accumulated under the auspices of community engagement might appear in line with Putnam's (2000) stance on civic engagement, it is also an example of Bourdieu's capital accumulation and personal advancement as a result of 'interested' activities. For example, all the experiences, know-how and resources she accumulated over time about social policy, standards of living and self-help communities provided her with a diverse network with rich veins of dense social capital. She has been able to draw upon these in her KT role and thereby position herself as an expert in social and community engagement within her university. Her employers in turn have benefited from her knowledge and connections within UK Government and have been able to place themselves in a position of influence.

Within the study, I identified two main types of KT network: those which are used to exert influence, and those which are used to share practice. Through networks of influence (which incorporate Rachel's experiences of communities in interest), KT staff are able to strengthen their personal and institutional position. For example, the response to the Dowling (2015) Review of Business-University Research Collaboration by the SETsquared partnership is a joint lobbying effort by this network of universities which, if taken into consideration by the review panel, may be result in policies which are more advantageous for them. Having said this, the influencing practices that KT staff exhibit in this study are not unique or unusual and are similar to those described by Lewis (2006) in her study of personal and positional influencing within the medical profession on healthcare policy.

KT networks of practice and Wenger's (1998) communities of practice appear to have similar underpinning philosophies as indicated by Lena's (1992b :L6) experiences:

> I very frequently turn to my colleagues at Teesside and Kingston and vent about particular issues that I might have and is there a solution and they're happy to oblige, in the same way that someone comes to me and asks me for advice on a particular thing, again I'm happy to oblige. There are some people who are very giving, there are some people who will keep their cards closer to their chest, and that's fine. I don't know if that's based on their institutional perspective or whether it's them as an individual. LENA: 1992B: L6

For Wenger '*Communities of practice are not intrinsically beneficial or harmful'* and the position of the individual and the meaning of his or her practice is a negotiated activity by the community (p85)*.* In a network of practice, there is some sharing of practice but positions do not appear to be negotiated; instead *'dominant factions appear to impose*

the legitimacy of their domination in the pursuit of advantage and self-interest' (Bourdieu, 1979: 81). For example, John (RG: L3) appeared to be highly selective in identifying members to participate in a network to access Regional Growth Funding and by being the convenor of the new network he was able to ensure that he and his institution would be in a position of leadership and authority. Issues in KT practice, power and position are discussed in chapters eight and nine.

6.2.3 Selection, Rejection & Loss of Social Capital

Although social capital may be considered integral to KT, there were indications that some staff were being selective in which elements of their social capital they were willing to use within the workplace. For example, Daniel (RG: L4) whose remit was predominately commercialisation appeared to be protective of his contacts even if they could be of benefit to the university. All the indications were that he would use these resources sparingly and would distinguish between those connections which he considered were high value and at risk if the university got involved, and those which were of lesser importance and safe to be shared. For example, during Daniel's interview he mentioned that he had had meetings with senior members of Government Offices and C.E.O.s of multinational corporations at times but had not let his employer know because these were 'his contacts', they originated from his previous employment, and were nothing to do with his current role.

> So, you know, for example, last week I met with Lord Green, the Trade Minister. You know I have met with very senior politicians. I have met with the CEO of HP in the last year, the CEO of Logica. I can operate at that level. In the university, you know, I am treated as a no-body. The problem is I have an entirely different status outside the university to the status I have inside the university DANIEL: RG: L4

Network restrictions between the individual and the institution were not solely the domain of commercialisation staff. Sarah, a Business Development Manager (1992b: L6) commented that one of her colleagues had asked to have his name and picture removed from the university's website because he did not want his non-university contacts to know where he worked since it was not as prestigious as his contacts might assume. Whilst anecdotal, the point Sarah was making highlighted the importance of the way in which capital is accumulated, and how this affects the perception of its value by network members, and how this can have a negative impact on an individual's image and status within a network.

Having the right type of capital which has been recognised and validated by the right type of network featured heavily in Jane's interview. With a science based doctorate and a track record of business development and technology transfer in some of the 'best technical institutions in India', she had tried and failed at moving to a similar role in the UK:

> I did try [for a technology transfer role] and everyone I went to they said I've got an excellent CV, I've got excellent experience but there are local people who understand local business, who understand local texture and I always lost out to the local people…. But then being a person who doesn't know the system here, who doesn't understand the policy, who doesn't understand and who doesn't have a network, I had a major disadvantage JANE: 1994: L5

Whilst Jane positioned her rejection as a reflection of cultural differences and poor connectivity, her participation may also have been impeded as a result of her inability to provide credible social capital which was recognised and valued by her technology transfer peers in the UK with the result that a process of misrecognition had occurred. (Bourdieu, 1979; Bourdieu, 1989; Fraser, 1995; Skeggs, 2001). That is, her expertise and value was overlooked by her UK peers by a perception that Asian technology transfer activities are subservient to Western ones (in terms of the skills and competences of technology transfer staff and deal complexity).

Whereas Jane suggested her stagnating career was the result of exclusion and limited opportunities to accumulate social capital, Amy's experience appears to be one of career advancement in the face of capital depreciation and loss. Amy had been recruited to a pre-1992 leadership role to establish a central enterprise department. Previously, she had worked in the film industry and had coordinated several strategic KT initiatives for Research Councils UK. At the start of her current job her networks were extensive, diverse and multi-layered with high value contacts in business and government which had come about because of the nature of the film industry; in effect, it was *"just one big network".* In Amy's interview three factors highlighting the fragility and transient nature of networking were raised. First, the need to be actively engaged in the process or risk losing networks and connectivity, second a requirement to hand over networks to others to take forward (usually in response to changes in an individual's job role) which risks compounding network disconnectivity, and finally, the impact that the location of a role within the institute has on capital accumulation and dissipation:

> I started taking her [a junior member of staff] to meeting with contacts that I had, the ones we work with most and slowly transferring the relationship to that office because I can't do it anymore, and that's the one thing about this job. I don't have the time to do it [network]. The job is much more internally facing. I'm losing relationships. That's what worries me. I worry about losing my network. AMY: RG: L3

Amy was not alone in raising concerns about the loss of networks due to the lack of opportunities to *'get out of the university'.* For some middle and senior KT staff, maintaining the balance between internal and external visibility appeared to be challenging, with the result that opportunities to enhance personal connectivity (which may have been attractive at the time of their recruitment) were not realised and a casualty of conflicting priorities.

In terms of funding for commercialisation activities such as patent exploitation and investing in R&D products, there was little evidence to suggest that the networks KT staff bring to the academy could fulfil this role. Instead specialist commercial networks appeared to be created once staff were in post and often in response to structural holes. There was some evidence of new bespoke commercial networks being initiated by members of the Vice Chancellor's leadership team which were then handed over to KT staff to continue. So like the organisations in Doherty and Dickmann's (2009) study on symbolic capital and international assignments, some universities' management do appear to be actively engaged in assisting their KT staff to develop the 'right kind' of social capital by introducing them to networks and contacts.

6.3   Cultural Capital

Cultural capital refers to the physical and non-physical forms of knowledge, educational credentials, and skills. Bourdieu suggests that cultural capital exists in three states: It can be in '*long lasting dispositions of the mind and body'*, it can be objectified in the form of cultural goods such as books or it can be institutionalised in the form of educational qualifications (Bourdieu, 1986: 243). Throsby (1999) further defines cultural capital by that which is tangible in the form of cultural heritage (buildings and works of art) and that which is intangible (beliefs, traditions and values linked to works of art). In the KT arena cultural capital is the specialist knowledge required for the exploitation of academic know-how together with credible academic capital which validates the position of the individual within the institution.

Credibility was important to all interviewees and was understood to mean that their expertise was valued by the academic community and that the skills that they believe they brought to the academy had been recognised. It appeared that once credibility had been legitimised, a form of academic empathy occurred whereby staff were able to perform their duties with greater confidence without needing to further prove their value. Notions of credibility appeared to be based around tensions between two elements: career capital and academic capital.

According to Mayrhofer et al (2004) career capital is based on the recognition and legitimatization of an individual's skills, competences and experience. Both its internal and external value in a field can create advantage through career progression opportunities since it implies an expertise and an ability to *'contribute to the production of goods and services'* (p.735). Whilst both internal and external elements were apparent in the study, Mayrhofer's work does not readily explain why some KT staff only have to be what they are*,* whereas others have to prove they are of value (Skeggs, 2010). I suggest this is more likely to be the result of judgements taking place within the academy which

assess the value of an individual's cultural capital and decide whether a case for credibility has been established. This is reflective of Bourdieu's '*dominating factions'* which *'tend to set cultural capital – to which it owes its position – at the top of the hierarchy of the principles of hierachization'* (Bourdieu, 1989: 81).

Although Bourdieu refers to academic capital in many of his writings, there is a lack of clarity about what he meant by this term other than links between educational credentials and positioning individuals within the hierarchy of academia. The definition of academic capital for this study draws on the work of Prejmerean and Vasilache (2008) who consider academic capital as a *'transformed instance of intellectual capital'* and comprises '*human capital, relational capital and process capital'* (p.130), and Edvinsson and Malone (1997) who define intellectual capital is *"the possession of knowledge, applied experience, organizational technology, customer relationships and professional skills that provide the firm with a competitive edge in the market"* (p.44).

Just as credibility exists at varying levels within social worlds, what is credible and meaningful to one individual may not be the same for another; therefore, concerns and issues about credibility amongst KT staff were also not uniform. It appeared that gender, private and public sector experience and the type of universities KT staff work in influence their understanding of their credibility within the academy.

In terms of gender, credibility emerged as an area of concern for women interviewees with minimal private sector experience from research category 3, 4 and 5 universities (see Chapter 4, section 4.1, for definitions of (3) squeezed, (4) modest and (5) embryonic research institutions). Women who had entered the KT arena through an HE administrative route and were essentially 'home-grown' appeared to be more concerned about being academically credible than those who had a mixture of private and public sector experience. In all cases, the interviewees linked credibility with educational qualifications, ideas of equality, status and acceptance. For example, in both Liz and Lindsay's interviews, discussions around credibility suggested a general assumption that educational credentials were a mechanism to earn respect and secure academic engagement without which the ability to do their job was impaired:

> I think definitely on the academic side, further academic qualifications would definitely make a difference to what people listen to you about and how much they respect you LINDSEY: 2005: L6

> It's been really, really, hard because I haven't got a degree LIZ: PG: L4

Although both Liz and Lindsey's comments are about the language of exclusion and the difficulties of becoming a member of an exclusive club, it can be argued that they are reflecting their interpretation of the academic world based on ideas and beliefs that have been influenced by the symbols and '*specialised language that academia uses to confer distinction and value'* (Webb, Schirato and Danaher, 2002: 130). In contrast to this, women from private sector backgrounds appeared to be more confident about their status and credibility. For Sarah, (Business Development Manager, post-1992) higher level qualifications such as PhDs were the currency of Higher Education and a product which the system had to believe in:

> I think it is something seen as important to have within Higher Education Management, because that's their product, they kind of have to believe in it SARAH: 1992B: L6

For her, credibility was not based on academic credentials but on tangible outputs – *"It's the ability to deliver that shows you are credible".* This seems to suggest that there is greater credibility in meeting academic expectations through delivering a project on time, introducing them to a potential collaborator, and /or sourcing and securing funding. The latter potentially having the greatest 'credibility rating' of all since this is more likely to have a direct impact on the academic.

Similarly, Beverley, a Director within a PSRE did not express any concerns about her credibility *"I am lucky…. I chose not to follow an academic career"*. She considered herself an equal because she had been an academic who had chosen to leave a research career and move to a senior role in a non-research environment. She commented that she had spent several years working for a multinational biosciences company which placed her equal or above a number of academics who had limited and less wide ranging experience compared to her. As a 'boomerang' *(See para. 7.4 KT typologies)* with a track record of working across the boundaries of academia and industry, she was confident that her academic and career capital provided her with an acceptable identity to both parties.

Liz's limited confidence in her status and standing within the academy appears to be exacerbated by the manner in which she has accumulated career capital. For her, the legacy of being 'home-grown' is evident in her comments relating to her career progression within the university:

> I've worked my way up in one institution so there are always people who that remember me when I was in an administrative role. The previous DVC for Research said, Liz, people will always remember you as an administrator. That's your problem and why you will never get on LIZ: PG: L4

A potential impact of working in a role which is overshadowed by career legacy issues or a perception of capital paucity is staff undertaking activities to gain capital and status

(Bourdieu, 1990b; Webb, Schirato and Danaher, 2002) This, according to Webb, is a form of *'gambling for capital'* since success is not guaranteed (p.24) and in this study it appears to be based on an unproven assumption of homogeneity within credibility constructs. That is most, if not all, KT staff linked broader and richer connectivity with securing personal credibility both within and outside the institution. For example, concerned about demonstrating value and becoming more credible, Liz embarked on a programme of capital accumulation through undertaking a series of senior voluntary roles in regional and national business associations and networks. The aim of these profile-raising activities was to raise her visibility, strengthen her networks and reinforce her 'business' credentials in and outside the university.

The gamble was two-fold: First, she had to ensure that her actions were not perceived as profile-raising purely for the purposes of self-promotion at the expense of the university and second, that any capital gained was seen to be of value by the university. At Vice-Chancellor level, Liz's heightened external visibility has resulted her being asked to represent the university at a number of Government meetings especially in the area of regional economic development. However, on another level, the strategy does not appear to have been as effective in that she still believes that despite her increased externality, she still has to prove that she is capable of delivering value and securing academic buy-in. When reflecting on various roles, she suggests that her lack of educational credentials together with limited private sector business experience has made her job that much harder since she has had to learn by doing whilst speaking in a position of authority in both internal and external situations:

> It's been harder for me because I haven't come to a [directorship] with any previous experience; I've worked my way up. LIZ: PG: L4 (Subject: University role)

> If you can say I am a professional dealing with businesses as part of a national network that has credibility …. You have to have credibility. You know when I go on these committees I can't just say I head up a business unit. I don't think that gives me credibility with business LIZ: PG: L4 (Subject: Business & Community role)

Whilst Liz consciously re-engineered her credibility status according to her audience, Lindsey appeared to enhance hers by default. She believed her internal credibility had been improved by external validation of her field expertise as a result of winning a regional award for her work on student enterprise and employability, this, she suggested went some way to mitigating weak academic capital.

Compared to the female interviewees, the male interviewees did not express many fears or concerns about demonstrating worth. Instead they tended to focus on their deal making skills such as the size and complexity of deals for securing academic engagement. This apparent confidence in their cultural capital (career and academic capital) suggested a

strong sense of self-worth and belief in their abilities. For example, both Andy and Nick (Business Development Managers, STEM) commented that their ability to commercialise academic outputs was based on the skills and experiences gained through running their own companies:

> How do I know it is valuable, I dunno, I suppose I've got… I'm quite lucky in my private sector background - Because I've run a company. NICK: 1992A: L6

> I would say if there's one thing I am good at its working with companies. Companies will accept ne with open arms because I have worked in industry, because I have run my own business. I can walk around a company and I am genuinely interested in what they are trying to do, and I genuinely understand what they are trying to do i.e. make money. I understand ANDY: RG: L6

That private sector work experience can be translated to positions of power and authority within the academy was evident in Peter, Daniel and Jack's interviewees. All three men had significant private sector experience (more than 15yrs private sector experience in senior business development and commercialisation positions), all three had clear understandings of the value of their cultural capital and all three had positions of power whereby they could influence institutional policy and working practices. Peter expressed his cultural capital in terms of expertise boundaries, that is, the technician and the relationship manager:

> I am not a technician (Academic)… the University has plenty of those… I don't have a PhD. My expertise is in matching … is translating and matching and advising how to take that technology out into the wider world. If I hadn't been in the wider world I would be less capable of doing that and I certainly wouldn't be adding anything to the party. PETER: 1994: L4

Daniel considered that the value of his capital was his sales and business development proficiency which provided his employers with the skills required to maximise income streams:

> I forced my way into the sales side and then found, actually, that it was extremely difficult and it took me two years to become proficient at sales. But I then did get the hang of it and I actually got very, very good at sales. So I ended up being a very high performance sales person and I got moved into major account management and ended up doing deals of, you know £100 to £150 million. DANIEL: RG: L4

Whereas John suggested that the value of his cultural capital value was his track record in securing venture capital as he explained, '*I don't have a PhD… I worked for Stanford University; I went out and raised several million dollars in venture capital for what becameT3plus… a high capacity data communications company which was eventually taken over by Hewlett Packard'.*

The study appears to support the theory that capital can influence success and credibility in a role. The value of KT staffs' individual cultural capital and thereby position in the university (status, acceptance and credibility) is linked to both individuals' and institutional perceptions and understanding of career capital and academic capital (Barron and Markman, 2000; Doherty and Dickmann, 2009; Iellatchitch, Mayrhofer and Meyer, 2003;

Mayrhofer *et al.*, 2004). For those staff with weak cultural capital, there was evidence of planned capital accumulation strategies to raise and strengthen credibility and reinforce academic buy-in through demonstrating worth and value.
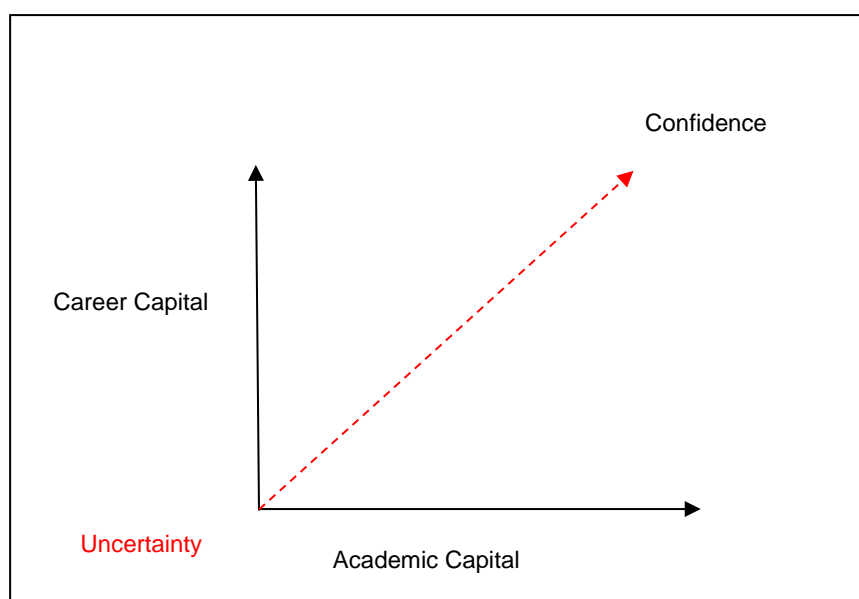
Figure 31: Relationship Between Cultural Capital and KT Staff's Confidence

For those staff with strong career capital, the absence of or limited academic capital does not appear to detract from their sense of status and their confidence in their understanding and belief in the value they bring to the academy (See Figure 31). Furthermore, this confidence is reinforced by the symbolic capital conferred by the academy. This is based on institutional understandings of the value attributed to KT staffs' career capital, and is primarily based on assumptions about individuals' skills, connections and experience; all of which may be in short supply or necessary for political and or commercial advantage. This is reflective of the definition of symbolic capital provided by Webb, Schirato et al:

> Symbolic capital is a form of capital or value that is not recognised as such. Prestige and a glowing reputation, for example, operate as symbolic capital because they mean nothing in themselves, but depend on people believing that someone possesses these qualities(Webb, Schirato and Danaher, 2002: xvi)

6.4 Symbolic Capital

At the beginning of this thesis, I suggest that the problem with KT staff is the freedom and authority which some of them appear to have in operating, and in some circumstances in influencing, research direction and in commercially sensitive areas. Bourdieu understands this sort of vested power as a feature of the *Mysterium* of the *Ministerium,* which is the mysteriousness of practice which results in assumptions by others of an individual's expertise:

> How does the spokesperson come to be invested with the full power to act and to speak in the name of the group which he or she produces by the magic of the slogan, the watchword, or the command, and by his mere existence as an incarnation of the collective? (Bourdieu, 1989: 23)

Or as Levi-Strauss puts it the *'fabulation of an unknown reality'* by the sorcerer and his magic which enables power allocation based on myth and supposition (Levi-Strauss, Jacobson and Schoepf, 1963: 1). Amongst KT staff, power and authority appear to be linked to symbolic capital which has been sanctioned and realised to create a plurality of identities, some of which are the result of the academic collective, and some of which are self-determined actions. In the study there is evidence of a tension between three types of symbolic capital, two of which reflect Bourdieu's theoretical propositions about converted and conferred symbolic capital (Bourdieu, 1989) and a third which emerges from this study which I have named as self-determined symbolic capital. Whereas converted symbolic capital is evolutionary and time linked, and conferred symbolic capital is vested by others on individuals, self-determined symbolic capital is a product of symbolic efficacy. This is an individual placing specific emphasis (and thereby higher value) on an aspect of their experience which might not ordinarily be of note or considered to be of value by others.

Capital conversion occurs as a result of time through loss or changes in individuals' connectivity (degradation), outdated skills and qualifications (obsolescence), and field modifications (Bourdieu, 1986; Brush *et al.*, 1997; Firkin, 2003). Social capital degradation was apparent in several reflections and commentaries about past activities and connections during which it became evident that some networks had remained 'live', whilst others had become obsolete but had gained a symbolic value. When reflecting on her career trajectory Lena highlighted that her past connections with One NorthEast (successor to the North East of England Regional Development Agency), had helped her develop expertise in bid writing, project management, and a reputation of project delivery which she had then been able to highlight when she was looking for a new job:

> All those skills that I picked up in liaising in those very early days with that regional project of sorting out HR, and sorting out finance, sorting out processes, although operational stuff is very much claim to the strength that I felt that I could bring to the role. LENA: 1992B L6

In contrast to this, Amy's experience appeared to be two-fold. First, social capital degradation was occurring despite attempts to retain links with her creative industries networks. The issue being the internal nature of her external job, and second capital obsolescence because of changes in the field (skills and new ways of working) resulting in her commenting that she is would find it hard to go back into her field. Despite this her career capital remains symbolically valuable to the university since she has considerable experience of the AHRC and the creative industries.

The manner in which *conferred* symbolic capital is imparted both inside and outside the institution can be vertical (from a senior or operational level that is a top-down or bottom-

up approach) or horizontal (peer-to-peer across professional services, or peer-to-peer between academic and professional services) depending on how their experiences and knowledge are understood and valued by their peers and managers. In Holt's (2012) study she suggests that the symbolic power invested onto young women by parents and teachers in terms of being smart, and going somewhere, resulted in a conferred identity which enabled socio-economic mobility. A similar situation of conferred identity is present in the study amongst the post 1992 institutions and appears to be based on the perceptions and understandings of the individual by institutional leadership. This has resulted in a disconnect between what some KT leaders believe their staff have in terms of abilities and skills to undertake specific roles and an assumption that because staff may be working at the university-business interface, they have business-relevant experience whereas this may not be the case.

For example, when talking about the distinctiveness of KT staff, Marcus, a Vice Chancellor (post 1992) appeared to contextualise his team as marketers who were well connected relationship managers able to negotiate deals. He uses the metaphor of 'barrow boys' to explain their role and position within the university:

> It's useful to have people you can talk to who act at the interface and can help direct and shape the discussion... barrow boys are very important people. Barrow boys don't know anything but they know the people who do know it. The role of the barrow boy in professional organisations is a very important role because otherwise you can waste a lot of time hunting around yourself. The GP is the barrow boy between the old person and the consultant. So there's no reason why you shouldn't think you apply barrow boys between the world of industry or those looking for solutions and those with expert knowledge. MARCUS: 1992B: L1

The data for Marcus's university, however, suggests a different scenario. Of the five interviews, three staff had worked in the private sector, one for 3 months (insurance administrator), one for 3 years (initially as an administrator in facilities management and later as an expeditor in an engineering firm) and one for 8 years (HR recruitment manager). I suggest that these types of roles may not readily translate into the requirements of a barrow boy and that a disconnect of understanding has occurred because of two factors. First, Marcus is so senior that he is unaware of the history of the staff in the department so he is basing his view of distinctiveness on his understanding and interpretation of KT roles and requirements, and second that he is conferring symbolic value to private sector work experience regardless of work relevance. The challenge of symbolic capital conferred this way is that the staff may be expected to undertake tasks (along with the necessary power and authority) without having the connectivity, skills or experience required to be successful. In essence, they are working under a conferred identity which may be based on supposition rather than relevant experience.

Symbolic capital conferred horizontally by peers appears to be linked to colleagues and individuals that are dominant within a field. For example, Jo's comments about her colleague were primarily about his hierarchical position, his connectivity and ability to inform government policy:

> Look at Ed. It's the Government that call him up, there are people that always want him to talk and ask him to give a view on things JO: PSRE: L4

When examining Ed's career capital, it appears that his reputation and power stems from the early days of the current KT programme when he was involved with policy development at national level and was able to speak from a position of authority at local level.

Self-determined symbolic capital is the conscious conversion of capital by the individual based on symbolic efficacy and their understanding of the usefulness of their capital. An example of this is the *Curriculum Vitae* in which individuals have to answer a series of questions, present and align their working history (social, cultural and symbolic capital) against a job description. At this point they are identifying the items they believe the recruiter holds valuable and is a process of demoting less attractive elements whilst promoting others. Self-determining capital value was evident in the interview with Anne, a Director (2005). After a couple of years running her own consultancy firm she decided she wanted more job security and applied to her local university:

> The interesting thing about the job was that the advert for my post could have been written for me. If someone had actually sat down and looked at my CV over the course of the last 12 years and actually put in on the person specification what they wanted, they could have actually taken my CV and turned it into a personal specification… Quite frankly I bigged it (her application form) up a little ANNE: 2005: L4

The notion of *'bigging it up'*, focusing on the capital which she believed would strengthen her employment position was in strong contrast to her understanding of her manager's experience who, she suggested, could rely on a history of having worked for HEFCE and being been involved with a number of key HE networks and working parties:

> They [the University] wanted him. He had been working on a placement with them. They had a project they needed to get signed off by HEFCE, and they needed HEFCE presence to do it ANNE: 2005: L4

6.5   Theorising the findings on capital and identity construction

According to Castells (1997) *'identity is people's source of meaning and experience'* (p6) and while the workplace is an influence in identity construction (Côté, 2005), it is only a part of a complex configuration which includes all experiences, beliefs and influences that an individual is exposed to during their lifetime. Identity is the point at which individuals' fields, habitus and capital converge. It is dynamic, absorptive and reflective of the circumstances that an individual finds themselves in at any given time. Whilst Bourdieu's (1985a; 1985b) theories provide some insight into how an individual's capital informs their

position within the social and economic structure within which they function, they do not readily explain the influence of external capital (both from the institution and other collectives) on identity construction amongst KT staff within this study. This, I suggest is influenced by tensions caused by mis(recognition) of the individuals' capital value by the academy, and mis(recognition) of the institution's capital vacuum (that is gaps in knowledge, expertise and skills) by the individual. However, I suggest that when capital congruence occurs, a collective unifying understanding of what KT is (and is not) for the institution will emerge.
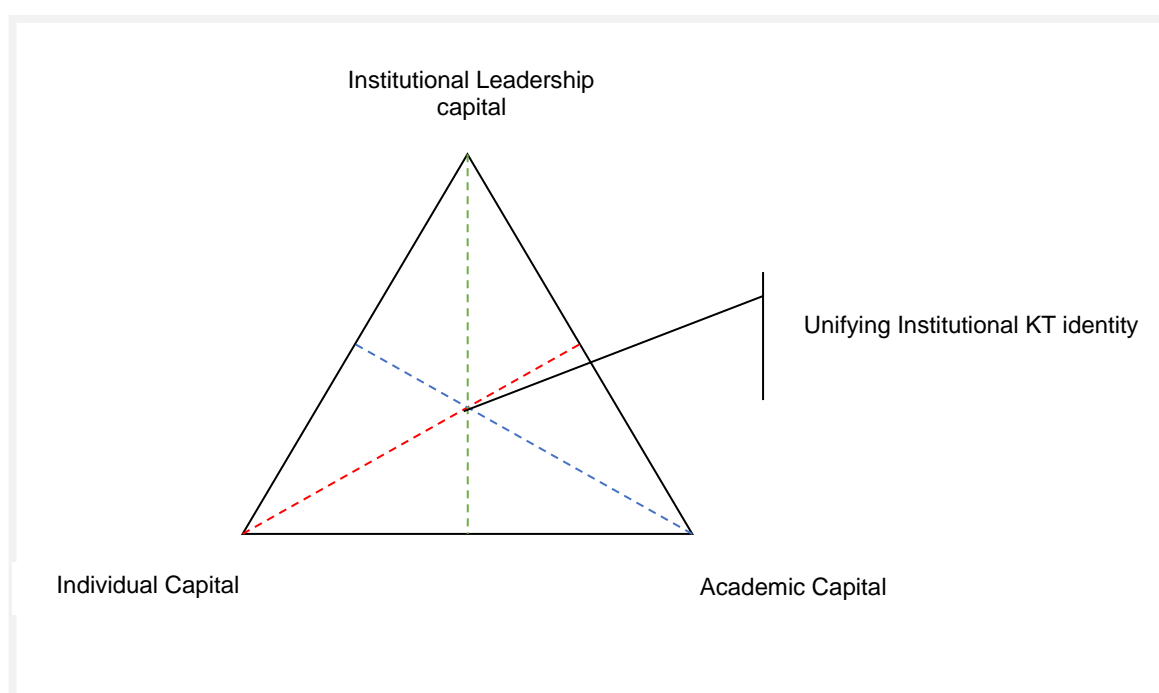
Figure 32: Unified Institutional KT Identity

The concept of a unified identity for KT is loosely based on the work by Burton Clark (1998) who, when commenting on the University of Warwick's resurgence as an entrepreneurial university in the 1990s, suggested that an idea supported by the correct processes and structures can, over time become an institutional belief and thereby initiate cultural change. "*What may have started out as a simple idea"* he suggests, becomes "*a self-asserting shared view of the world offering a unifying identity."* (p143). Similarly, my emerging theory for the role of capital in KT identity construction suggests that where individual capital, institutional leadership and academic capability transect, the result will be a unified institutional KT identity (See Figure 32).

Within the theoretical framework:

- *Individual Capital* includes the way in which an individual interprets and understands their role, their location within the academy, their language and ways of working and

is the sum of capital assets (social, cultural and symbolic) which are available for exploitation such as connectivity, credibility and convertibility;

- *Institutional Leadership Capital* is understood to be the belief and expectations of managers together with the overall positioning of the KT agenda within the Institution; and

- *Academic Capital* is understood to be the intellectual assets of the academic community and consists of two elements. First, it is the established academic capability on which all KT activities are based, that is, the know-how and IP available for exploitation, and second, it is the understanding and expectations that academics have of KT staff, specifically, their roles, the value of their capital and the credibility they attribute to them;

- *Unified Institutional Knowledge Transfer Identity* is multifaceted and incorporates a plurality of different roles and agendas.

6.6   Conclusion

In this chapter, I postulate that together individual capital, institutional leadership and with an existing academic capability determines identity construction within KT staff. Individual capital consists of three key elements: social, cultural and symbolic capital. These appear to influence credibility and validation within the academy, and where these are weak or limited, staff are prepared to embark on capital accumulation activities to reinforce and validate their position.

In terms of social capital, there was evidence to suggest that it is not the networks that staff have when they enter higher education which are of primary value but their ability to utilise networking skills and potentially leverage advantage in the future. I have suggested that cultural capital is wider than Bourdieu's educational credentials framework; instead it is a combination of both career capital (expertise and position in the field) and academic capital (skills and educational credentials), with staffs' confidence in their position within the academy appearing to be linked to the strength and depth of each element.

Finally, I have identified that for some staff moving into higher education has resulted in capital degradation and obsolescence because of the 'internal' nature of supposedly 'externally' facing roles. Whilst this can result in beneficial symbolic capital, it can also limit career progression opportunities due to the loss of position within the field. In the case of symbolic capital, I have suggested that conferment of this capital based on suppositions can result in the allocation of a false identity (which is like the inauthentic identity described by Westwood and Johnston (2011)), and may lead to failure for staff if

they do not have the necessary connectivity, skills and experience required to be successful in a KT role.

Having considered the assets that KT staff bring to the academy, in the following chapter I focus on staffs' understanding of the KT field and the influence of context and location on their operating space.

CHAPTER SEVEN

FIELD AND CONTEXT

7.0   Introduction

In the previous chapter, I explored the types of capital that KT staff bring to the academy and the tensions that exist between individual and institutional recognition and (mis)recognition of its value. In this chapter, I move the focus away from what staff bring in, and focus on their understanding of the space in which they operate. First I explore their understanding of the knowledge KT   field or *'arena'* (Bourdieu, 1984: 223ff; Bourdieu, 1985a; Bourdieu and Wacquant, 1992: 97; Fligstein, 1999: 2; Fligstein, 2001: 5; Thomson, 2008: 67). Second, I identify synergies and discords between the individual and the institution. Third, I reflect on individuals' drivers and motivations for working in a KT role and suggest a typology of KT staff. Finally, I draw all the strands together and suggest that individual and institutional dispositions inform understandings of field and context, and therefore define the space in which KT staff operate.

7.1   Field

The notion of the field is a fundamental to Bourdieu's theories on power and positioning in society. Society, he suggests, consists of multiple knowledge fields which are '*structured spaces of positions'* (Bourdieu, 1993: 72) each with their own set of practices and regulations that are reflective of the power relations which exist between the various agents in the field. Webb, Schirato et al (2002) define a field as *'a series of institutions, rules, rituals, conventions, categories, designations, appointments and titles which constitute an objective hierarchy, and which produce and authorise certain discourses and activities'* (p.22). Thomson (2008) uses the analogy of the football field to explain Bourdieu's field with its regulations, key players and positions:

> Fields are shaped differently according to the game that is played on them. They have their own rules, histories, star players, legends and lore. (Thomson, 2008: 69)

Fields are not '*objective, predetermined structures'* but are the '*processes of social construction and meaning creation, wherein social order is negotiated* (Hardy and Phillips, 1998: 218). They are not benign areas of complacency; instead they are bounded by name, by regulations, by practice and are subject to constant change, and according to Friedland (2009), reflect the *'logics of domination'* (p.888). Bourdieu envisages cycles of replenishment, renewal and reconfiguration occurring in response to a struggle between the existing dominant faction who he calls the agent, and the new-comer. He suggests that:

> In every field we know we will find a struggle…. Between the new-comer who tries to break through the entry barrier and the dominant agent who will try and defend the monopoly and keep out competition (Bourdieu, 1993: 72).

And that the dominant agent can do this because he or she has accrued sufficient power through capital accumulation to *'impose upon other minds a vision, old or new'* (Bourdieu, 1989: 23). This, I suggested earlier (*see Chapter 6*) is how capital in KT had manifested itself amongst the interviewees in that the perceived value of the capital they had influenced their position within the academy. As newcomers, they were either consciously or unconsciously seeking to secure a position of dominance based on a perception of their value-added expertise.

7.2   Field constructs

My findings appear to support the work of Lockett, Kerr et al (2008) in that there was no unanimous definition of KT amongst the interviewees. Instead there were descriptions around the processes and functions that are required to add-value to existing and/or potential products, services and know-how. This, I suggest, is because KT is a process that has become a field constructed through activities drawn from multiple fields. It has emerged as a result changes in the field of HE caused by shifting funding and policy regimes that has created a space for KT to exist as a field in its own right. For Levey and Scully (2007), field struggles such as the one I describe above reflect the tensions which exist between the need for stability and strategic agency within a field:

> Fields viewed as networks of actors within a contingently stable alignment of material, organizational and discursive forces. These elements mutually reinforce each other to enhance field stability, yet tensions with and between them open space for strategic agency (Levy and Scully, 2007: 15)

KT in this study appears to draw upon five core fields where the source or product for exploitation is located whether this be a research output such as a vaccine, a bespoke teaching programme or a student for a placement opportunity. These core fields comprise teaching, research, careers and employability, enterprise, and technology transfer (See Figure 33).

The space in which the field operates is explored through three elements. First, the philosophical space which is the positioning of knowledge transfer within the Institution's mission and the influence this has on peoples' understandings of the field. Second, the physical space which is where services and staff are located and third the professional space where field practices are located. Practice in the field is discussed later in Chapter Eight (*The practice of knowledge transfer*)

7.2.1   *Philosophical space*

Philosophical positioning is value-laden, time-linked, subject to political machinations (both internal and external to the field) and field dynamics (Grenfell and James, 2004: 510). The key philosophies identified included:

1. KT as means to enable knowledge creation through teaching and research;
2. KT as a mechanism for institutional income generation and diversification; and
3. KT as a contributor to socio-economic prosperity.

Some of the interviewees appeared to be unclear about the scope and purpose of KT, and how it fitted into their institution's overall mission despite the philosophical changes which had occurred in all the Institutions over a period of time:

> We seem to be a bit of a dumping ground for things… not dumping ground but things the university doesn't know what to do with. AMY: RG: L3

Similarly, at institutional level, there was some evidence to suggest interviewees with senior roles were also experiencing difficulties with field articulation despite being responsible for leading this area of activity and in some cases orchestrating strategic re-positioning. From simple issues, around basic terminology such as *"I never know whether to use the phrase knowledge transfer or knowledge exchange"* (MONTY: 1992A: L2), to more complex rationalisations whereby KT is viewed as a movement which has gained a life of its own, the lack of a coherent and agreed understanding of the field of KT appeared to be problematic:

> I think knowledge transfer is a construct designed to lump together a number of activities which have largely been prevalent, always been prevalent in universities but it's a way of bringing them together to (1) define them a little better and (2) enable a funding stream to be established which has some political benefits around the time of the Lambert Report and its gained a life of its own. MARCUS: 1992B: L1

The term knowledge transfer is also troublesome: it is one that is used in HE, which assumes an agreed understanding, and yet my research appears to suggest this is not always the case. It is open to both individual and institutional interpretation and because of this, as a term it is inherently ambiguous:

> I hear this word [knowledge transfer] but have no idea what it really is. What is it? When I press people on it, when I push the dough boy that's pretty squishy, the best when I push is well, it's licensing. JOHN: RG: L3

> For me Knowledge transfer is a big term which is part of a strategic game where you can use knowledge to derive competitive edge, you can use knowledge to make more money. You can use knowledge to do radical innovations. You can do big, big, big projects. You can scale it down and you can say you are doing CPD – it is part of knowledge transfer, you're educating people, you're transferring best practices and sharing – that's part of knowledge transfer. JACK: 1994: L3

> Knowledge transfer is people. ED: SP_K.E. Network: L1

> I think there are a whole lot of activities which range from consultancy through civic engagement, through exploitation of intellectual property, which have happened more or less with universities. And knowledge transfer has been a useful way of helping draw those activities together, as a term. Like a lot of things, it has some value, it also has some fuzzy edges. MARCUS: 1992B: L1

In addition to definition opacity there was also evidence of dissonance within institutions between KT staff and the senior management team. For example, when considered together Mike, Anne and Ingrid's comments revealed the different interpretations that can

occur to the philosophical stance underpinning KT activities within a single institution as strategic visions are implemented at operational level:

Strategic position: - Here there are different understandings, but the main understanding is the main funding stream with it is HEIF. MIKE: 2005: L2

Implementation position: - Knowledge transfer in a university like us is about regional economic development for small businesses. ANNE: 2005: L4

Operational position: - Possibly part of my frustration here at the moment is that it's really unclear what I'm here to do and the goal posts keep changing. INGRID: 2005: L6

The above seems to suggest that the institutional positioning of KT can be subject to modification as each of the key players attempt to frame the activity in a space based on personal understandings of the field of KT. This personalisation of the field is also evident in both Andy's (RG: L6), Henry's (1994: L2) and Marcus's (1992B: L1) comments. Andy pointed out that despite working in KT for several years, he still *"can't even explain it to my wife",* instead he had resorted to simplifying it *"You have a lot of clever people who are funded to do interesting research and my role is to get the outputs of that research into companies so that society and the economy benefits".* In contrast to this, Henry's original approach to KT was based on the principle that it should make money out of non-core activities:

[In 2006] it was really about how we actually make more money out of activities that were not associated with the core. And the thinking was very much more around how much money can we make to bring in to the university, rather than what value we can give to society through driving economic development and so on. HENRY: 1994: L2

Within five years, his view had changed:

[In 2011] …I think things have shifted. Or in my mind they have shifted, anyway, to the point where I see enterprise, if you like, as one group per se, one category if you like, how as a university can we contribute to society through the growth in the economy and social benefits and so forth that come with it. HENRY: 1994: L2

And because Henry was responsible for the strategic leadership of this area in his Institution, any personal philosophical re-positioning appeared to influence KT at point of delivery. Jack (1994: L3), Henry's subordinate, commented that it had taken time for the Institution to be clear about what it wanted from KT, and that in response the supporting infrastructure service had evolved with each fluctuation to the point where:

It's not the silo thing we inherited. This is a very flexible, very responsive structure now and basically we can configure it to wherever the money is and frankly the opportunities are. We've actually got something that's sustainable, it's high impact and we're not spending vast amounts of money…it's really getting the cross feed. JACK: 1994: L3

When Marcus (1992B: L1) reflected on his experiences of KT services at his previous institution, he commented that he had identified a lack of leadership; and he had responded by pushing the organisation into appointing people into positions of leadership who could drive the agenda forward and embed a culture of enterprise into the organisation. He implied that the negative (based on market-led logics) rather than positive (based on academic logics) definitions of KT prevented the university from

benefiting from this agenda and that a similar situation existed in his new organisation to which he was considering a similar approach. As his interview progressed Marcus's responses appeared to indicate that he was enacting and preparing to re-enact certain practices based his personal histories of the field of KT. He was comparing his experiences of KT in a specialist research modest university against his limited experiences in a research embryonic one; his personalisation of the KT field and its associated practices appeared to be a key factor underpinning his strategic vision for the university:

> I mean you can play games with funding, so for example how you define things, you can transfer them between a HEIF heading and a research heading so there is a little bit fuzziness. So there are games you have to play within an institution to maximise your outputs… If your teaching or your research aren't benefiting from your knowledge transfer activity or your knowledge exchange activity, then you're missing a trick MARCUS: 1992B: L1

The changeable and transient nature of KT and the KT agenda was further endorsed by Emma (1992B: L4) who suggested that longevity is an issue:

> I think the real threat to knowledge transfer is that (shrinkage and service changes as result of funding issues and direction - we definitely saw more engagement because of the impact agenda through REF but I think a threat might be that it was kind of flavour of the month because academics know they need to do it… after the REF period it may fall out of people's consciousness, rather than it being more embedded and interwoven (EMMA: 1992B: L4)

And Anne (2005: L4) whose understanding of the plurality of roles suggested frequent identity re-configuration in response to individual and institutional re-interpretations:

> *Anne:*   *I'm a business development manager by training.*
> Interviewer: What is that?
> *Anne:*   *Whatever you want it to be*

The implication of this discourse being that Anne was able to flex and adapt her workplace identity to meet the expectations of her employer based on her understanding of the position that KT held within the Institution. It can be argued that Anne's comment provides an example of how *"neither our identities nor language are static"* with both *"constantly shifting and being re-negotiated in response to the ever-changing contexts of our interactions"* or in response to field dynamics.(Llamas and Watt, 2010: 1).

If fields are inherently fluid and subject to change, and agents' understanding of the field and their role in it also subject to change, then the physical manifestation of a field such as a KT service, is also likely to be subject to change.

7.2.2   *Physical space*

In Chapter Five, I identified cycles of change which reflected the positioning and repositioning of the KT within the case study institutions. Each of the cycles resulted in

structural changes as the physical location of KT was modified correspondingly. These were the *"hinter years"* according to Chris (2005: L6) during which his university was *"looking for the right space"* to locate KT. Finding the right physical space featured heavily in the interviews with staff from the RG university. During HEIF1, its incubation unit was based within a newly created innovation hub which was located on the main campus at the heart of the academic community. Although it was part of the physical site, to some of the staff who worked in the area at the time, there was a view that it was *"Not really considered as part of the university, it was different…it was an add-on and nobody quite knew what we were doing"* (ANGIE: RG: L4). Such comments seem to suggest that despite being 'inside' the university, there was a perception that, at least from some of the interviewees, these activities were seen as something outside the normal remit of a university and required a special approach.

For example, Daniel's (RG: L4) explanations about where he sits (physically) within the university, and where he 'sits' (role) within the mission of the institution ranged from personalising the field and his practice within it, focusing on the freedom to operate that being on the 'outside' offered and highlighting the dichotomy of the insider/outsider on status recognition:

> For my role some senior individuals in the university probably consider it important from a 'political' perspective, but the average academic has no contact and probably considers my role very peripheral. And the truth is I have thoroughly, thoroughly enjoyed the role in the university. I find it really great. I love setting up companies. I love doing all the technology transfer and I think the reason is, is that I operate on the periphery of the university DANIEL: RG: L4

> I am peripheral both geographically and organisationally and culturally and everything else. Being peripheral geographically is very useful. If they brought me back on site, it would mean I impinged on more university bureaucracy and it is a total nightmare. DANIEL: RG: L4

> The problem is I have an entirely different status outside the university to the status I have inside the university. DANIEL: RG: L4

Daniel's perception of being an *insider-outsider* was in stark contrast to Angie. Although she identified an add-on nature of KT she personally felt close to the centre and had no apparent issues with alienation. This, I suggest, is because she had been at the Institution for seventeen years, had previously worked in a traditional research support role and was fully attuned to its culture, whereas Daniel had been in post four years in an area that was newly emerging and had limited exposure to and commonality with the organisation (Merriam *et al.*, 2001: 406; Stamper and Masterson, 2002: 876).

Whereas the 'top–down' approach to strategy and KT service development in both the Russell and 1994 universities appears to have resulted in incidences of insider-outsider phenomenon, the 'bottom-up' approach of the 1992B university appears to have resulted

in both a macro and micro insider-outsider situation. On a macro level, initially there appears to have been an overall lack of institutional understanding about what a KT service is and how the activities within it linked to the university's core missions of teaching and research resulting in some interviewees feeling *"on the edge"* (Annette: 1992B: L5). On a micro level within the KT service two factions emerged: those working on the institutional KT programme and those working on the HEIF collaborative programme. Although they were co-located, there is some evidence to suggest that the two areas were not necessarily working together coherently. As Emma (1992B: L4) explained, when she came back from maternity leave:

> Suddenly we'd gone from being quite a narrow office where the only functions that we really dealt with were multiple learning contracts and KTP as two particular programmes, we moved from doing them to being a much broader office. It was problematic because it was like there were the 'collaborative' HEIF people and then there were the 'Institutional' HEIF people, but we were all in the same shared office. EMMA: 1992B: L4

Instead of positive reinforcement by a physical move (larger offices, closer to the Vice Chancellor's team and the heartland of the university), KT staff had divided allegiances with some actively promoting insider-outsider behaviour:

> I mean for a start although I was employed by 1992 university I had to make a point of saying I'm working for (consortium name) and that was really important because otherwise other universities wouldn't want to be involved at all. I didn't have a business card with 1992 university on, it said XX Consortium and that was really quite important. ANNETTE: 1992B: L5

Given the complex landscape of KT, with its amoeboid characteristics to expand, retract, change shape and direction, the question is why would anyone choose to work in an area of ambiguity which is constantly evolving and being re-visioned at both at individual and institutional level? What drives and motivates people to work in KT? And what do they hope and expect to get out of this area of work?

FOCUS
- Identification of and horizon checking for income
- R&D partnership relationship management
- Impact generation for REF and research activities
- Oversight of research governance structures

FOCUS
- Higher Level Skills Development
- T&L Partnerships & Alliances
- Workforce Development e.g. CPD, short & bespoke course development

RESEARCH

TECHNOLOGY TRANSFER

EDUCATION

KNOWLEDGE TRANFER FIELD

FOCUS
- Commercialisation of research & know-how
- Patent & License management
- Route to market management
- Business incubation services

ENTERPRISE

CAREERS & EMPLOYABILITY

FOCUS
- Student Enterprise
- Placements & Internships
- Student consultancy projects

FOCUS
- Business Development
- Consultancy & Provision of Expert Services
- Estates & Facilities Hire
- Government funded business / economic growth initiatives

FOCUS
- International, national R&D collaborations & alliances
- Business, civic, community & cultural engagement

Figure 33: Field of Knowledge Transfer in Higher Education: A Field Within Fields

7.3   Drivers & Motivators

Within the sample both push and pull factors were identified. Push factors were drivers which appeared to be specific moments in time or a set of circumstances that moved people to act in a particular way, whereas motivation factors were attractions that pulled people towards specific KT roles. Both push and pull factors were indicative of Maslow's (1943) hierarchy of needs and Herzberg's (1974) dual theory on motivation and hygiene factors. According to Maslow (1943), people are motivated to fulfil certain needs and that once a need has been met; they move on to meet a higher level need:

> At once other (and "higher") needs emerge and these, rather than physiological hungers, dominate the organism. And when these in turn are satisfied, again new (and still "higher") needs emerge and so on. (Maslow, 1943: 375).

This incremental motivation structure Maslow defined as the hierarchy of human need. It originally consisted of five stages of need: physiological, safety, social, esteem and self-actualisation (the realisation of personal potential and fulfilment). His model was later expanded to include cognitive, aesthetic and transcendence needs, which is the point at which self-actualisation has been achieved and motives transcend into the need to help others achieve self-actualisation (Maslow, 1964). Herzberg (1974) focused his studies on motivations and drivers within the workplace and suggested that in addition to addressing basic needs, job satisfaction was based around motivation factors that sustain effort, and hygiene factors that de-motivate staff and can lead to staff moving to different jobs and or employment. His identification of motivation factors such as achievement, recognition and advancement are similar to Maslow's esteem needs, and his positioning of working relationships, together with the need for a sense of belonging and collegiality are reflective of Maslow's sociological needs. For a detailed comparison please see Figure 34 below.

Maslow Needs	Herzberg Motivation / Hygiene Factors	
Esteem	*Achievement*	Satisfaction
Esteem	*Recognition*	Factors
Esteem	*The work itself*	(Motivation)
Esteem	*Responsibility*	
Esteem	*Advancement*	
Esteem	*Growth*	
Sociological	*Company policies*	Dissatisfaction
Sociological	*Supervision*	Factors (Hygiene)
Sociological	*Working relationships*	
Sociological	*Work conditions*	
Esteem	*Salary*	
Esteem	*Status*	

Figure 34: Maslow and Hertzberg's Theory Alignment (Adapted from Herzberg, 1987)

The push and pull factors in this study appeared to be based around the following needs: financial security, job satisfaction (including the need for challenging and exciting work and to be recognised for skills and expertise), the need for advancement and the freedom to operate. For example, when Liz (PG: L3) reflected on her reasons for why she moved into a KT role, she commented *"I just wanted to really earn money",* her key driver being financial security for her family. Her original job was changing in the university so she needed to change with it if she was going to stay working there. In contrast to this, Peter (1994: L4) was financially secure before joining the university and although his decision to move into the HE sector appeared to be a lifestyle choice initially, he had accepted a junior position with the expectation of rapid advancement:

> … didn't need lots of money and took what was in effect a very lowly position in tech transfer when I came here on about a third of the salary I would earn anywhere else., but with the rather arrogant assumption I might rise up the organisation more quickly than anyone else might. PETER: 1994: L4

Four drivers and motivators were identified in the study; each at polar ends to each other. These included:

1. Planned and unplanned factors;
2. Connections and disconnection factors;
3. Security and insecurity factors; and
4. Avant-garde and rear-garde factors.

The relationship between each factor is shown in Figure 35 Push-Drivers & Pull-Motivators.
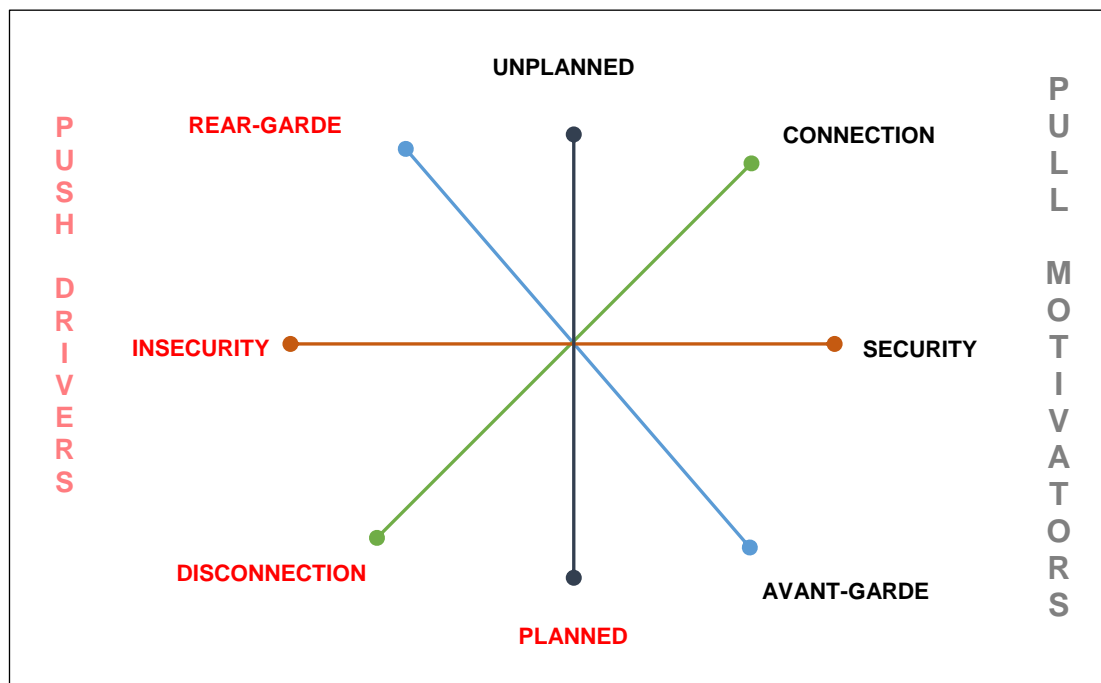
Figure 35: Push Drivers and Pull-Motivators

7.3.1 Planned & Unplanned

Lena appeared to be reasonably tactical and planned her KT career. She had wanted to move to the South East but wanted a role that would help her build her career. She wanted to work with someone who had a reputation for being successful in KT, and she wanted to work in an autonomous KT team. She explained that she had met her employer at a conference and had decided that this was someone she wanted to work with:

> I thought it was an opportunity and EMMA sent the job spec. around the KTP managers JISC mail, I saw it and instantly applied for it knowing that working with EMMA would be a very good stepping stone. I didn't know a lot about [the university] at the time but I knew a lot about EMMA… That was a big lure for me. LENA: 1992B: L6

Unplanned factors appear to be based on serendipity whereby interviewees had not planned to move into the KT field, but an opportunity arose which appeared to satisfy their needs at the time. For example, Emma (1992b: L4) had started in a junior administrator and at the time of the interview had been working as the Head of Knowledge Transfer for several years. Overall, her KT career was founded on opportunism:

> It started off as serendipity … so getting in to xx to start off with was a bit of a fluke really but the more I developed the role, the more interested I became in it and found I was quite good at that sort of work [knowledge transfer projects], the kind of balancing between partners and being the kind of facilitator, I really quite enjoyed. The variety of the role kept me interested and I think the promotional opportunities as well. EMMA: 1992B: L4

Whilst Emma was satisfied with her previous job, her drivers for change were indicative of the need to demonstrate achievement and mastery to enhance her career prospects (Bourdieu, 1993; Maslow, 1954), and although the varied remit was the initial interest, it was the promotional opportunities that were key motivational factors for her.

The influence of serendipity and an unplanned move into KT was also evident in Anne's story. Previously she had worked in a Research-Intensive university for five years but had felt constrained. She believed that she did not have the academic credentials to progress and in 2010 resigned to reflect on her career. She had not intended to return to the HE sector when her current post was advertised:

> The interesting thing about this job was the advert for my post could have been written for me. So I looked at the job and thought my God, actually this is one… they are looking for someone like me and I was surprised because I thought to be honest I was unemployable, so that was an interesting thing. ANNE: 2005: L4

7.3.2 Connections & Disconnections

An unexpected theme that emerged from the data analysis was the strength that pre-existing *'connections'* play in interviewees' motivations to work at specific institutions and the sense of belonging these connections appear to instil. For Ed (SP_K.E. Network: L1) and Liz (PG: L3) working in their institutions was akin to working in the family business:

> I come from business and I also come from a background of the university, because I was brought up in the university and had been around since I was four because my mum was in charge of a service in the university. ED: SP_K.E. Network

For Ed the university was his extended family, whereas for Liz it was a place where a lot of her family worked and she was following the family tradition. It was not a family connection which motivated John (RG: L3) but his personal experience of being an external partner which gave him a sense of belonging. He had been working on various university R&D initiatives and was looking to make the relationship more permanent. According to him, he felt *"a real allegiance to the University because I had been working with them, they were my collaborators"*.

Whilst connections are pull factors, *'disconnections'* appear to be push factors linked to compromised working relationships and a weak sense of belonging. When commenting about her reason for leaving her previous role in the construction industry, Sarah commented:

> It was miserable. I had to sack half my team because they weren't making any money and you'd be getting 10 calls a day from the best candidates you've ever seen who've just been made redundant and you couldn't find them any work. It was just awful. SARAH: 1992B:L6

For Sarah, the working conditions, working relationships and company policy had de-motivated her to such an extent she looked for a new job in a sector which she considered more stable and away from the insecurity which appeared to dominate her previous role at the time.

7.3.3 Security & Insecurity

The notion of security and insecurity was not simply aligned to job security but also appeared to be linked to role security and future proofing careers, that is, ensuring employability. In terms of role security, Bob's (1994: L6) previous experience of working as a researcher in laboratory was one of constant change. As the demands for research funding increased, the more time he spent writing bids and the further away he became from working in the laboratory and his career aspiration of being *'a professional research assistant'*. Being a researcher was not, according to Bob, a secure role because employment contracts were inextricably linked to his ability to write bids and secure external funding. When he applied for a KT role he had been looking for a position in a university which was externally facing that would allow him to use and further develop his existing skills. The job, he said,

> Looked interesting because it meant I could use all my talents and not lose them. My talents are multi-disciplinary, physics, engineering, chemical engineering, practical applications. BOB: 1994: L6

His understanding and experience of KT (philosophy and practice) has been subject to regular change and review. At the time of the interview, he had experienced three organisational restructures within a five-year period. Each time he had been placed under

threat of redundancy and required to apply for a position in the new structure: the security he had sought through a KT role had failed to materialise at the time of the interview. The anomaly with Bob is that as a researcher he was unhappy about the changes that he was subject to in his R&D role, but as a member of KT staff, he highlights the changing nature of KT as a key attraction. This, it can be argued, is reminiscent of Herzberg's claims that it is the context which defines job satisfaction (Herzberg, 1959). As a researcher Bob had expected to undertake research, but instead had found himself managing increasing numbers of staff. As a member of knowledge transfer services, Bob expected, and found himself working with a diverse portfolio of projects and initiatives:

> I get bored, then I want the next fix, and then after the next fix, then over the next couple of days I wander around bored and then want the next fix. BOB: 1994: L6

7.3.4   Avant-garde & rear-garde

The final push and pull factors identified were reflective of Bourdieuien field dynamics of the avant-garde and the rear-garde (Grenfell and James, 2004). The avant-garde are the new ideas, practices and knowledges within a field. Over time these become recognised and established (rear-garde), at which point they are overtaken be a new avant-garde. In the sample, this appeared to manifest itself by people deciding to move into KT because it was perceived to be more dynamic and leading edge: they wanted to be at the forefront (the avant-garde) of new practices, innovations and knowledge creation. Interviewees that were motivated by avant-garde motives appeared to be driven by the need to move away from restrictive regularised and established activities (rear-garde), into KT because it was understood to be exciting, fun and new. For example, being part of an avant-garde movement offered Jo, John and Susanne the opportunity to be creative:

> It was all ground breaking stuff and it was really exciting JO: PSRE: L3

> There were low expectations that it would work. It has worked and so therefore I guess I get drawn into more politics now but there was low expectation so essentially we were left. It was a very... pretty autonomous... I think that's the secret of success. We were able to develop a model that worked SUSANNE: SP_K.E. Network: L1

> I have to constantly have change. I always need something new and exciting to do. JOHN: RG: L3

The notion of playing whilst balancing a complex portfolio of activities was evident:

> In terms of a personal driver point of view, I like lots of change and environments like universities you don't get bored in. The complex environment is much more complicated than people think. You are playing a lot of sectors. So, from a personal 'me' point of view, this was pretty good, because I was able to play in the space industry, I was able to play in telecommunications, I was able to play in water, environment, all the rest of these types of things. HENRY: 1994: L2

The morphing of the avant-garde to the rear-garde in KT was alluded to by Annette who explained that initially her role provided her with autonomy, opportunities to develop new skills and to lead new initiatives, but over time the practices became regularised and closely defined with the result she was no longer on the cusp of the new:

> I had a conviction that it was a good idea but yes I could do it my own way and it was a new thing. So it was all of those things together. And also as I say it was something I believed in. It was generating opportunities; it was reaching out to small organisations. The target was really SMEs who hadn't engaged with us before and we set up some really good projects which had some really interesting outcomes. ANNETTE: 1992B: L5 (at the start of her knowledge transfer job in 2005/6)

> …quite a closely defined role, there was a process which was all set down and there was not really much scope to do things differently at all. ANNETTE: 1992B: L5 (at the time of the interview 2011/12)

Annette appears to be describing the impact of changes in the KT field in that the new practices she initiated when she started have become established practice, and her position as part of the avant-garde has been displaced.

7.4   A typology of knowledge transfer staff

Through the analysis of the interviewees' career histories it was possible to identify similarities and characteristics. For example, Angie (RG: L4), Emma (1992B: L4), and Lindsey (2005: L6) describe a KT career in which they all started as administrators and either through serendipity or planned progression, moved from a generic support post to a specialist KT post. In contrast to this, Bob (1994: L6), Monty (1992A: L2) and Marcus (1992B: L1) who originally had teaching and research academic careers but decided to move into a KT or a senior management role which had a KT remit. Prior to this Marcus had been a medical clinician attached to a university teaching hospital, Monty had been the Dean of a large Engineering School, and Bob had been the deputy director of a mechanical engineering research centre.

Whereas some of the interviewees had spent the majority of their working lives in the HE sector, others such as Amy (RG: L3), Anne (2005: L4), and Alice (1994: L4) had spent time in the private sector working in the pharmaceutical, legal and IT industries. All three had become disenchanted with the culture and working environment, and therefore made the decision to move into the HE sector *(See Section 7.3 for push and pull factors).* The difference between these three individuals and Nick (1992A: L6) and Andy (RG: L6), is that the former appears to have made decisions to move sectors because of role dissatisfaction, whereas the latter appear to have made the decision to move because of economic instability within the private sector.

The final group of individuals with similar career characteristics were predominately male, had significant senior management private sector experience, and were recipients of generous severance deals. In these cases, the move into a KT role was more about having a job which was intellectually stimulating, which allowed them to keep their skills up to date but where the remuneration was not a priority.

Within these groupings, it was possible to identify an embryonic typology of KT staff: Home Grown; Shape-Shifters, Refugees, Do-Gooders and Life-Stylers.

A.   Home-Grown

Home Grown staff can be categorised as Home-Grown Type A or Type B.

Type A staff appear to enter the HE KT arena through administration services route such as professional services. The move to KT appears to be the result of a change in career direction, the evolution of an existing role, and/or the attraction of entering a new area of activity but specifically wanting to stay working in a support service remit. Within this group cultural capital is linked to the knowledge and skills derived from structured and regulated work. Any social capital tends to consist of networks and connections from internal process related activities although they may have limited external links to functional networks. For example, a Research and Enterprise Manager may know someone in a funding body they can approach for 'off-the record' advice and guidance. Any symbolic capital (conferred, converted or self-determined) is likely to be linked to knowledge of internal systems and successful delivery of a support service. For example, Angie (RG: L4) started as an administrator, progressed to being the manager of an EPSRC Collaborative Training Accounts (CTA) Centre, and at the time of her interview was a senior manager with oversight of the business development and KT project management function in her institution. She knows *"how it all works, and who to talk to".*

> I came up through the ranks, and because people who are now in senior positions have coincidentally drawn from the areas I came from, I can act as translator between the new commercial director and the institution…ANGIE: RG: L4

Likewise, Emma (1992B: L4) worked as a secretary when she first started at her institution and was promoted as her line manager was promoted:

> I was temping following my UG degree and became the Secretary to the person who would eventually become the Head of Enterprise. I was doing all this administration stuff, preparing financial statements, getting more involved with project support - a sort of partnership liaison role and obviously speaking to academics… XX was very quickly saying you are doing more than a secretary's role. EMMA: 1992B: L4

Type B' staff are primarily academic staff who enter the KT field as the result of a decision to change direction or to develop skills which they believe will enhance their academic career prospects such as business engagement activities and / or the opportunity to develop research impact. Type B KT staffs' social capital is likely to be linked to both internal and external discipline and or subject related networks with business connections linked to specific projects and initiatives. Their converted and conferred capital will primarily be based on their knowledge of academic practices. Home-Grown staff who are placed in externally facing roles with an expectation of significant business development and income generation may find it difficult to be successful due to a lack of experience, networks and credibility outside the academy. For example, Bob (1994: L6) explained

that he did not *"want to be responsible for research staff anymore"* and that he wanted role where he could engage with research on his terms but not be accountable. Whereas for Monty (1992A: L2) it was progression into senior management and the *"obvious next step from being a Dean is to be a PVC and since most industrial liaison work was undertaken by my faculty…"*

B. Shape-Shifters

If Home-Grown staff are the product of academic and administration careers, *Shape-Shifters* are the product of a hybrid career. That is, someone who has left academia and worked in industry and/or the National Health Service and has decided to return to academia in a KT role. These staff appear to have high levels of cultural and symbolic capital with educational and business credentials enhancing their credibility amongst internal and external stakeholders alike. The drivers and motivations influencing decisions to cross the boundaries to KT services appear to be based on a desire to develop transferable skills through greater interaction with business, gaining hands-on experience of the route to market process for applied research, and having greater autonomy and freedom to operate. For example, in-between degrees Amy would work on making films but whilst she was working she kept close links with the university, this way, she explained, she could:

> …go back as an industry lecturer, support staff in the department, and eventually I found that they called me up if they had jobs they didn't quite know who would do it, so a consultancy type of work… multiple roles – student, consultant, networker, colleague, teacher AMY: RG: L3

Moving across the boundaries of academia and industry does not appear to be a seamless activity, and there is evidence to suggest that initially it takes time for Shape-Shifters to develop credibility especially if they have moved from a traditional research position to a commercial one:

> I headed up a research group for a couple of year as and whilst I was enjoying it and drawing and income, I really felt that it wasn't my true vocation in life, dare I say, It did take me about a year and half to convince anybody that I had anything more than a very good, strong record in anything but research. SUSANNE: SP_K.E. Network: L1

C. Refugees

Whilst Home-Grown staff and Shape-Shifters are suggestive of boundary crossing amongst HE professional and academic staff, *Refugees* appear to be the product of economic recessions and contraction within the private sector. These are staff that have moved to the public sector to 'wait out' a recession in the private sector because it was considered to be secure, recession-proof to some extent and with a working environment that was perceived to be more benign:

> … I'm family orientated… I'm lucky because I have made the right choice I think. Yes, I earn half as much as I used to but I work half as many hours. I'm a much better father for doing it, so from a personal point of view, it's a good thing. NICK: 1992A: L6

> In my last job, I was working in construction recruitment at the time when everyone working in construction was getting the sack, and it was just the most depressing place and I was looking round for business development jobs… I used to really enjoy it but then when all that horribleness happened I just thought I'm gonna go and do a job where I can just manage myself… SARAH: 1992B: L6

Refugees appear to have social and symbolic capital that is attractive to the Academy because of the perceived added-value they bring through their experiences and their connections.

D. Do-Gooders

Do-Gooders are primarily driven by philanthropic motives and choose to work in KT as a means to giving something back. For Do-Gooders, it is not a case of giving their skills and know-how to the academy, but it is about helping the academy develop its potential to maximise its knowledge and expertise for the common good. Anne (2005: L4) suggests *"It's about commitment to the next generation…and a duty to get it right",* whereas Jack (1994: L3) comments it is about having the opportunity to do something he really enjoys which just happens to have a philanthropic slant.

> Because I'd made enough money to be reasonably secure, but certainly not enough to retire and if I had, I couldn't do it. I love being involved with new things, and I thought I was gonna spend all my time in start-up… I couldn't believe that anyone would pay you to do that. I suppose ultimately the attraction of just a whole endless stream of new things, new companies and the commercial angle, but also I like the idea. I'll be doing something in an environment where you could do what you enjoy but still feel you are giving something back. I know it sounds corny but that was part of it. JACK: 1994: L3

The notion of duty appears to be linked to the nature of public sector funding, and a belief in academia holding a position of privilege that could be used to enhance social and economic prosperity. In both cases, the reason why these staff could be philanthropic was not because of a social conscience but because they were both financially secure.

E. Life-Stylers

Life-Stylers are closely aligned to Do-Gooders in that salary and remuneration does not appear high on their list of priorities. The key difference is that they are seeking a job which provides them with a certain life style. Specifically, a job which is interesting but not particularly challenging when compared to the environment from which they came. Life-Stylers appear to have high levels of capital (social, cultural and symbolic), demonstrable track records of working across the boundaries of academia and industry in senior positions (director level and above) and are towards the latter part of their careers. Life-Styler characteristics were particularly noticeable amongst interviewees with more than twenty years' private sector experience who were working in senior leadership and management positions within commercialisation areas:

> Managing my department is such a doddle. For all of us it's a case of would the next job be more hassle than we really want? I can do the job standing on my head, I can do the job in my sleep, its great fun, there's a lot of variety and we have a good laugh. Nobody gets too stressed PETER: 1994: L4

We're all on second careers; we're all in our 50s. We've all climbed the greasy poles as far as we want to. We have absolutely no desire to go climbing any more greasy poles and we do the job because we enjoy doing the job. PETER: 1994: L4

So the truth is, in 2002, I was sat there with a company that had just wound up. I didn't really know what to do next. I didn't want to go into a run of the mill sales job. I wasn't really, you know, a coal face techy. I took the job at the university because it a) sounded very interesting and b) was going to buy me some time whilst I thought about what I wanted to do next…… and the truth of is, I have thoroughly enjoyed the role. I find it really great. I love setting up companies. I love doing all the technology transfer. DANIEL: RG: L4

The value of this rudimentary typology is that it provides an indication of the type of individuals that might be attracted to a KT role, the relative strengths and weaknesses of their career capital and where the institution may need to provide additional support and guidance to help these staff be successful in their KT roles. For example, when applied to the study, it appeared that 37.5% of the interviewees could be categorised as Home-Grown staff, of which, 75% were Type A staff with limited or no experience of business or commercial activities.

See Figure 36 for a summary of typology and capital and Figure 37 for the interviewees' typology.

	Home-Grown A	Home-Grown B	Shape-Shifter	Refugee	Do-Gooder	Life-Styler
Social Capital						
▪ *Internal Academic Networks*	X	X	X			
▪ *External Academic Networks*		X	X			
▪ *External Business Networks*			X	X	X	X
▪ *Bridging Networks (Academic & Business)*			X			X
Cultural Capital						
▪ *Career Capital*			X	X	X	X
▪ *Educational Credentials*		X	X			
Symbolic Capital						
▪ *Converted*	X	X	X	X	X	X
▪ *Conferred*	X	X	X	X	X	X
▪ *Self-determined*			X		X	X

Figure 36: KT Typology and Capital

No.	Name	Management Level	Institutional Category A	Institutional Category B	Typology
1	ANDY	6	Russell Group	Research Intensive	Refugee
2	JOHN	3	Russell Group	Research Intensive	Do-Gooder
3	ANGIE	4	Russell Group	Research Intensive	Home-Grown - Type A
4	MICHELLE	4	Russell Group	Research Intensive	Home-Grown - Type A
5	DANIEL	4	Russell Group	Research Intensive	Life-Styler
6	AMY	3	Russell Group	Research Modest	Shape-Shifter
7	BOB	6	1994	Research Ascendant	Home-Grown -Type B
8	HENRY	2	1994	Research Ascendant	Life-Styler
9	JACK	3	1994	Research Ascendant	Do-Gooder
10	PETER	4	1994	Research Ascendant	Life-Styler
11	ALICE	4	1994	Research Ascendant	Shape-Shifter
12	JANE	5	1994	Research Ascendant	Shape-Shifter
13	LINDSEY	6	2005	Research Embryonic	Home-Grown - Type A
14	MIKE	2	2005	Research Embryonic	Home-Grown - Type B
15	INGRID	1	2005	Research Embryonic	Life-Styler
16	ANNE	4	2005	Research Embryonic	Shape-Shifter
17	CHRIS	6	2005	Research Embryonic	Life-Styler
18	MONTY	2	1992A	Research Modest	Home-Grown - Type B
19	NICK	6	1992A	Research Modest	Refugee
20	ANNETTE	6	1992B	Research Embryonic	Home-Grown - Type A
21	EMMA	5	1992B	Research Embryonic	Home-Grown - Type A
22	LENA	6	1992B	Research Embryonic	Shape-Shifter
23	SARAH	6	1992B	Research Embryonic	Refugee
24	MARCUS	1	1992B	Research Embryonic	Shape-Shifter
25	LEE	3	Cathedral Group	Research Embryonic	Home-Grown - Type A
26	LIZ	3	Plate -Glass	Research Squeezed	Home-Grown - Type A
27	MAY	3	PSRE	Research Intensive	Shape-Shifter
28	JO	4	PSRE	Research Intensive	Home-Grown - Type A
29	SOPHIE	1	Sp_K.E. Network	N/A	Shape-Shifter
30	ED	1	Sp_K.E. Network	N/A	Home-Grown - Type A
31	RACHEL	4	Sp_K.E. Network	N/A	Do-Gooder
32	SUSANNE	1	Sp_K.E. Network	N/A	Shape-Shifter

Figure 37: Interviewees Typology

KT staff from the private sector with little or no higher education experience are in positions that are quite visible, and in many respects, are under great scrutiny since future funding for some posts is dependent upon non-core funding. In this respect, they are like research assistants on short and fixed term contracts. Those with a strong technology transfer and commercialisation background appeared to be more confident about their future. This, it can be argued, is because their skills are not traditionally found in HE:

> I'm not here, definitely not here because of any specific technical knowledge… My expertise is in matching… it's in translating and matching what the technical people do to a commercial outcome and advising how to take that technology to the outside world. If I had not been in the outside world I would be less capable of doing that and I wouldn't be adding anything to the party. PETER: 1994: L4

7.5 Theorising the findings on field and context

According to Moingeon and Ramanantsoa (1997) '*The concept of identity is tightly connected to the concept of history. Identity is the product of the history of the organization'* (p.386). The institutional positioning and re-positioning of KT does appear to have some influence in the way in which staff construct their identities and position themselves in the academy. However, personal histories, experience and understandings are equally formative since these provide people with a sense of who they are. It is these dispositions or habitus which contribute to personalisation of the field and informs practice within it (Bourdieu, 1984). The diagram below (Figure 38) shows the relationship between individual and institutional field constructs on the formation of the KT space.
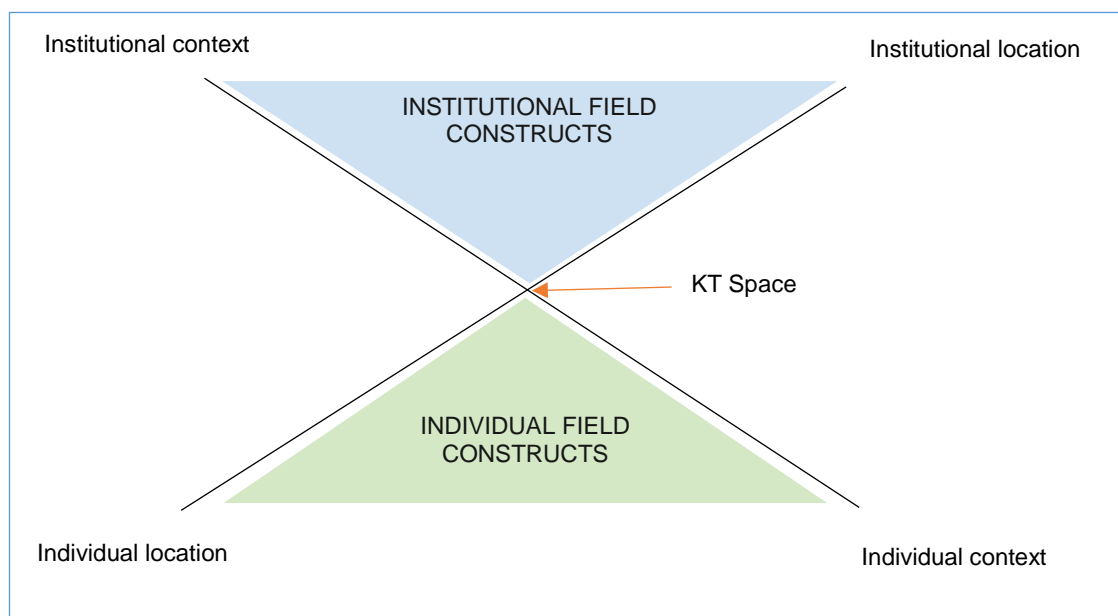
Figure 38: Field, Context and Location Relationship

1. *Institutional context* is understood to be the conditions under which the university is operating together. It is the **philosophical positioning** of KT which has been informed by internal and external forces such as changes in funding regimes and policies. It is based on history, current and future needs and is reflective of institutional leadership and culture;

2. *Institutional location* is the **physical positioning** of KT within the university and the organisational structure through which KT activities are delivered:

3. *Individual context* includes the drivers and motivations for working in KT, together with individuals' **personal interpretations of the field and institutional context** which may or may not be substantiated;

4. *Individual location* is **individuals' understanding of location and fit** within the university; and the

5. Knowledge transfer space is ***an agreed operating space*** between the individual and the university and is where all KT activities take place and where staff work whether it be in a hybrid role through conversion or expansion of an existing function, or as a pioneer coming into the higher education system as part of an' *Avant-garde collective that challenges the status quo'* (Grenfell and James, 2004: 510).

7.6   Conclusion

In this chapter, I suggested that the absence of agreed understandings about the KT field (in terms of definitions, scope and key components) resulted in multiple interpretations and contradictions as personalisation of the field occurs with identities and roles adapting accordingly. I noted that as with field constructs, the push and pull factors which lead people to work in a KT role were also multiple and diverse. These factors ranged from the evolution of an existing role, to being in the right place at the right time, and to planning a move into something that was considered as tactically advantageous in terms of skills development and secure employment. The common theme that emerges from all cases is the attraction of being part of an avant-garde movement that works on the cusp of knowledge creation and innovation and which could incite excitement and passion through leading and or being part of something new.

I proposed a typology of KT staff based on career histories and capital assets, and suggested that the majority of interviewees in the study had limited or no experience of private sector business and commerce and were predominantly HE staff that had either moved into knowledge transfer through either an administration or an academic route. Finally, I put forward a theoretical framework that suggests that the KT space is shaped by institutional and individual constructions of the field which are informed by histories, experiences, dispositions and cultural beliefs and influence the way in which KT is portrayed within the academy.

I have considered the role that capital plays in credibility in chapter 6. In this chapter I considered the interpretation and personalisation of the KT field and how these are portrayed both philosophically and physically within the academy; and reflected on the influence these can have on identity construction. In the following chapter I turn my attention to the art and practice of knowledge transfer. I consider how habitus informs practice in the field and the role that staff play in the KT process. Finally, I explore what, if anything, makes knowledge transfer staff distinctly different from other non-academic staff in HE.

CHAPTER EIGHT

THE PRACTICE OF KNOWLEDGE TRANSFER

8.0   Introduction

Previously I explored how capital accumulation, manipulation and diverse field interpretations contribute to KT staffs' understanding of the context within which they work. In this chapter, I link capital, field and habitus together under the mantle of practice. First, I identify the various strategies which staff appear to use in the process of KT and comment on the overt and covert nature of these practices. Second, I identify different types of roles and practices and suggest the existence of a set of habitus informed actions that may be found in most, if not all, KT roles (Bourdieu, 1977; Bourdieu, 1985a). Thirdly, I question where practice takes place and whether or not KT roles are primarily located in the third space (Lefebvre, 1991), that is, the in-between space between teaching, and administration *'where the seemingly opposite work together'* to generate new knowledges (Pane, 2013: 79) or whether they are new and evolving practices resulting from spatial dynamics (Bourdieu, 1990a; Lounsbury and Crumley, 2007).   Finally, I bring all the strands together and speculate that as with capital and location, practice is also multifaceted and in constant flux: it provides a conduit through which an individual's habitus (their sense of being), converges with their everyday actions to create a practice-based identity.

8.1   The turn of practice

Practice theorists such as Pierre Bourdieu and Anthony Giddens explore notions of practice through a lens which considers the relationship between the individual and the social and attempt to incorporate this duality into their conceptualisations. Whittington (2006) articulates the approach adopted by practice theorists as:

> A respect for both the individual and the society. To the individualists they insist there is such a thing as society; to the societists, they affirm the significance of individual activity (p.614)

Although there is no universal definition of practice which encapsulates all it entails; practice theorists are in one accord in that practice involves a set of actions which are organised by regulations (rules, structures), resources (material and symbolic) and (mis)understandings (Bourdieu, 1990a; Giddens, 1976; Nicolini, 2013).   For Schatzki (2001) practice is a *' set of doings and sayings organized by a pool of understandings, a set of rules and a teleoaffectivities structure*[3] (p. 61), that is, a structure which enables

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[3] Teleoaffective structure is a linking of ends, means, and moods appropriate to a particular practice or set of practices and that governs what it makes sense to do beyond what is specified by particular understandings and rules.
https://claybomb.wordpress.com/category/schatzki/

and supports the means to an end providing those means (how an individual or the collective acts) are within the bounds of acceptability for those in the field of practice. Peter (1994: L4) exemplifies the nature of interconnectedness between the individual and the collective in his description of his technology transfer (TT) practices. These included the enactment, re-enactment and modification of actions which appeared to be acceptable ways of *doing* technology transfer within both individual and collective contexts: the individual being Peter and his understandings, and the collective being those of the TT department, the university and the wider external community with whom he engages:

- Talking to lots of people about the technology

- Looking at the resources available (business, academic, business financial and personalities)

- Synthesising all this into a go-no-go decision and then a 'when to stop' decision as competing projects (for resources) come along

- Constantly scanning external and internal environments to see where they are going and positioning to take advantage of changes when they occur.

- Ad hoc benchmarking against other practitioners - the X partnership provides a good way to do this informally. PETER, 1994: L4

Furthermore, he reveals what enactment and re-enactment of activities feels like over a period of time, and how through the workings of both the individual and the collective, practice can become second nature:

When you've been in this a while it sort of becomes automatic especially if you're a bit of an iconoclast like me. [INDIVIDUAL] Why do I believe in them [the processes]; because they sometimes work and we change them all the time according to circumstance [COLLECTIVE] PETER, 1994: L4

Peter's comments, like life, reflect the link which exists between the individual and collective in changing practice, and mirrors the findings of Lounsbury and Crumley's (2007) study on money management which also identified new practices as being the result of a *'multiplicity of actors whose interaction produced change'* (p.993).

8.2   Habitus, *illusio* and practice in the field

The theme of structured places of practice is integral to both Giddens's structuration theory and Wenger's (1998) *'shared histories of learning'* (p.103). Giddens suggests that through the actions of actors in a system, practice produces and reproduces social structures (Feldman and Orlikowski, 2011: 1241; Giddens, 1993), whereas Wenger's shared histories depict practice which is structured and transformed as individuals move across and between communities. Similarly, the relationship between social structure and agency is also reflected in Bourdieu's notion of habitus which he defines as structures *'which generate and organize practices and representations'* (Bourdieu, 1990a: 53) with

practice being fluid and time-laden. In essence, habitus is a '*product of history'* (Bourdieu, 1990a: 54) which shapes individuals' understanding of the world in which they exist. It informs one's position (capital), agency (self-positioning and freedom to operate) and practice within the field (Colley and Guéry, 2015: 117; Townley, 2014: 47) through the organisation, perception and acceptance of practices (Bourdieu, 1984: 170; Bourdieu, 1990a: 86). The relationship between time and the formation of practice was highlighted by Daniel (RG: L4) who dismissed the rapid upskilling of the academic community to accelerate the accumulation of business acumen as being fanciful. Like Peter (1994: L4), Daniel believed that practice emerges and is informed by experience gained over time:

> When I moved into sales and then struggled for the first two years, I had been very, very, very closely exposed to, you know, sales opportunities as a consultant, as a technologist, for three or five years before that. So it wasn't like I was completely new to a commercial environment. And it still took me two years to get to grips with it. So, somebody that is working on leading edge research in a university lab, in my view, to imagine that they are going to have commercial acumen the day after, or the weekend after the weekend, is just completely fictitious, you know, fanciful. DANIEL, RG: L4

According to Karataş-Özkan and Chell (2015) habitus is acquired as *'a way of being'* which is drawn from contextualised lived experiences (p.120) and consists of those formed through familial associations and socialisations (primary habitus), and those formed through participating in field activities (specific habitus). Given the role of career capital in identity construction (See Chapter 6), habitus formed through field participation has been used to explore the nature of KT practice. For example, Emma (1992b: L5) encapsulates this notion of the past influencing the present and future when she explains how she used her knowledge and experiences to demonstrate ability, and secure acceptance (and to some extent credibility) in a new job:

> Then you can demonstrate that you're a person that can get things done and also drawing from past experience and knowledge as well. I have used my x experiences a lot in my new job, being able to say well at x we used to do this type of activity or I worked on a project in this area and just being able to show that you have an appreciation and understanding for a particular person's interest or expertise has been really useful. EMMA, 1992b: L5

If habitus is informed through our experiences, values and understandings of the world, how are these translated into practice? For Bourdieu (1996) the act of translation occurs through '*illusio',* that is, the '*sense of an investment in the game'* (Bourdieu, 1996: 277) or as Colley and Guéry put it *'the commitment of players to invest in objects of value'* (2015: 117). During her interview, Annette (1992b: L5) repeatedly emphasised her conviction that KT activities would be successful in her institution although she was not sure why since they had no track record in this area:

> I put huge amounts of energy into it. I really overworked like mad. I had a conviction that it was a good idea... I had some conviction that it would work, I don't know why… Spurious confidence that it would be successful… ANNETTE, 1992b: L5

Similarly, John (RG: L3) commented that a recent restructure and realignment of the KT services in his area was something he could commit to:

> Basically over 2010 they (the university) worked their way into a new organisation... some aspects of it I think are correct, some aspects I don't agree with, but it basically was built on a

Both Annette and John can be described as *field investors* since they exhibited a fundamental belief that the game of KT is worth playing, and that they were in accord with the rules of the game despite its ever-changing nature.

8.3   Playing the game of knowledge transfer

Evidence from this study appears to suggest that KT is a multiplayer game with different types of players, all in different positions (roles, remits and levels of control), and all bringing different motivations, understandings and interpretations of, and to, the KT field *(See Chapters 6 & 7)*. Just as the field of KT is complex, so too are the roles and remits of the players. The job titles of those participating in the study provided little indication of what KT staff practice entailed. Despite this, during discussions with interviewees about the KT process five functional components with six overarching roles and practices emerged.

8.3.1   Functional components of knowledge transfer

Categorisations of KT functions are based on business operations rather than specialisms within the KT field as defined in Chapter 7. The rationale for this was two-fold. First, by removing KT thematics such as technology transfer, short course development and collaboration management it allowed generalisations to be made which could be applied across the full spectrum of KT activities. Second, given that UK Higher Education is a multibillion pound business (Universities UK, 2014) it positioned KT within
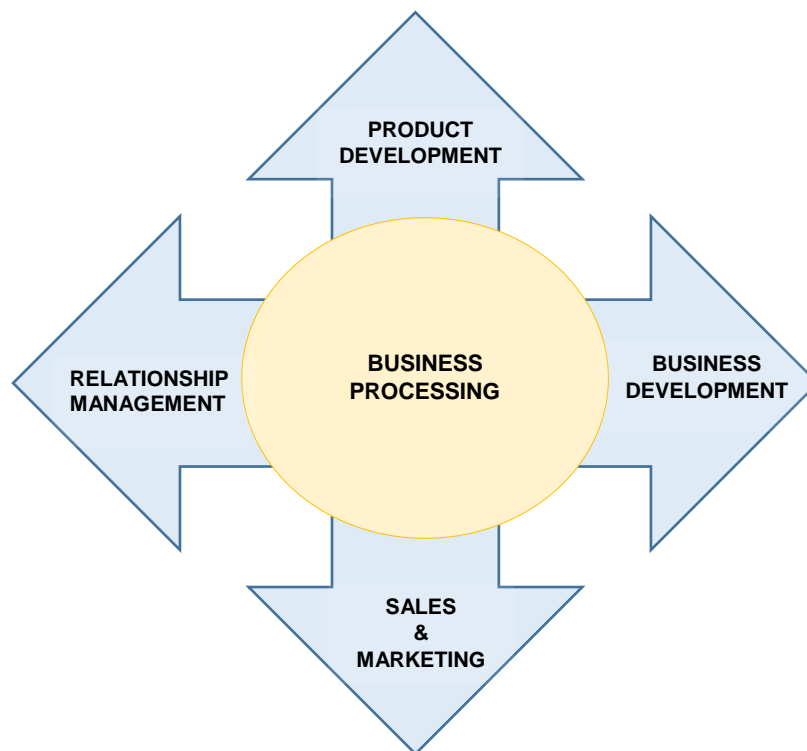

Figure 39: KT Functional Model

a business context instead of an educational instrument. Functional components included: product development, business development, sales and marketing, relationship management and business processing. (See Figure 39).

The functional model suggests that ***product development*** is the tangible and intangible output of education, research and innovation which comprises *'bundles of value satisfactions'* (Levitt, 1980: 83). For example, a short course can provide a programme of learning opportunities (tangible output), the result of which could an enhanced perception of the participant's status within his or her job (intangible output). Delivered value is also understood to be in the content of the programme, it is timeliness and the delivery of the programme which satisfies the end-user's needs. Whereas product development appears to be output focused, ***business development*** is, by contrast, input focused. It enables and instigates business through identifying end-users (undertaking market intelligence, conducting individual and organisational needs analysis, networking) and route-to-market planning for exploitation purposes (financial modelling, pricing tactics and strategies). The differentiation of business development practices was an important point of clarification for Sarah who suggested the following demarcation:

> There has to be an element of commercial product for business development, whereas knowledge transfer I see more as a broad term just for transferring knowledge and expertise two ways. A lot of business development is based on knowledge transfer, so if someone's got expertise and a company is using it, that's knowledge transfer. If you can persuade then to buy it, that's business development. SARAH; 1992b, L6

With business development focusing on the identification of opportunities, securing the deal is linked to ***marketing and sales*** as the benefits of the product are promoted to potential end-users until a transaction occurs. Through this activity, raising awareness, stimulating interest and active stakeholder engagement (including civic and community liaison), the social and economic position of the institution is established. According to John:

> Everybody's a salesman. You're always selling. You're always selling something and if you think that you're not then you're not doing a very good job of whatever you're doing because you are after something. JOHN, RG: L3

Linking the product, business and sales components together is effective ***relationship management*** which provides a mechanism to develop, review and retain meaningful associations (Hobby, 1999). Sarah positions selling and relationship management within persuasion and influencing practices:

> Well it's not business development in the way that the private sector sees business development and it's not as kind of hard-nosed in the sense that only cash is valued, but I do feel like it's getting more. It's sales really, recruitment and sales completely, and trying to link people with clients that you think will want those kinds of skills, trying to persuade people to buy things from you, or to look at slightly different solutions from the one they thought they wanted when they came to you. So it's getting to know people, making client relationships and sales, but it's a very different type of sale to sell here …. (SARAH, 1992b: L6)

The fifth function underpins the activities of the others through the implementation of **business processes.** These are responsible for regulatory compliance, as well as monitoring and reporting on the overall effectiveness of KT interventions to key stakeholders. As Peter (1994: L5) explains, part of his technology transfer role includes *"monitoring both hard and soft outputs to see if they match the institution's goals - again with an eye to the external benchmarks and the need to retain HEIF funding".*

8.3.2 Key players and their practices

The KT roles present in various degrees across all the functions investigated included those associated with exploring, speculating, connecting, translating, validating, and controlling practices (See Figure 40, p143).

The first role identified is that of the **Explorer** (Scout, Data Miner) which it can be argued is the starting point of all KT remits. This involves getting to know the institution and key stakeholders and undertaking investigative work to establish what is available for exploitation. Once an opportunity has been identified, the **Speculator** (Entrepreneur, Opportunist, Initiator, Catalyst, and Innovator) appears who focuses on adding value by contextualising existing knowledge to create solutions and / or stimulate the production of new knowledge (Rothwell, 1974). John managed to encapsulate the relationship between these two roles when he described the early stages of business development:

> A Scout [EXPLORER] is the person who scouts out the opportunity...is there really a market, is there really an opportunity and then another skill set coming from another direction is the entrepreneur [SPECULATOR] who says can I build a business out of this? Is there a business there? Can I make money out of this thing? JOHN, RG: L3

If the Explorer and Speculator are closely aligned so too are the **Connector** (Knowledge Broker, Gate Keeper, KT Agent) and **Translator** (Transformer, Interpreter, Story Teller, Coder). Together they facilitate the links between and across fields (Delmestri and Walgenbach, 2005; Hauschildt and Schewe, 2000; Knight and Lightowler, 2010; Lomas, 2007; Witte, 1977; Zook, 2004) and provide a filtering role which enables the *'knowledge interface between their own organization and other organisations'* (Cranefield and Yoong, 2007: 95). According to Susanne, this interface is dependent upon the relationships within a troika comprising business, academics and business development staff with the translation acting as the glue:

> There are three champions to make things happen; the champion in the business, the champion academic and the business development manager or equivalent to make it all happen, glue it all together. And without which those acting as translators, brokers or otherwise, if you leave it to chance, you may not progress SUSANNE; SP_K.E. Network: L1

Gouanvic (2005) suggests that translators inhabit a bi-cultural habitus in that they import foreign text into a target culture, and orientate this culture towards a new future (p.147). The same can be said of KT staff who bring practices formed through their past, to lead and contribute to the orientation and re-orientation of current and future business and

higher education interactions: *"We take what the scientists do and somehow get it to the patient… we get it so it's available for doctors to use"* (MAY: PSRE: L3). The 'somehow' that she refers to is the codification and translation of knowledge.

COMMERCIALISATION & TECHNOLOGY TRANSFER ROLES: Key Focus: Product Development

I analyse what is being presented to me and whether it is a technology… I analyse it. I see why is it better? [EXPLORER]. What advantages does it confer to a potential user community? [SPECULATOR] How much would they value those advantages? How would we embody it in a product or service? [VALIDATOR] What resources are needed to make it into a product or service? [CONNECTOR] How are we going to fund those? It is all about posing questions and solving problems. [CONTROLLER / CONSOLIDATOR] DANIEL, RG: L4

BUSINESS DEVELOPMENT ROLES: Key Focus: Business Development

I think the scout has to be internal. Facing both directions. So here's my idea. You've got the collaboration managers up here looking for stuff from the research perspective [EXPLORER]. You've got a scout or a group of scouts that are looking at it from the market perspective [SPECULATOR]. JOHN, RG: L3

SALES & MARKETING ROLES: Key Focus: Promotion, Purchaser / End-user identification

I came back to the university and was speaking to my line manager then because I didn't know anyone in the university, I said who could help out with a sealing issue, materials, surface engineering sealing issue? [CONNECTOR / TRANSALATOR]. So I explained the problem as I saw it, I drew some very crude diagrams of what I'd seen there, the seal and what the seal had to do and what it looked like, where it was failing at the moment. [SPECULATOR] I remember one of them turning round to me and saying are you a qualified engineer? I said no. He said so what are you actually doing then? I said well I'm trying to link... explain the company's problem to you so that we can create an interaction going forward [CONTROLLER]. ANDY, RG: L6

PARTNERSHIP & LIAISON ROLES: Key Focus: Relationship Management

The next aspect is working with business to translate what they're seeking to an opportunity that would be suitable to work with an academic partner [SPECULATOR]. And then following on that, where we've identified expressions of interest from universities [CONNECTOR / VALIDATOR] and working with the company to get an outcome. Well I think part of our key to our success has been working very closely with businesses to get outcome and working closely with the universities [CONNECTOR / TRANSLATOR] and then keeping really good track on systems and processes. [CONTROLLER]. SUSANNE, Sp_K.E. Network: L3

BUSINESS PROCESSING ROLES: Key Focus: Regulatory & Monitoring

I wanted to still be involved with the science; I just didn't want to do it. So it gives me the chance to see all of the cutting edge stuff coming out, and be able to look at the science, and be able to look at the research and I can say, I see where that is going, [SPECULATOR] and I like the look of that. [VALIDATOR] But then I also like doing the contract negotiations… trying to come up with creative solutions as to the way certain contracts are worded [CONTROLLER / TRANSLATOR] MAY, PSRE, L3

Figure 40: KT Roles and Indicative Practice Characteristics

One of the potentially contentious roles which emerged from the interviews was that of the *Validator.* This appeared to involve KT staff scrutinising, making judgements, and recommendations about the value (commercial or otherwise) of academic know-how. Validator decision-making appeared to influence resource allocations including those which affect research impact development opportunities and academic workload allowances. The basis for decision-making in the validator role is linked to a combination of tacit knowledge and intuition, and explicit knowledge which is contextualised within processes and procedures (Polanyi, 1966; Smith, 2001). Peter's (1994: L5) comments on his use of gut feeling and instinct during his validator practice support those made by Jason, the Marketing Director in Ardley and Taylor's (2015) study about the usefulness of tacit knowledge who commented that there '*is a role for intuitive gut feelings in new product development'* (p.4).

The final role identified was that of the ***Controller*** which could be divided into two approaches: the restricted and unrestricted Controller. The restricted Controller provides a compliance and regulatory function which supports both internal and external regulatory systems*.* It is a bounded role which operates within set parameters and processes such as the monitoring and reporting on progress against targets for HEIF funding within and outside the university (Whitchurch, 2013; Whitchurch and Gordon, 2010a).

In contrast to this, the unrestricted Controller reflects the individual's need and desire to control and shape the KT intervention or prospect. According to Knight and Lightowler (2010) it is the ambiguous nature of KT roles which appears to provide some KT staff with opportunities to exercise unchallenged autonomy. For example, Andy's (RG: L6) approach to business development is based on a shaping premise whereby he leads and controls the initiative *"I will find a company, I will take an academic to the company, I will drive them there and I shape the interaction..."* At times the freedom to shape an interaction enabled him to impose his belief system on the KT process with the result that he could enthuse or defuse a development opportunity:

> There have been a couple of cases very recently, one where I put the brakes on because it was a French company who makes missiles. I'm not holier than thou and I don't walk on water, but my instincts would extend to the fact that in this scenario, I am perfectly comfortable with students and staff working on the aerodynamics of missiles, as long as they are not going into a warhead, as long as they're not actually working on specific technology that kills people or things. ANDY: RG. L6

This seems to suggest that, freedom to operate enables positions of power, control and influence in the KT process, and where there is a lack of ethical guidance the individual may align the process to reflect his or her own moral compass which further reinforces the position of power. In essence the private world of the KT individual is intruding into the public space of KT practice as predicted by Boud and Walker (1998: 201).

8.4 Artful practices & tactics

Having considered the game of KT, its key players and practices, this section comments on the different tactics KT staff use to augment the practices within the overarching roles described in the previous section. These include overt, covert and transient practices.

8.4.1 Overt conforming practices

Overt practices are conformity practices which are ways of working that are acknowledged, transparent and based in the public domain. This is not the same as Habermas's public sphere (Habermas, 1962 ; Habermas, 2004) which suggests a space for emancipatory politics where debating issues generates new practices (Crossley and Roberts, 2004: 2; Giddens, 1991: 213). Instead this is where the established processes and procedures relating to KT are published and freely available. For example, PraxisUnico[4] provides a series of intellectual property and contract management guidebooks, and the AURIL[5] website provides links to practitioner resources such as Teesside University's Business Engagement Toolkit (Race, [No date]). These are visible and open practices for KT staff which are underpinned by a structure of conformity which is created in accordance with the prescribed rules of the game.

The recognition that conforming behaviour has the potential to promulgate the KT agenda was acknowledged by Sophie who established a KT service in the early 1970s. She explained that when she started her role was primarily one of a catalyst, the key priority being to secure buy-in and achieve change. She followed acceptable institutional practices and pushed change through what she understood to be the correct decision-making channels:

> I was pushing to try and get things changed internally…working with HR, looking at contracts of employment, working with the unions, talking with the finance. SOPHIE, Sp_K.E. Network: L1-Rtd

When discussing his institution's approach to research outputs, Daniel (RG: L4) suggested that his current practices were influenced by funding agencies who were guiding local practices. Whilst not being committed to their approach, he did recognise the need to conform and to be seen to be conforming: this he achieved through selling both the institutional and research council exploitation position to the academic community:

> Well I think one of the things that we will seek to do is get the Deans on board… sell the line that says making the journey from laboratory to proof of concept is not an option, you've got to go down that route because the Research Councils say they should. DANIEL, RG: L4

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[4] Http://www.praxisunico.org.uk

[5] Http://www.auril.org.uk

Whilst Sophie used some conformity practices to progress change, Daniel used some under duress (such as not bypassing what he considered to be cumbersome bureaucracy) since failure to comply could result in loss of research income and REF-able development opportunities. Both, however, demonstrate how powerful players in a field can dictate and influence the practice within it.

8.4.2 Covert manipulating practices

If overt practices are visible and open, covert ones are invisible, closed and based in the private domain. They can be viewed as the darker side of KT since they include the language of manipulation which is multi-layered and mainly aimed at personal positioning. When asked about her career Angie acknowledged her use of covert and manipulative practices to further it. First, she chose an area of work that was a priority for the university which positioned her in a mission critical support service. Second, she developed expertise and learnt the rules of the research game, that is, the regulations, processes and procedures associated with research administration and management. Finally, she identified and aligned herself with key institutional influencers and by working closely with them she was able to take advantage of opportunities when they arose:

> I have come up through the ranks and I have a background in research management and bid writing… So, in many respects my position is always skewed by that. And I think I have got where I am by sheer bloody hard work and being able to manipulate, influence, you know, describe it, how you build those relationships, and take the risks that I needed to at the appropriate time. ANGIE: RG: L4

Although some manipulation practices were evident within all KT functions, the primary recipients of this type of practice appeared to be either the business (end-user) or the academic. In some cases, end-user manipulation was linked to selling the product and sealing the deal through the appearance of being genuine:

> You've got to get out to the company because what this gives them the impression that you are **genuinely** interested in what they are doing and that you **genuinely** want to understand what they do…. ANDY: 1992b: L6

In others, it was linked to securing buy-in to progress the KT agenda through coaching and building trust with academics:

> It's almost a caring profession which is to say that one of the jobs that we have to do is to take our hard crust with academics and be nice to them, make them coffee, make them tea, and sometimes it is a case of you sit around the table and you listen and actually just the process of listening to them sometimes you can actually just give them the encouragement. So it's counselling. JACK, 1994: L2

Both Andy and Jack exemplify Pasold's (1975) *preactive* and *interactive* sales behaviours. Andy's practice is reminiscent of the '*salesman who tries to get the buyer to do what the salesman wants*' (p.171) whereas Jack's approach is more in line with the *interactive* salesman. He influences and is influenced by the buyers of the KT vision and its products to achieve his sale. According to Angie (RG: L4) KT staff need to engage with academics since "*they may hold the solution to a problem the academic wants*

solved". Whilst this may be true on one level, on another it is not, since covert practices may emerge in response to KT staffs' employment conditions, employment which can be linked to performance based funding. This type of inbuilt financial instability within KT has the potential to undermine the relationship between KT staff and the academic community. As Mike (2005: L2) points out, there is a danger that KT staff will *"just create lots of little projects to keep their contracts going under the umbrella of knowledge transfer"* which could distract academics from undertaking more *"useful work"* - specifically research.

If overt practices are linked to the publicly conforming persona that KT staff portray, then covert practices are those associated with the private world of the individual. This is where internal discourses occur and habitus formed understandings and perceptions (neither of which are readily displayed nor verbalised) are located. This is similar to the contrasting identities in Robert Louis Stevenson's novel (1886), except that within KT staff there exists a plurality of practices in both identities instead of a split between good and evil. O'Kane et al (2015) suggests that technology transfer staff use a combination of manipulation and conformance strategies to shape their identity and legitimise their position with the academic community. In his study, he identified a business identity formed with management in mind, and a science identity formed with the academic community in mind. Multiple identities were also present in this study. For example, when Bob (1994: L6) talks about going to see *'my mates in engineering to talk real stuff'* because he *"talks their language"* and *"still wants to be in the lab doing things"* he is positioning himself as a former academic and an experienced laboratory based researcher. However, when his business development identity emerges he positions himself as a KT champion and enforcer and talks about the need to get academics to conform, to respond KT opportunities and the importance enabling the institution to hit its targets. Bob's identity balancing act suggests on-going negotiations exist between his public, private and practice based identities: the public being Bob's need for effective working relationships with the academic community, the private being his desire to be involved in the lab, and the practice being his need for conformity to meet the expectations of the role as understood by him. This seems to suggest that he is *'moving between different working spaces, task, roles and reference groups'* (Henkel, 2010: 10) whilst constructing and reconstructing his identity accordingly.

8.4.3   *Transient oscillating practices*

When Llamas and Watt (2010) wrote '*neither our identities nor language are static…Both are constantly shifting and being re-negotiated in response to the ever-changing contexts of our interactions'* (p.1), they could have been describing KT staff who, by the fluid nature of the KT field are required to frequently change direction and modify their practices

accordingly. For some, modification is the result of institutional re-visioning, whereas for others it is the result of working in world of ambiguity or as Jack (1994: L3) puts it *"a peculiar world of grey".*

Michelle talks about incarnations and reincarnations of roles and how practice has altered to reflect the current focus of the time:

> When you look at five years ago we had business development managers and collaboration managers their role was technology transfer – you go out and find an invention from an academic, licence it or spin it out – that was the mission. Two years later we combined that role together with go out, find a partner to the research work, and then out of that research see if there's an invention, and go and commercialise - so a much broader role. Now we've split it back again. So people who have been here for five years in that collaboration management, business manager type of role have had three different incarnations of the role. (MICHELLE: RG, L4)

Both May (PSRE: L3) and Lindsey (2005: L6) consider practice flexibility to be a response to activity cross-overs, synergy searching and re-styling by individuals and institutions as they try to develop a more coherent approach to KT:

> Some of the stuff crosses over and we're trying to see where there are synergies and try and utilise those to make life a bit easier 'cos a lot of the activities do connect up, but it's about seeing how they connect up long term. Lindsey: 2005; L6

> If they want to license something, great, but if they want to do a collaboration that's fine too. We can do either. May, PSRE, L3

The move away from institutionally dictated KT practices to more negotiated free-styles (May), the emphasis of practice connectivity (Lindsey) and practice re-visioning (Michelle) positions KT as a flexible field, with flexible practice dynamics and flexible deployment of those practices.

8.5   Practice and space

Earlier I commented on the physical and philosophical location of KT from the perspective of the individual and the institution (*See 7.2.1 and 7.2.2*). In this section I explore the spatial location of KT practice and suggest that it takes place within three distinctive spaces which can be contested, shared or owned. See Figure 41 below.

CONTESTED SPACE & PRACTICE	SHARED SPACE & PRACTICE	OWNED SPACE & PRACTICE
ACADEMIC *Teaching & Research*	ACADEMIC *Product Development*	KT *Commercialisation & Exploitation*
ADMINISTRATION *Research Management & Administration*	ADMINISTRATION *Process Management*	
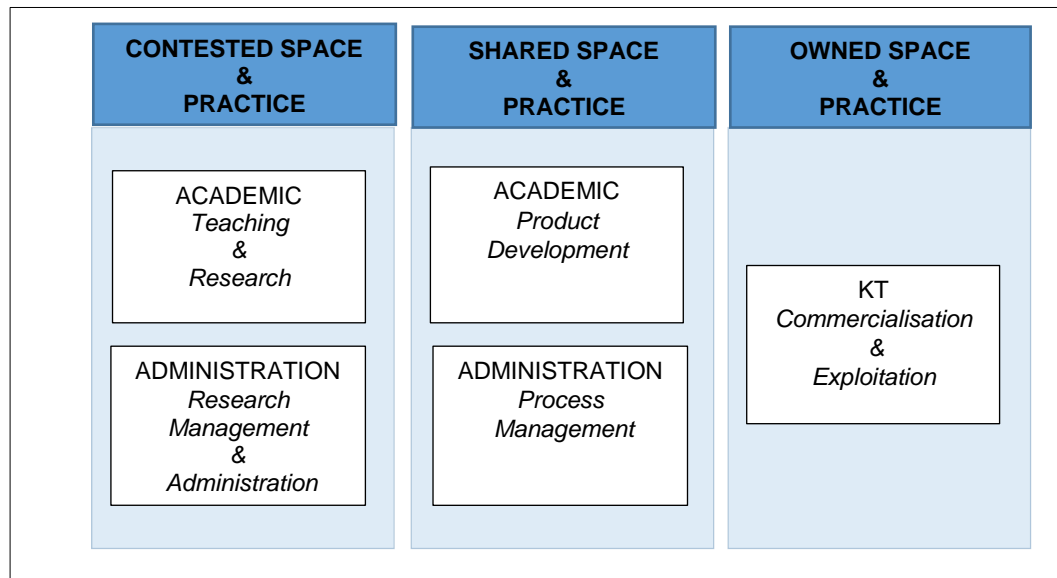
Figure 41: KT Practice Space

8.5.1   Contested spaces

Contested spaces are those which are traditionally the domain of non KT staff and are similar to Slaughter and Rhoades' (2004) interstitial units which have emerged as academic capitalism has *"penetrated into basic academic departments"* (p.203), and Whitchurch's (2009b) *"new forms of professional space"* (p.417). Two key contested spaces were identified in this study. First, KT staff undertaking tasks which could normally be done by academics (Bassnett, 2005), and second, KT staff undertaking tasks which would normally be associated with non-KT support staff before third-stream funding was available such as research administration.

❖ *Contested space A*: *Infiltration into the academic space*

Contested space A is most noticeable in the research field where KT staff initiate and coordinate collaborations, and write or support academics with bid writing. In these cases KT staff have become what MacFarlane (2010) calls a type of *'para-academic'* because they practise *'in the research space of the academic'* (p.464). Although there does appear to be some attempt to differentiate bid writing practice through demarcation of the funding route this, it can be argued, is a superficial boundary imposed to legitimise the KT role and establish ownership of a KT product through ring-fencing. For example, KTP and ERDF submissions were deemed to be non-research proposals and under the domain of knowledge transfer, whereas EU framework proposals (FP7) were considered to be research and under the domain of the academic. In the former, KT staff can act as a leader, champion and teacher to upskill the academic community whilst evangelising the KT agenda. In the latter, they either adopt a role similar to that of an editorial assistant by completing and or commenting on generic elements in bid proposals which require

limited academic expertise, or act as someone who takes the burden of administration away - the assumption being that academics want to relinquish research administration.

These bid writing practices appear to be influenced to some degree by necessity and KT staff's perceptions of academics' time paucity and ability as demonstrated by Andy's (RG: L6) comment *"The time thing is difficult for academic"* as is *"the capability".* He goes on to say that his assistance with drafting FP7 management sections addressed both of these issues with the result that academics had been *"very grateful"* to him. Daniel (RG: L4) who works at Andy's institution implied that a saviour-like position had been established because of his success rate at securing funding. He said "*It's almost like I walk on water"* for some academics. These examples seem to suggest that the rewards of successful infiltration into the academic space are validation and credibility enhancement for the KT individual.

In addition to research, entrepreneurship education emerged as an area of contested practice. This raised a fundamental question about the structure of teaching in UK Higher Education. Where does teaching belong? Is it in the academic space, is it split between the academic and non-academic space or is it in a shared space? These questions are the subject of a different piece of research and cannot be addressed in this thesis, although it is possible to say that in this study it would appear that in some instances teaching entrepreneurship has been differentiated into the delivery of theory-based curriculum (academic space) and vocational-practice based curriculum (KT space). This spatial separation was particularly noticeable in the universities where KT was aligned with enterprise and employability strategies:

> I validated a course called Creative Entrepreneurial Practice because students need to understand the world of the freelancer. There's a whole body of theoretical… there's no one that does the practice how to… that's how I've carved myself out to be the person who knows how to – and that's how I am recognised. CHRIS: 2005: L6.

Validation is a quality assurance mechanism for teaching and learning, for Chris to lead programme development and validation as a member of a non-academic department seems to suggest negation of the accredited – non-accredited practice boundary that his university employs to designate activity ownership; or that his university accepts boundary hopping as a feature of KT. Both examples provided in this section suggest that ring-fencing to control KT infiltration into the academic space may be superficial and easily compromised and yet sufficiently sensitive to enable the realisation of KT opportunities.

❖ *Contested space B: Infiltration into professional administration space*

The main non-academic contested space in this study was linked to professional research administration services. This is where activities such as identifying income

streams, monitoring of research calls, collation of partnership documentation and contract monitoring occurred. Instead of the two-way uneasy relationship between academics and support staff as identified by McInnis (1998) there exists a three-way relationship between academics, support staff and KT staff which is ambiguous as *'control over knowledge'* (p.161), role positioning and consolidation come into effect as territories and authorities are established (Whitchurch, 2006; Whitchurch, 2008).

Angie (RG: L4) suggests that the introduction of the KT agenda has added an unnecessary level of complexity into the existing academic-research support staff relationship at a time when her university had just *"been able to get away"* with the establishment of an institutional research management infrastructure. This, she commented, had been developed in response to changing funding policies by the research councils. It had enabled research administrators to develop their roles and expand their remit to encompass practices which may be more associated with KT staff. To avoid confusion and ensure differentiation, specific practice boundaries had been introduced: KT staff focus on commercial R&D, whilst non-KT staff focus on non-commercial R&D. This approach appears to be based on an assumption that KT staff have experience of business and are therefore predominantly externally facing, whereas research administrators have experience of research regulatory processes and procedures and are predominantly internally facing. However, with a third of the KT staff interviewed from Angie's institution being classified as Home-Grown (Type A) with little or no experience of business, the demarcation of activities based on an assumption of practice formed by previous business experience may be questionable.

8.5.2   Shared spaces

Shared spaces are collaborative spaces. They are troublesome in that they mostly occur in areas of practice contestation where all the players are working together to achieve an agreed goal such as projects, networking and (more recently) scrutinising the quality of research outputs as part of REF preparations. Third space theorists such as Bhabha (1994), Whitchurch (2008; 2013), Licona (2005) and Klein (2013) would consider this to be an example of collegial practices which take place in a third space which has emerged through the convergence of separate practice domains. According to Law (2013) third space is not situated within previous academic or administrative activities and is fundamentally different. Herein lies a dilemma in positioning KT practices within a third space context because academics and non-academics have a history of collaboration in HE. The differentiation between non-academic staff and KT staff simply introduces another non- academic player into the game whilst the main protagonist continues to be the academic without whom there would be no research, teaching or KT opportunities.

In this study, shared spaces are understood to be those which _enable the temporary alignment of multiple practices from a diverse set of players_. It is a political arena in which all of the players are competing for power and position. Annette (1992b: L5) explains how she aligns her practices with others to maximise the potential that student placements can offer. Her approach appears to enable her to exercise authority whilst passing on accountability:

> I have to facilitate, I can't do everything and the academic departments are taking on a lot of the roles and there has to be somebody there who is leading on it…Quite often my role is the practical side of encouraging them to use a formal agreement, encouraging them to think about Health & Safety issues, encouraging them to see the placements as part of a longer term partnership, to kind of harvest the outcomes in terms of case studies.
> Annette: 1992b: L5

She describes a temporary shared space where she works with the academic, student placement officer and the placement company on the development and implementation of a placement opportunity. Once the placement is running, Annette steps back, the student placement officer takes over the responsibility of monitoring student progress (administration space), the academic gets placement supervision added to his work load (academic space) and the Company turns its attention to running the business (commercial space). At this point, it can be argued that the shared space is effectively empty until the next collaboration involving the same people is required. Whilst third space may not be a comfortable fit for the KT activities because collaboration is a pre-existing feature within HE and in some respects sensible joint working, the changeable nature of KT practice and the identity (re)constructions explored earlier, do resonate with Licona's (2005) third space inhabitant, that is, someone who shifts identities '_according to circumstance_' (p.131). This reflects the experiences of many of the participants as they move between space and practice boundaries.

8.5.3   Owned spaces

At the start of this study, the initial assumption was that all KT staff have commercial acumen formed by a background in business which enables them to work across the university-business divide and therefore fill a perceived skills gap in the sector. However as shown in Chapter 7, a significant proportion of the participants in this study have little or no business experience. If the RG and 1994 group institutions had not created boundaries around particular types of research it would appear that in some cases, there is little difference between a business development manager and research development manager other than the source of research income: both assist with bids, both assist with collaboration management, both have project oversight and monitoring responsibilities and both work closely with the academic community and some external stakeholders to identify potential opportunities.

Owned space is the area in which KT staff exercise their practice without non-KT players' involvement. It can be argued this is the source of their distinctiveness and what makes them different to other non-academic staff. In view of the plurality of KT roles, the most distinctive practice identified was that associated with the management and exploitation of intellectual property. Like widening participating staff who have created a space *"outside the main work of academics"* (Burke, 2008: 129), so too have those participants whose remits include technology transfer and commercialisation and whose practices cannot be readily absorbed into traditional academic or service functions. Similar to contested and shared spaces, owned spaces are engineered and include bundles of activities which are ring-fenced by KT staff who appear to be the boundary initiators and in a position of authority and control:

> The way we demarcate what we do is that we only handle intellectual property that is owned by the university. That's the strict demarcation. If the intellectual property is owned by a member of staff because they invented it at home or a student because they're an undergraduate and MSc student and therefore it's not the university's, and if they want to create businesses out of that, then that is somebody else's responsibility. Peter, RG: L4.

Other than the commercialisation elements of KT, what makes KT practices distinctive is the way in which the roles and remits were originally conceived which automatically locates them outside the existing administration space into one which is nebulous, in a permanent state of flux and which requires skilled negotiation by its players.

8.6   Theorising the findings on practice and identity

Studies such as Knight and Lightowler (2010) consider the notion of fluidity within the KT role as something that has '*the potential to produce highly creative*, *innovative and successful projects and ways of working'* and warn against the '*pinning down'* knowledge exchange roles (p.553). Given the plurality and boundary spanning nature of KT practices, it is not possible to identify an optimal distinctive identity as suggested by Brewer (1991). It is, however, possible to suggest that KT staff have a shifting practice-based identity which is constantly (re)forming as boundary hopping and the colonisation of activities through ring-fencing occurs.
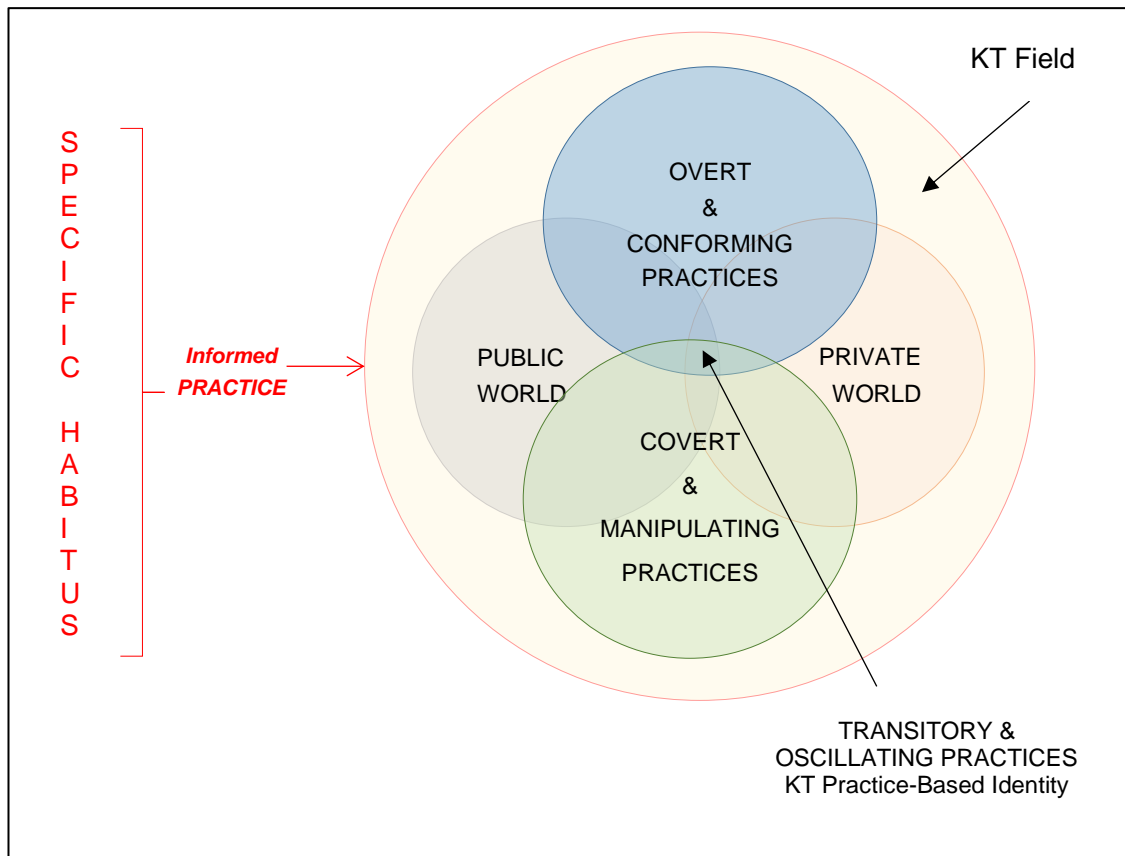
Figure 42: KT Practice-Based Identity

The construction of a KT practice–based identity is depicted in Figure 42 in which:

1. The KT field is understood to be the ***socially constructed area where the game of knowledge transfer is played*** which has rules, regulations and practices informed by both the individual and the collective;

2. Specific habitus includes those dispositions and understandings which are ***acquired through career and employment*** experiences;

3. The ***public world is the public identity*** of the individual whereas the private world contains the invisible ***private identity of the individual***; and finally,

4. ***Overt, convert and transitory practices are strategic and tactical ways of working.*** These are deployed either singularly or in combinations across contested, shared and owned spaces and inform the construction and re-construction of a KT practice-based identity.

8.7   Conclusion

In this chapter I have attempted to show how KT staffs' past experiences informs their current practice. I suggested that KT could be categorised into five functional components which were supported by six different roles and associated practices. I noted that KT staff could play a single role or a combination of roles at any given time and whilst it is convenient to be able to categorise behaviours, it is the juggling of plurality at various stages of the KT process which allows them to influence the process, infiltrate spaces,

ring-fence activities and establish authority. Drawing on their experiences, their interpretation and understanding of context and spaces in which they operate, KT staff are able to adapt and modify their practices depending on the circumstances in which they are working. This is revealed through their practice-based identities which are essentially projects in progress which are constantly in flux and subject to change and never completed (Erikson, 1968; Hollway, 2010).

Having considered the individuals' and institutions' understanding of KT in terms of what it is (Chapter 6), how the field is constructed (Chapter 7), and KT practices including where and how these are deployed, in the following chapter I consider KT from an occupational perspective and ask, is KT a profession?

CHAPTER NINE

VISIONS OF A PROFESSION

9.0   Introduction

Throughout this thesis, until this chapter, I have avoided both using the term 'KT professional' and referring to a 'profession' when exploring the KT field and the practices associated with it. This is because using these terms would have implied that I accepted the existence of a KT profession without question or examination. In this chapter I attempt to answer this question through the exploration of individual and collective understandings of KT as a profession whilst linking these to the 'profession' propositions of two KT associations. First, I explore the attributes of a profession and use these as a basis on which to examine the Institute of Knowledge Transfer (IKT) and the Alliance of Technology Transfer Professionals (ATTP). Second, I comment on the views of the participants and their understandings of a KT profession and whether they consider themselves to be KT professionals, after which I speculate about how their interpretations of both the profession and the professional-self inform their work-based identity. Third, I comment on a potential disconnect between KT associations' and KT individuals' understandings of the profession, and suggest that KT is not a fully formed profession but instead is a community comprising of multiple sub-communities bound together by practice. I also highlight the evolutionary nature of the sub-communities and suggest that the Technology Transfer and Commercialisation (TT&C) sub-community appears to be emerging as a separate profession as it seeks to embed many of the attributes of a profession within its practice. Finally, I draw all the strands together and suggest that KT identity constructs are not dependent on membership of a recognised professional association or body, but instead they are the result of a quartet of attributes and assumptions. This quartet comprises an individual's vision of a profession and their understanding of what it is to be a KT professional; the on-going promotion and elevation of a *'systematic theory'* (Greenwood, 1957: 45) as the facts of KT are created; the naming and claiming of practice activities as KT staff seek to secure practice boundaries; and the monopolisation of the practice market (Larson, 2013) by the KT hierarchy which serves to protect job territories whilst reinforcing the specialist nature of KT skills.

9.1   The attributes of the profession

In this study a *'profession'* is understood to be the '*structure'* and *'professionalisation'* the process (Greenwood, 1988: 4) through which the knowledge and practices of an occupation achieve professional status, with the *'professional'* being '*an authority in his own field*' (Parsons, 1954: 38).   There is an extensive body of literature about the professions ranging from: Carr-Saunders and Wilson's (1933) chronological summary

and classification of the professions: Greenwood's (1957) occupational continuum, which differentiates the professions from occupations by prestige and skills; Wilensky's (1964) occupation to profession transition stages; to Larson's (1977) positioning of the professions as monopolies of expertise and status which enable collective social mobility. Despite the on-going ontological debates in this area, there does appear to be some agreement about the specific attributes or, as Larson (2013) says, '*the general dimensions*' (p. x) of a profession. It is an amalgamation of these which I have used to explore notions of the KT profession and professional status within the field.

In terms of the characteristics of a profession, I suggest that there are seven key attributes which represent the cognitive, controlling or community dimensions of a profession. *Cognitive* attributes include theory and theory informed practice components. *Controlling* attributes are primarily regulatory structures which enable members to define the profession through enforcing and reinforcing practice boundaries and finally, *community* attributes are those which unite the practice collective as a profession through a *'consciousness-of-kind'* and a sense of professional belonging (Greenwood 1957: 52). The seven attributes are described below:

9.1.1 *Cognitive attributes* include:

1. *Specialist theoretical knowledge* which is the intellectual component of the profession according to Greenwood (1988) and provides the theoretical knowledge on which practice in the field is based (Millerson, 1964).

2. *Specialist skills and expertise* which are required to practise in the field. These may be validated, certified and delivered through a professional body or a Higher Education system and maintained through CPD frameworks (Licona, 2005; Millerson, 1964).

9.1.2 *Controlling attributes* include:

1. *Autonomy, control and regulatory structures* which enable the profession's '*hierarchy to assess and confer power and privilege'* (Greenwood, 1957: 48). Such structures ensure control over admission into the profession and on-going maintenance of standards through monitoring and regulatory powers. These are the monopolistic traits which facilitate the closure of the profession to those individuals who do not meet set practice standards, and enable the profession to control the skills supply in the market as the activities of unqualified practitioners are curtailed through professional exclusion.

2. *Practice authority and recognition outside the field* which contributes to the establishment of new or colonisation of existing practices and stimulates protection of the job territory (Wilensky, 1964).

3. *A code of practice with defined ethical standards* which provides practice guidelines that are both punitive and protectionist. That is, they protect the professional's practice territory and the clients' interests against unqualified practitioners, as well as providing a penal system to maintain the integrity of the profession (Ladd, 1980).

9.1.3 *Community attributes* include:

1. *A culture* with '*values, norms and symbols'* (Greenwood 1957 52). Values are basic and fundamental beliefs, norms are agreed ways of working and symbols are both hierarchical badges of merit (status and qualification labels) and signs of *'connectedness'* and *'groupness'* such as participating in formal and informal networking activities (Brubaker, 2005: 75). Culture is also closely aligned to controlling attributes since it has the potential to reinforce the exclusion of non-professional practitioners from the practice market.

2. <u>*A professional body or association:*</u> which according to Carr-Saunders and Wilson (1933) is the foundation of any profession since *'a profession can only be said to exist when there are bonds between practitioners, and these bonds can take but one shape – that of the formal association'* (p200, 298). The purpose of professional associations, they suggest, is to test the competence of their members and maintain an ethical code of conduct. Whilst these two processes ensure the integrity of the profession, equally important is the role that professional bodies and associations play in championing the cause and acting as an advocate for its members outside the field without which external recognition of the specialist nature of practice may be harder to secure. *(See Section 9.4 - Image and recognition).*

Using the attributes listed above, two KT associations which claimed to represent the interests of KT professionals and practitioners were examined. Both associations had individual membership structures; although one was generic whilst the other was a specialist TT&C association. The decision to include a specialist TT&C association was based on findings detailed in Chapter Eight which noted that this element of KT activity appeared to be an area of practice distinctiveness *(See Section 8.5.2 - Owned spaces).*

9.2   Professional and practitioner associations

According to the Oxford English Dictionary (2015) an institute has a *'particular purpose'* which is linked to *'science, education, or a specific profession'* with usage of this term within a business context requiring approval from the UK Secretary of State because of the inherent connotations and assumptions it brings. Approval is based on an association's ability to demonstrate that it meets the Companies House criteria for an institute in that it *'typically undertakes research at the highest level'* or is a professional body of the '*highest standing'* (Companies House, 2015: 46). Since the IKT is not a

research institute, it would appear that permission to use the term may have been granted on the basis that it was representing the interests of a group of individuals engaged in a specific type of professional activity. Thus, the IKT was formed in 2004 with the nature of its business categorised as *'activities related to professional membership organisations'* (Companies House Register, 2015). In essence, through the use of the word 'Institute' the founding members had achieved what Wilensky (1964) describes as public and private agitation which is the acknowledgement of the specialist nature of the skills to practise in the KT field.

One of the participants of this study was involved in the early stages of IKT's formation and during her interview she reflected on the impetus to professionalise KT. She describes how it was motivated by a growing awareness amongst a small group of KT individuals of the need for a profession which is recognised beyond the immediate KT field to enable them to validate and legitimise their job positions and practices:

> It was about 2001 that we started looking at the fact that we needed to be a profession because if you look at what we do and you look at what consultants do and you look at what the Chartered Institute of Marketing people do and you look at what people in CIPD – the Chartered Institute of Personal Development do. Why are we not a profession? And we started thinking to ourselves that many people were going for membership of the CIM thinking that was a good way forward but this is only a tiny part of our job. SOPHIE, Sp_K.E. Network: L1 (Rtd)

The suggestion that KT practitioners failed to find a professional home and a body that could represent their interests amongst established professions such as the CIPD and CIM (Chartered Institute of Marketing) is not surprising since it reflects the multi-faceted nature of KT practice. As Sophie points out, CIM was a good way forward but it only represented one element of KT practice: at that time the totality of KT practice could not be served by any existing professional body. As discussed earlier (*Chapter 8: The Practice of Knowledge Transfer*), KT is a broad church with a diversity of skills with contested ownerships and a practice which is difficult to articulate. Therefore, the creation of an institute which caters for practice diversity could be the solution for an emerging profession which is finding the articulation of distinctiveness challenging, since it would provide a structure through which the professionalisation of KT practice could occur:

> We were able to get it registered as an Institute because it isn't the same as anybody else. It was seen to be sufficiently different and that people having the skills to do our job is sufficiently different from any other institute in the country and therefore Companies House allowed us to register as an Institute because of that. That was the important turning point for us. SOPHIE, Sp_K.E. Network: L1 (Rtd)

Whilst the structure for a KT profession appears to have been established, it would appear that many of the attributes which formalise and instigate the process of professionalisation are either absent or remain at an embryonic stage. This is particularly noticeable amongst the controlling attributes. Whilst there is an IKT skills competency

framework, there is no mandatory or regulatory training to suggest that an individual working in KT has reached a required standard of practice. The absence of professional standards such as a code of conduct undermines the consolidation of the profession and whilst Sophie may argue that KT *'is a profession in terms of when you look at the number of people that are employed in this area'* and that it is a profession *'the same way as accountancy is a profession',* it can be argued that this may not be the case since the number of individuals working in a specific area is not the same as an established profession with its cognitive, controlling and community attributes, and visibility and recognition outside the practice field. Despite its current membership of 300 individuals (Birch, 2015) and appearance of providing a home for a KT profession, the findings of this study suggest that the IKT may have limited leverage or influence amongst the practitioners it claims to represent *(See Section 9.3.2- Missing attributes).*

In contrast to the IKT, the Alliance of Technology Transfer Professionals (ATTP) appears to be forming the attributes of a profession through an alliance of associations and, although it does not have the structure of an institute, it does appear to be emerging as a regulatory body for TT&C practice. It was created in 2009 when the four founding associations agreed that there was a need for a *'global alliance to support a credential across borders' (Alliance of Technology Transfer Professionals, 2015).* The aim of the alliance was to unite, educate and strengthen the position of technology transfer practitioners in, what the founders called, *'our'* industry. This resonates with Greenwood's notions of a *'consciousness-of-kind'* (Greenwood 1957 52) amongst the founding members of the need to be able to articulate and validate the specialist nature of TT&C skills to individuals outside the KT field.

Although this is the same initiation process as that adopted by the IKT, I suggest that the two associations are at different stages of formation because of their different approaches to education and training. Both associations offer a wide range of professional development opportunities but only one, the ATTP, has a progression infrastructure with emerging standards of practice. The ATTP was established with the power to award Registered Technology Transfer Professional (RTTP) status through an accredited training structure (which it controls), and therefore has had the power to include and exclude practitioners since its inception.

Whether by design or serendipity, the extent of the ATTP's regulatory control is readily apparent through closer examination of the current membership associations[6]: all have mapped their education curricula and training activities to RTTP standards and all direct their members to the ATTP for professional recognition purposes. Of the 10,000 members around 2.5% have RTTP status and this is growing with approximately 5-25 applications submitted each quarter (Prib, 2015). Although there is anecdotal evidence that RTTP is being included as a requirement in some recruitment activities in Australia, the current *'Building a Better Framework for Technology Transfer'* project, which is being led by Knowledge Commercialisation Australasia (KCA) and funded by the Professional Standards Council (Australia), could result in an accelerated professionalisation process as career pathways and professional standards are considered. The aspiration for TT&C to be recognised as a profession and the process of professionalisation appears to be occurring in one of the ATTP founding member countries, and this has global implications given the geographical spread of the ATTP membership:

> We have formed a comprehensive competency framework based on feedback from our workshops, and we are at the next stage which is interviewing our stakeholders (researchers and industry) to see what we might be missing. In the eyes of the Australian government (http://www.psc.gov.au/what-is-a-profession) - we are not yet a profession (Prib, 2015).

In this section, I have focused on the claims of two associations which have positioned themselves as representing the interests of KT staff: in the following sections, I turn my attention to the views of the participants and their understandings of the KT profession and whether or not their views reflect those of the associations.

9.3   Visions of the profession

In this study, there was general agreement amongst the participants that a coherent and recognisable KT profession did not exist despite the presence of formal membership associations. Instead, the views presented by the participants suggested that the creation of a single profession or a series of professions allied to KT is a project in progress with unfinished work in terms of creating the facts of KT, and developing some of the key attributes required to be recognised as a *bona fide* profession.

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[6] ATTP membership associations and their geographic focus include:

1.	America:	Association of University Technology Transfer Managers
2.	Australasia:	Knowledge Commercialisation Australasia
3.	Europe:	European Association of Science and Technology Transfer Professionals
4.	Japan:	University Network for Innovation and Technology Transfer
5.	Germany:	TechnologieAllianz
6.	South Africa:	Southern Africa Research and Innovation Management Association
7.	Sweden:	Swedish Network for Innovation and Technology Transfer Support
8.	Turkey:	Üniversite Sanayi İşbirliği Merkezleri Platformu
9.	United Kingdom:	PRAXISUNICO

9.3.1   Profession or bonded community

Like many of the participants, May (PRSE, L3) did not position KT as an homogenous profession: instead, she positioned it as a community comprising multiple communities or *'sub-crafts'* (Carr-Saunders and Wilson, 1933: 320) which are grouped and bonded together by their specialist practices. May's construction of the profession resonates with that of Bucher and Strauss's (1961) who suggest that a profession could be considered as a *'loose amalgamation of segments pursuing different objectives in different manners and more or less delicately held together under a common* name' (p326). Her heterogeneous approach makes allowances for "*many identities, many values, and many interests*" (Ibid: p326) and provides her with a rationale to explain speciality segmentations within the KT field:

> There's the group that called themselves the traditional tech transfer community that do, you know, *hard line* licensing spin outs and some sort of, you know, research collaboration type thing but very much sort of, you know, getting widgets out of the door sort of stuff. And then there is another community that, it's still knowledge transfer but it's a different sort of knowledge transfer, it's about community engagement and public dissemination and student entrepreneurship and all of those sorts of things - Which actually was another attraction for me here, because I don't have to deal with any of that, which is kind of the bit that I didn't like that well. That *soft side* of things I didn't like. MAY, PRSE: L3

In addition, May also implied that a hard-to-softness scale of practice exists within and across the wider KT field.   This perspective appears to reinforce her personal understanding of community differences and where her TT&C skills are located within the field's practice hierarchy. Her scale is similar to the work undertaken by Crawford and Pollack (2004) on the differences between hard and soft IT projects. Hard projects, they suggest, are those which are based on positivist philosophies (scientific and technical foundations), whereas soft ones are those which are rooted in *'interpretivist and constructivist schools of thought'* (p646).   Given the technical nature of technology transfer and commercialisation activities, the categorisation of these practices as being hard is understandable. However, I suggest that three other factors may also be at play which could have influenced May's views: UK Government policy; status allocation within the field; and the influence that external agents have on internal field dynamics.

First, the UK Government's push in recent years away from transactional technology transfer to broader strategic partnership-style relationships (Department for Business Innovation and Skills, 2014) means that the maintenance and or elevation of the status of the TT&C community within the broader spectrum of KT becomes an important feature in terms of claiming skills exclusivity and retaining job territory.

Second, despite the apparent absence of a formal profession, it would appear that intraprofessional status allocation is taking place whereby the position and status of a

speciality in the field is being '*assigned to groups and individuals in the profession by the professionals themselves*' (Abbott, 1981: 820). In the case of the KT field, I suggest that status is allocated on the basis of the complexity of the work as perceived by field members, the specialist skills required to practice as (mis)understood by individuals in the field, and the relative value of the deal (financial or otherwise) to the institution. These features appear to be present in the Route 3 Registered Technology Transfer Practitioner (RTTP) criterion which is aimed at senior TT&C practitioners. It includes measurable transactions which suggest a practice complexity which requires high levels of expertise:

- Major licensing or collaboration agreements—or major strategic relationships or equity financing deals—in which you were the lead negotiator
- Major (US$ 3 million+ budget) technology transfer or knowledge transfer initiatives in which you were the initiator, architect or lead
- Three or more practitioner courses or workshops you developed, presented (or other role) for one of the founding ATTP Associations.
- You have published multiple peer-reviewed, thought-leadership papers relevant to the technology transfer profession   (Alliance of Technology Transfer Professionals, 2015)

In contrast to this, the criteria for the IKT Fellowship which is aimed at senior KT staff appears to be softer with no explicit reference to transactional value other than success in KT:

- Reached high levels of competence in KT at leadership level
- Achieved professional success in KT, recognised by peers
- Regularly updated their own skills and knowledge through continuing professional development (CPD)
- Shown encouragement of others in KT, particularly those at the start of their career
- Made an outstanding contribution to the furtherance of the KT profession
                                        (Institute of Knowledge Transfer, 2015)

Based on these two examples and applying the status allocation elements I described above (complexity of work, skills expertise, and transactional value), which KT players might have a higher status within the field? Is it those aligned with an association which can clearly articulate the practices and outputs of its members in terms of fiscal transactional values or is those KT staff aligned to an association which appears to be more fluid and less absolute? Whilst exploration of the mechanisms for status allocation within multi-segmented bonded communities is beyond the scope of this research, it would appear that in this study these activities are reflective of individual and collective power relations within the field.

As previously noted TT&C activities are dependent upon a robust research base and an exploitable IP pipeline. The most successful TT&C functions appear to be either based in or linked to research-intensive institutions. For example, in 2013/14 there was a '*51.3% increase in intellectual property income from £87 million to £131 million*' (HEFCE, 2015a:

7) of which £92,982 million (70.8%) was generated by RG universities (See Appendix 6). For these institutions who claim to have the '*very best research'* and '*unrivalled links with business and the public sector'* (Russell Group, 2015), TT&C is an integral part of being world class since it contributes to their overall positioning in global league tables. Therefore, the third and final element which appears to affect intra-field community positioning (and individuals' understanding of it) is the importance that institutions place on specific specialist activities and the amount of influence that external agents like institutions can have on internal field dynamics.

9.3.2   Missing attributes

Missing attributes associated with the professions identified by the participants included a recognisable and coherent body of knowledge, that is, the *systematic theory* that Greenwood (1957) refers to which provides a theoretical basis for practice. Closely aligned to this are entrance qualifications to restrict membership and 'close' the profession, and a code of practice which offers a '*service ideal'* which Goldstein (1984) defines as *'a commitment to place the needs of self-interest of the practitioner below the needs of the client, even though the practitioner is earning a living through the exercise of the profession'* (p175). According to Jo (PSRE: L3) all of the above attributes are missing from KT which is why she doubts its professional status:

> I have doubts in mind whether it's fully yet a profession, because it's lacking... it doesn't yet have a coherent body of knowledge…it doesn't have professional ethics. JO, PSRE: L3

When asked to clarify what she meant by a coherent body of knowledge, she compared KT to established professions whereby professional skills are taught, developed and tested over a period of time until the professional standard has been met. In essence, the process of mastering professional practice appears to be absent:

> [A coherent body of knowledge has] … a syllabus/subjects/topics that you need to learn about or be taught and be assessed on in some way - think how lawyers, accountants, accounting technicians (AAT) and doctors need to train, pass exams and apply their learning by gaining practical experience in before they are qualified. Look at how purchasing now has a similar approach through the Chartered Institute of Purchasing and Supply (CIPS). JO, PSRE: L3

Herein lays an anomaly. All the associations referred to in this study provide a wide range of professional development opportunities aimed at improving and enhancing the skills of staff working in KT. This seems to suggest that a body of knowledge does exist since it is likely that practice is being informed by theory delivered during these sessions and vice versa, with theory possibly being further developed by the experiences of practice in the field as a result of experiential learning. In which case, the question is, why do some participants fail to recognise that a body of knowledge exists? Is it because there is no accredited training delivered through a professional body or through the Higher Education

system? Or is it because without accreditation the theoretical underpinning of KT is invalid? Or is it a combination of both factors?

If the key attributes of a profession such as skills based on theoretical knowledge and education and training certified by examination are either absent or in doubt, then activities linked to these attributes are also likely to be open to question. For example, Angie (RG: L4) raised the subject of the KT career during her interview. Using the finance sector as an example, she suggested that the lack of a defined KT career pathway not only confirmed the absence of a KT profession but delayed its formalisation because there was nowhere to progress to:

> Go back to the chartered accountant... if you are a chartered accountant you either go to another practice and go up the chain there, or you go into industry either as a financial manager or financial director. ANGIE, RG: L4

Established professions such as law, medicine and accountancy have progression structures which *'regulate individuals' ambition into a career'* (Larson 2013: 74) and imply increasing levels of expertise whereas KT does not. Although the ATTP is beginning to look at this, it will require employer recognition for it to become embedded within a career structure.

9.4   Visions of the self

An interesting element which emerged during the interviews, but does not appear in the literature to any great extent, is the relationship between visions, images and recognition during profession and professional identity formation. In the following section, I comment on the challenges that participants faced in visualising the KT profession and how this may have influenced the formation of their KT identity.

9.4.1   Visions and images

When considering the nursing profession, it can be argued that the average lay person has a vision of 'the nurse' and what she or he does, and although perceptions may change over time (Hallam, 2002; Kiger, 1993), the nursing profession's primary directive remains unchanged: that is, nurses care for the sick. Nursing also has the added advantage (or disadvantage) of a history and a media presence which promulgates multiple images of the profession to the general public. It has a position in society whereby most, if not all people will have had some form of contact with someone linked to the nursing profession. The same cannot be said for KT. As Ed (Sp_K.E. Network: L1) points out, the KT name "*conjures up nothing because it's an amalgam of all sorts of skins".* The dilemma is, according to Nick (1992a: L6) that, *"the only people who know about knowledge transfer are knowledge transfer practitioners".*

I suggest that the introspective nature of the KT community as noted by Nick, coupled with an apparent lack of imagery and external presence associated with the field (such as the individuals who work in it and the type of work they do) appears to be stalling the occupation to profession transition process. Public and private recognition is either missing or selective:

> I don't feel I'm recognised as part of a profession, no... I feel collectively maybe we're recognised as a profession within our own immediate circles within higher education but outside of higher education no. ANDY, RG: L6

Sophie (Sp_K.E. Network: L1) suggested that community introspection was reflected in the failure to clearly articulate the substance of a KT profession and secure buy-in:

> I think it's very hard to articulate that to the external world. It goes back to you asking when people ask you what you do you say working across the universities... it's very hard to... it's not a recognised profession yet. I think we need to work a lot more on public understanding of what it means to be... I think you almost want a clear role, like an accountants got very defined... if you made it much clearer words to describe it and then you need to work quite heavily on getting that public perception of what we do SOPHIE, Sp_K.E. Network; L1

When considered together, it appears that Andy, Nick and Sophie were talking about structural weaknesses within the KT field which need to be addressed before a profession with membership criteria could be established and *'professional authority'* (Greenwood, 1957: 47) with practice *'jurisdiction'* (Abbott, 1988: 33) secured. Professional authority is the recognition and acknowledgement of a profession's specialist knowledge, whereas the practice jurisdiction is the profession's control of the practice territory. Both of these elements are challenging for KT since the field and its associated practices are in a constant state of flux with on-going negotiation and renegotiation. (*See Chapter 8: Space and Practice*).

Despite this apparent fluidity, Marcus (1992b: L1) considered there to be a *'certain inevitability'* about a future KT profession and that closure of and monopoly of practices will occur over time as KT staff seek to protect practice territory:

> People are social animals and they like to get together with other people that do similar jobs and exchange information and as soon as they do that they also start to develop professional identities and as soon as they do that they start to develop professional defensiveness which are barriers so that they can control what's going on. Sooner or later there will be a professional accreditation in knowledge transfer and then there'll be an attempt to make sure that someone from the Institute of Knowledge Transfer has to sit on every appointment committee MARCUS, 1992b: L1

I suggest there is some doubt as to whether the establishment of a general KT profession is inevitable given the issues linked to core knowledge, practice authority and jurisdiction. As noted earlier, it is more likely that one of the specialist communities under the KT umbrella will form a profession in its own right. For example, the growing interest in RTTP accreditation seems to suggest recognition, qualification entry and practice closure:

> We now have over 250 registered RTTPs and 26 new applicants in the last round. The numbers applying each round appear to be increasing and there is a definite trend from Route 3 applications (old, experienced people) to Route 1 (early career TT people). I

know that I and a number of other people I know now have RTTP as a desirable thing in [job descriptions and recruitment] adverts. (Cullen, 2015)

9.4.2 Professional practitioner

Within this study the words 'professional' and 'practitioner' appear to be interchangeable at times. They both come together under the guise of a *professional practitioner* when participants reflect on their understanding of being a professional and practising in a professional manner. All the participants were asked if they considered themselves to be a KT professional. Only four (13%) commented that they did, and even then, they did not use the term routinely because it had limited value outside the HE sector and the KT community. In some instances, there was ambivalence and indecision. For example, Emma (1992b: L4) was undecided about what she called herself during the interview and appeared to debate how she would sell her role to people who were not part of the KT community. Initially she said, "*I'd probably label myself as that* [a KT professional]*"* and then in the following sentence she changed her mind *"or maybe a practitioner, a knowledge transfer practitioner".*

This appears to be a form of identity manipulation in that Emma is adjusting her title to reflect the image she has of the KT role and what she believes other people have of it: someone in KT has to be understanding and aware of people's needs. This is what Emma does and this is her practice: hence, in her opinion, she is a practitioner who is professional in all her dealings. The same applies to Daniel (RG: L4) whose image of a KT professional is also based on his own definition:

> Yes, I am [a knowledge transfer professional] But you see, I think my role in life largely fits with the definition I gave of a knowledge transfer person…

His definition being:

> A KT professional is an individual who works in, probably an educational institute, and identifies fruits of research which have commercial, social or environmental value and makes efforts to move those fruits of research into a regime where they can be exploited. DANIEL, RG: L4

The various interpretations and internal negotiations which appear to be taking place at an individual level suggest that in the absence of a profession with strong professional associations which are '*re-framing identities'* for internal and external audiences (Greenwood, Suddaby and Hinings, 2002: 59), KT staff are forming their own on the basis of their understanding of the field and beyond. The point to be made is that, irrespective of whether those working in KT are members of a profession or of a multi-segmented community, it appears that it is possible to position oneself as a professional without being part of a constituted profession. This resonates with comments made by Freidson (2001) in his book *Professionalism: The Third Logic* in which he argues that professionals '*need not be members of an association, and an association need not be taken to represent*

them.' (p.142). As Liz (PG: L4) points out, it is not about labels and associations, it is about being professional:

> I think they're part of a community but I don't think they are knowledge transfer professionals… you don't get to our level without being a professional. LIZ, PG: L4

Therefore, the definition of a KT professional appears to be defined as someone who is knowledgeable of the field, a skilled practitioner with an attitude which puts the needs of the client first and with sufficient credibility to exercise practice authority.

9.5   Theorising the findings on professional identity

Vivekananda-Schmidt, Crossley et al (2015) suggest that professional self-identity is linked to the *'extent to which an individual feels like a member of the profession to which they intend to become part of'* (p2). In the absence of a history, a recognisable body of knowledge outside the field, images and a media presence, and a training system to validate practice mastery, the formation of a KT identity within the context of an unformed profession is shaped by individual interpretations of the field. These interpretations are informed by interactions with players in the field and engagement with external agents that have vested interests in the field, such as employers. How these interactions and understandings contribute to the construction of a work-based identity is depicted in figure 43 which suggests the formation of a professional KT work-based identity is influenced by the relationship between visions of the profession, specialist knowledge which requires the mastering of specialist or superior skills, colonising practices and monopolisation of the practice market.
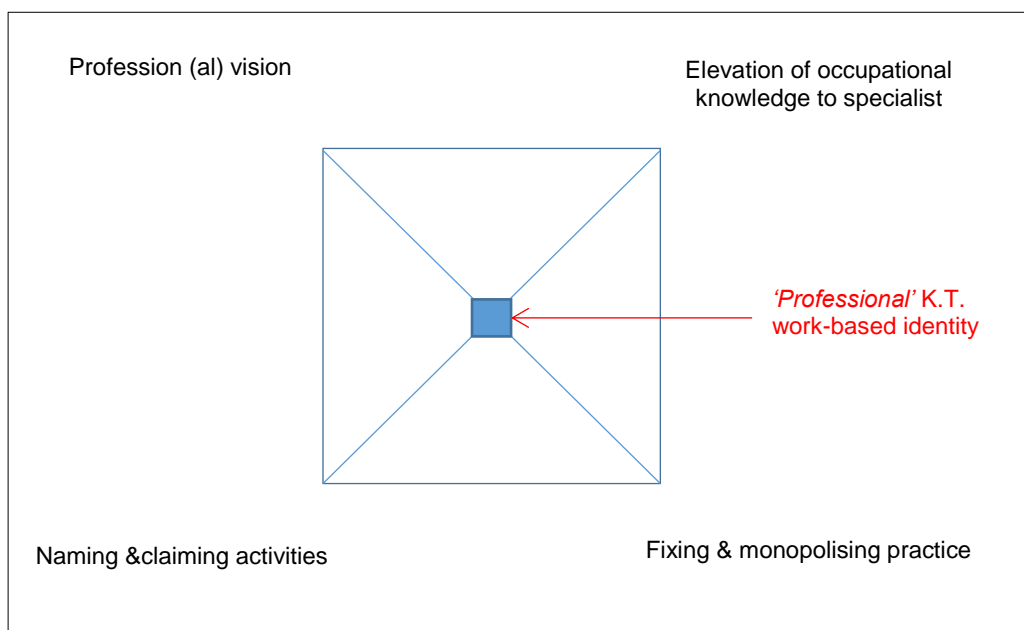

Profession (al) vision

Elevation of occupational knowledge to specialist

'Professional' K.T. work-based identity

Naming &claiming activities

Fixing & monopolising practice

Figure 43: Professional KT Work-Based Identity

In Figure 43 above:

1. ***Profession(al) vision*** is understood to be an individual's beliefs and imaginations of what a KT professional looks like in terms of skills, expertise, persona and the profession in general;

2. ***Elevation of occupational to specialist knowledge*** is the external recognition of a distinctive body of knowledge which requires specialist skills when practiced thus ensuring the difference between the '*professional and the non-professional occupation*' (Greenwood, 1957: 46);

3. ***Naming and claiming activities*** are those activities which occur within and across multiple practice spaces and are how KT staff assert ownership by means of infiltration, strategic and /or tactical ring-fencing *(See Section 8.5)*; and

4. ***Fixing and monopolising*** is the process of inclusion and exclusion of non KT staff as KT practice jurisdiction is secured through processes and regulations and the flow of specialist skills are controlled in the practice market by the professions hierarchy.

These four attributes provide some context through which KT staffs' notions of being a professional working in the KT field are converted into an identity manifested as a ***professional KT work-based identity*** instead of a knowledge transfer professional identity.

9.6   Conclusion

The purpose of this chapter was two-fold: to ascertain if there is a KT profession and to explore how participants of this study understood the profession in terms of what it is, what it means to be a KT professional and how this influences their work-based identities.

I noted that there appears to be a disconnect between some of the associations who claim to represent the interests of the KT community and members of the KT community who commented on missing attributes which they considered undermined any claims about the existence of a formal profession. In terms of generic KT activities, I identified limited recognition of the existence of a coherent body of specialist knowledge amongst the participants. This, I consider, is a challenge for any professional association or body trying to articulate practice distinctiveness and will inhibit the speed at which transition from occupation to profession will occur. I suggested that a specialist sub-community like TT&C has greater opportunity to develop a profession because of the specialist nature of its practices which makes it distinctly different. TT&C appeared to have a different status within and outside the KT field. It was considered to be hard, with a work complexity and skills exclusivity which is not traditionally found in the HE sector, and it was showing the signs of closure as demonstrated by Peter (1994: L4) who would not

employ anyone in a TT&C role unless they had spent considerable time in a complex commercial environment.

The dichotomy I noted between the generic and the specialist KT staff is supported by Carr-Saunders who suggested an inescapable professionalisation for the specialist, with a slower protracted route for those activities with generic loosely bounded skills:

> Where a technique is specialized, the rise of a profession is unescapable: where it is generalized, its coming must wait upon the growth of a sense of common responsibility in order that the loose bond, created by the possession of a common but ill-defined technique, may be drawn more tightly (Carr-Saunders 1933: 492).

I suggested that the KT profession and any professions allied to KT are still being formed because they are missing many of the attributes associated with a profession. And whilst there are issues relating to a body of knowledge which requires mastery of skills to practise, it is the absence of controlling attributes which requires addressing. Until regulatory systems such as professional standards and codes of conduct are established, professional closure will not take place and the difference between a qualified and an unqualified KT professional will not be recognised.

Finally, I identified that, whilst KT staff consider themselves to be professional, they do not necessarily consider themselves to be part of a distinctive profession. In view of this, I theorised that KT staff construct their identities based on their interpretation of the world in which they work and the communities and stakeholders with whom they engage. It is a summation of their vision, their understanding of the profession and what it means to be professional as well as being a reflection of the practices, tactics and strategies they employ in the field. Just as much as the professional associations appear to be on a voyage of discovery because '*public recognition can hardly be afforded to a group that has not discovered itself*' (Carr-Saunders, 1933: 295), the findings of this chapter indicate that identity construction is also a voyage of discovery for the individual, the result of which is a professional KT work-based identity.

CHAPTER TEN

REVISITING THE CONCEPTUAL FRAMEWORK AND CONCLUSION

10.0   Introduction

In this concluding chapter, I modify my original conceptual framework to incorporate the key findings of this study and answer the research questions on which the study was based. I comment on the theoretical propositions that emerged from the thematic chapters and suggest that my initial conceptual framework was lacking in breadth and complexity since it did not take into consideration the extent to which the academy influences identity construction. Neither did it fully recognise the influence of the context in which the individual is working on behaviours and motivations, nor how the passage of time affects individual and institutional perceptions, interpretations and reinterpretations of the KT field that contribute to the evolution of practice. I suggest that the revised framework positions KT identity as a multi-dimensional phenomenon which is influenced by capital and field constructs which are informed by both the individual's and the collective's habitus. Together, these result in the fragile acceptance of an *institutional KT identity, which* enables multiple KT roles and agendas to co-exist (*See Section 6.5*). An *institutional KT space* which provides the physical and philosophical spaces where shared, contested and or owned practices are located (*See Section 7.5*) and an avenue through which KT staff develop socially constructed *practice-based identities (See Sections 8.6*) which are fluid and responsive to both internal (emanating from the individual) and external (emanating from outside the individual) stimuli.

10.1   Concluding the conceptual framework

In Chapter Two, I suggested a simple framework based on Bourdieu's (1992) social constructionist thinking tools (capital, habitus and practice). These provide a means to explain social positioning, hierarchy and power in a world which comprised multiple fields that are structured and restructured by ever changing field dynamics. As part of the study, I explored my findings using these three key elements alongside other extant theories such as Moingeon and Ramanantsoa's (1997) notions of identity as a reflection of history, Habermas's (2004) politicising of private and public spaces and Whitchurch's boundary positioned practices amongst professional staff in higher education (2008). This enabled me to reflect on the appropriateness and validity of my original view and subsequently modify it to provide a more coherent albeit differentiated framework through which KT identity construction can be viewed.

10.2   Incorporating theoretical propositions

In the Figure 44 below, the revised framework has been expanded to include two separate perspectives: those of the individual and those of the collective, and three which

emerge from the alignment of individual and collective perspectives as areas of unstable commonality (KT field, KT space and KT practice). This approach acknowledges the changeable nature of multiple interpretations which influence identity formation and practice within the field and either through design or serendipity may result in elements of identities being present within the KT process (*See Section 8.3*)

Habitus:

The empirical evidence suggests that there are two aspects to habitus. There is the individual's habitus where all personal experiences are interpreted and understandings formed, and there is the collective habitus where individuals come together to create a common set of dispositions. This is a fragile unification since it is subject to interference from multiple sources. For example, the organisational changes that occurred within all of the case study institutions were in response to changing government funding policies. These initiated both individual and collective responses that resulted in philosophical debates around KT and subsequent re-alignment of many KT services including role and remit re-configurations *(See Section 5.6).*

Capital:

The framework also suggests that the value of KT staff is closely linked to the institutions' understanding of, and belief in, the capital that these individuals bring to the academy in the form of their networks, educational credentials and career capital. As important is their ability to accumulate more capital that can be used as leverage by the institution to secure economic and positional advantage both inside and outside the sector (*See chapter six: Capital and Identity Construction*). Whilst the former of these features is based on perceptions of the relative value of an individual's existing capital and his or her potential for new connectivity, the latter is based on the institution having access to a different set of specialist skills that may not readily be found in Higher Education. For example, the technology transfer and commercialisation interviewees from the RG and 1994 group institutions had worked in senior positions in global multinational corporations. These staff appeared to be perceived as having a level of business acumen and depth of experience which rendered them suitable to make judgements on the commercial value of academic IP and lead any subsequent exploitation process *(See Section 7.4 Do-Gooder and Life-Styler commentaries*).

Field:

The KT field appears to be formed by multiple constructs, some of which are accepted by all stakeholders whilst others are not. For example, there appeared to be universal agreement amongst the interviewees that technology transfer and commercialisation

activities were part of a KT portfolio, whereas entrepreneurship education appeared to be a contestable because of the nature of teaching and learning. The different views of the interviewees implied an inherent tension as individuals and institutions seek to find a common ground on which to understand KT and all its associated activities. The framework suggests that the field construction encompasses three elements, the individual, the collective and the unified, and whilst recognising the differences, it positions them as an interactive tripartite through which field activities can be defined.

Institutional KT identity:

The institutional KT identity is a manifestation of different viewpoints which have come together to define the key components of the KT agenda *(See Section 6.5).* Whilst individuals may have differing views, once combined different institutional identities are established. This is demonstrated in the examination of the case study institutions which shows that KT strategies and organisational infrastructures undergo periods of re-shaping and change in response to both internal and external forces. Through cycles of change institutions can re-position their identities and adopt different rationales for KT. These rationales might include income diversification, contribution to local, regional or national economic competitiveness and entrepreneurial skills development *(See Section 5.6).*

Institutional KT space:

The institutional KT space emerges from the combination of physical and philosophical positions which create an operating space where all KT activities take place. This space is not uniformly agreed by all. Conflicts can occur as contestation, colonisation and disputes relating to shared and owned spaces and the practices which take place within those spaces are played out *(See Section 8.5).*

Practice-based identities:

In terms of the individual, there appeared to be two components: a shifting practice-based identity which both informs, and is reformed, by practices in the field and a profession-based identity. In the former, practice is related to the job without reference to a professional body or association, whereas in the latter it is underpinned by the individual's visions and aspirations to belong to a KT profession. These visions and aspirations incorporate mastery and monopolisation of practice to validate roles, remits and positions through skills exclusivity and market control (*See Section 9.5*).

Time:

The final element of the framework embraces the notion of time and its impact on the individual and the collective on their understandings of the world in which they work. For example, career capital is accumulated over time. The skills and competencies required to work in a KT role are not instinctive but instead are a reflection of experiences which have informed an individual's dispositions. Likewise, institutions are also time laden with strategic re-alignment signifying histories informing current and future ways of being. For example, when discussing institutional understandings of KT with Marcus (1992b: L1) and Henry (1994: L2) they both commented that their institutions had tried various ways to deliver to a KT agenda in the past but these had failed, so new approaches were being adopted based on lessons learnt. Therefore, in this study both individual and collective logics of knowledge transfer are based in the *'temporality of time'* (Bourdieu, 1990a: 81).
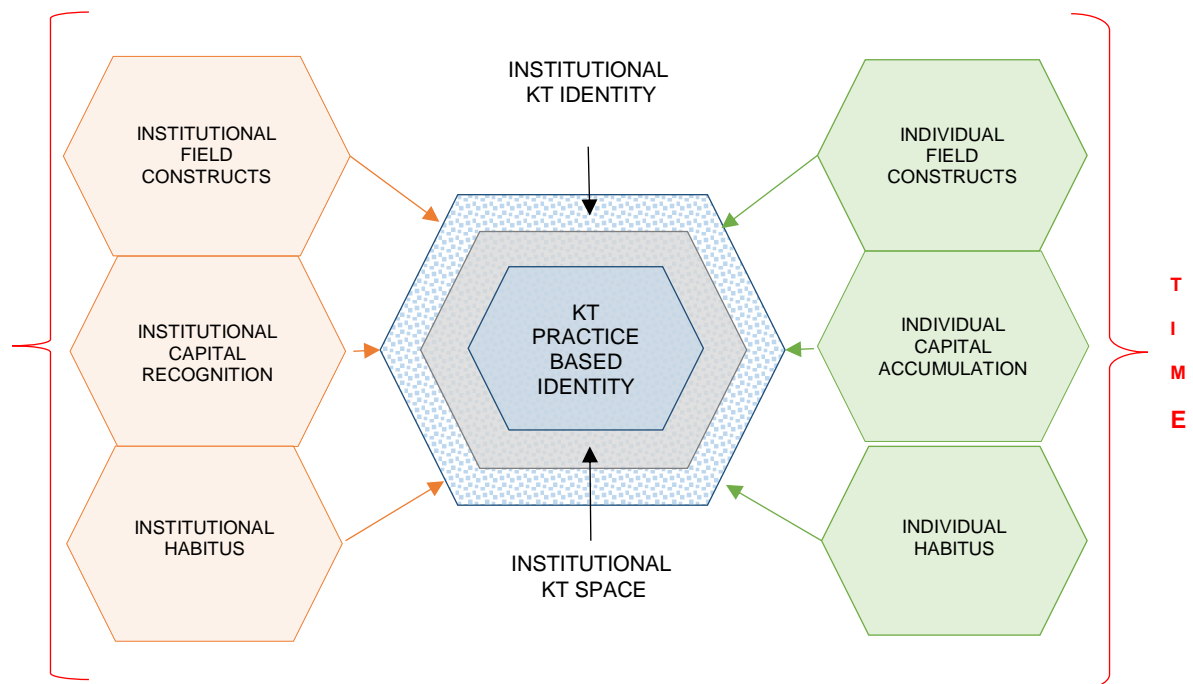
Figure 44: Revised KT Identity Conceptual Framework

10.3   Framework summary

The conceptual framework is not intended to be the definitive plan through which identity construction should be explored. Instead, it seeks to offer a different perspective on how the modification of Bourdieu's thinking tools could provide a loose structure through which identity can be explored albeit with suppressed notions of subjectivity (Swanson, 2011), and a system of dispositions which represent a past *'which tends to perpetuate itself into the future'* (Bourdieu, 1990a: 54).

There are four overarching elements that this framework seeks to acknowledge:

1. The relationship between the cycles of change within institutions on the positioning of the KT agenda and the subsequent development of institutional identities;
2. The emergence of operating spaces where practice takes place;
3. The multiple understandings of the world that which individuals have and how these understandings link with others to form collective views which are dynamic moments of temporary harmonisation; and
4. The suggestion that KT identity construction for both the individual and the institution is related to practice and, given the evolutionary nature of practice, comprises of a virtuous circle of shaping and re-shaping.

10.4   Concluding the study

This study is relevant to the domestic and national economic policies which successive UK governments have introduced (Cable and Willetts, 2010; Department for Business Innovation and Skill, 2008). These appear to be resulting in the reconstruction of HE as the sector is urged to modernise (Curtis, 2009) and *'assume explicit responsibility for economic growth'* (Witty, 2013: 6). This shift towards the entrepreneurial university (Etzkowitz and Webster, 2000) has implications for both academic and non-academic alike as a third stream of activity is named, claimed and located alongside traditional teaching and research agendas. This study focused on those non-academic KT staff and had the following three aims. to explore how KT staff who work in English HEIs construct their identities, to determine what factors influence identity construction, and finally to understand if, and how, role distinctiveness and the different interpretations and configurations of identity are presented in the KT process.

10.4.1. How do KT staff construct their identities?

The findings of my research appear to indicate that identity construction is far more complex than my initial suppositions, which suggested that the institutional positioning and prioritization of KT work was a key construction factor. I also suggested the existence of two distinctly different KT identities (an authentic and an inauthentic identity) with the former being someone whose practice and knowledge and sense of the KT self was not influenced by the institution, and the latter being someone whose notions of the KT self were dependent upon institutional approval.

The proposition about the existence of an authentic and inauthentic KT identity linked to the mission criticality proved to be unfounded. Instead, a typology emerged which suggested six categories of KT staff who had a combination of common and separate

traits (*See Section 7.4*), and two overarching identities: a practice-based identity (*See Section 8.6*), and a professional work-based identity with all the ceremony that belonging to a profession entails (*See Section 9.5*).

The empirical evidence presented in this study suggests that KT staff construct their identities through the conscious and unconscious interpretation of HE KT through the enacting of their capital, habitus and practices. Together these components reflect the dispositions of both the individual and the collective selves and are present in both KT processes and practices. The individual draws on his or her past and present experiences to: articulate the dynamics of the field (thereby incorporating personal prejudices, bias and aspirations); to name, claim and legitimise the practices within it; and to contribute to the formulation of the regulations which govern the rules of the KT game. The collective (which can be the academy, members of fields and other socially constructed groups) contributes to identity construction by providing expectations and assumptions which KT staff appear to respond to as they seek to validate their position and secure credibility. In this area, my findings appear to support those of O'Kane's study (2015) which noted that KT staff working in Technology Transfer Offices (TTO) also develop an identity to build legitimacy based on what they believe is expected of them.

10.4.2. What factors influence identity construction amongst KT staff?

Identity construction appears to be influenced by a combination of internal and external factors which can be both political and apolitical. Internal factors are those which are linked to the individual such as drivers and motivations and results in movements into a KT job or role. These factors include planned and unplanned career changes, the need for job and financial security (both of which may be based on an assumption that the public sector is less susceptible to recession led economic constraints), a desire to work at the cutting edge of new systems, processes and or products, that is, the challenge of the new and the attraction of being part of the avant-garde (*See Section 7.3.4*) or serendipity and being in the right place at the right time. Within a minority of interviewees, an additional factor was noted which was related to a sense of institutional belonging and an expectation of continuing a tradition of working in the institution (*See Section 7.3.2*). In these cases, it appeared that the interviewees were endeavouring to construct identities which would satisfy the expectations of their families as well as their institutions.

For some, the result of responding to drivers and motivations appears to be a move into an ambiguous and yet at the same time restrictive operating space which is in a state of flux and is subject to interventions such as changes in institutional leadership, mission creep and re-alignment. For others, it is a move into an area of ambiguity but with the

freedom to shape and bring order through the establishment of rules and regulations such as IP exploitation policies because they are considered to have specialist knowledge and authority.

External factors appear to be those which *affect* the individual rather than being *effected* by the individual. These include institutional factors which are formed by the assumptions and values attributed to an individual's knowledge, skills and connectivity, and non-institutional ones which emanate from outside the sector and influence the strategic direction of universities such as changes in policy. The expectation of KT staffs' connectivity is linked to institutional assumptions about an individual's ability to use their social capital to leverage business to secure competitive advantage. This appears to be based on the recognition and sometime mis(understanding) of KT staffs' social, cultural and symbolic capital. The implication of this is a requirement for KT staff to be able to modify their identity and develop new skills to meet institutional expectations. For example, Anne (2005: L4) recognised that assumptions were being made about her career capital, and couched her KT identity as a jack of all trades, and as someone who learns new skills quickly in response to the expectations of her employers so that she is one step ahead of the next assumption.

10.4.3 How do KT staff understand their role?

KT staff described multiple roles, some of which appeared to require specialist knowledge, and others which appeared to be an amalgamation of functions. However, all the roles identified required the ability to manage plurality. The roles were classified thematically across the following areas: *commercialisation and technology transfer* (which included product development and innovation management), *business development* (which focused on income diversification and generation), *sales and marketing* (which was about positioning and promoting know-how to potential end-users), *partnerships and liaison* (which focused on client relationship management across a wide range of partnerships and alliances) and *business processing* (which consisted of regulatory and monitoring functions associated with KT activities). Within these areas a common set of practices can be found: exploring, speculating, connecting, translating, validating and controlling which are similar to those identified in earlier studies such as Cranefield and Yoong (2007) translator commentary and Knight and Lightowler's (2010) reflections on KT professionals.

The alignment of KT staff and institutional understandings about these roles appears to be inconsistent in places and this, I suggest, is because of the inherent ambiguity

surrounding the KT agenda in general. This appears to have been of particular concern to those KT staff who were in HEIF funded posts and subject to the cyclical reinventions of this regime. Being able to demonstrate value was closely linked to job security, and KT staff considered that any ambiguity and incoherence had the potential to undermine their institutions understanding of their value. There does appear to be evidence of trial and error as institutions seek to consolidate their thinking about this in this area of work. For example, Henry (1994: L2) initially considered KT as part of an income generating strategy created to counteract the changes to public sector funding, and had been keen to introduce individual and team financial targets for performance management purposes. Following changes to institutional leadership, he has shifted his philosophical stance whereby KT encompasses a broader strategic alliance management remit. In this form his staff have a mixture of financial and non-financial targets which take into consideration that successful business development is dependent upon the relevant academic being engaged in the process (*See Section 8.3*). However, getting to this stage required organisational restructures, redundancies and redeployment of KT staff and it suggests that the experiential learning undertaken by the institution has repercussions for identity construction.

Despite the opportunities for misunderstanding around roles, remits and abilities, there were areas of unification where KT staff and the institution were in some degree of alignment. For example, the role that KT staff play in the REF preparations by contributing to the development of impact case studies. The building of relationships and the process of acting as translators between the research team and the end-users appeared to provide a basis for goal congruence. In addition, the identification of an institutional KT identity provides a glimpse of harmonisation as KT staff and the institution agree on the key operational components of KT. However, these are temporary and fragile alignments which are subject to change and reconfiguration in response to internal and external influences. All of the case study institutions had experienced cycles of change followed by periods of stability during which the tone and direction of the KT service was reviewed and reset. At the end of each cycle new rules of the KT game were introduced along with another set of parameters which set the future direction.

In summary, KT identity construction is multifaceted and subject to internal and external influences but there are periods of unification whereby the interpretations and understandings of the individual and the institution are temporarily in line with each other.

10.4.4. How are identities expressed in in the KT process?

KT staff incorporate elements of their identities within a wide range of activities and processes. This is partly because some of them are leading new initiatives which have no pre-existing regulations, and through the act of writing them they are imparting and embedding personal knowledge into a process. It is also partly due to the way they draw upon their career capital to inform their practice, demonstrate their expertise and validate their status. Their practices are, like their identities, a product of their habitus and thus, equally subject to reconfiguration as circumstances change. Examples of processes which may be open to an individual's prejudice and subjectivity are those linked to business development activities, specifically the identification of potential partners for collaborative research during which personal bias may affect the selection, and those involved with making judgements and recommendations about the exploitation potential of academic know-how.

Beyond these practice-based examples, there is one strategic element, which merits consideration. Many of the senior KT staff interviewed in this study contributed to the drafting of their institutional KT strategic documents and HEIF applications. In some cases, KT staff wrote the entire submission and presented it to senior management for approval. We should recognise, therefore, that they are proposing and formulating the institutional strategy and defining the key components required to deliver to that strategy. This raises a question which has not be possible to answer in this study, if KT staff are defining strategy, why is there ambiguity surrounding some of their roles and remits?

10.4.5. What, if anything, is distinctly different about KT staff?

Identifying distinctiveness has been troublesome throughout this research primarily because of evolving KT agendas and the propensity for boundary spanning roles and practices. When the KT practices were explored, three types of spaces were identified, each with their own set of conflicts and challenges linked to power, control and ownership. These spaces were either contested, shared or owned. The empirical data suggests that there are two types of contested spaces. First there is evidence of KT staff infiltrating the academic space where they performed as para-academics (MacFarlane, 2010) undertaking tasks which were traditionally in the academic domain such as bid writing and participating in quasi-peer review panels for research submissions. Second, there was infiltration into the administration space where control over knowledge, and position appeared to be paramount (*See Section 8.5.2.*). Both of these were colonising practices with the only real distinctiveness being an unchallenged assumption that KT staff can bring both business and commercial insight into existing processes which, given the KT typology I suggested earlier, is unlikely in some cases (*See Section 7.4*).

Shared spaces appear to be similar to contested spaces in terms of power struggles and positioning although there is no permanent colonisation. Distinctiveness is acknowledged through the invitation to take part and implies that without the contribution of KT staff an anticipated goal or outcome will not be achieved. This is the type of operating space which is used for the development of KTP projects whereby the academic, the business representative and a member of the KT team meet to formulate the project. Shared spaces in this context are temporary spaces which are activity reliant.

Finally, there is the domain which is owned by KT staff which no one else can participate in. When I first started this research, I had speculated that KT staff would be distinctly different from other non-academic support staff that work in similar areas such as research management. This does not appear to be the case, and despite the multiplicity of the KT field, I could only identify one specific area of distinctiveness which could not easily be challenged. This was in the operating space owned by those KT staff working in technology transfer and commercialisation. In this instance, I noted that some of them have created an exclusive space with embedded demarcation of activities and practice. This was only present in those case study universities which had robust IP pipelines and KT staff with significant commercial experience. Thus, owned spaces were clearly in operation amongst the RG and 1994 Group technology transfer staff and is how distinctiveness was presented in this study. Those interviewees with career capital accumulated by working in technology transfer and commercialisation appeared to have closer relationships with their senior management, be more confident about their roles and remits and were able to articulate practice distinctiveness compared to those interviewees who had moved into a KT role from a generic business development or administration background. This distinctiveness was also highlighted in the discussions about the existence of a KT profession and the sub-cultures which exist within the field, in that given the diversity of the KT community, it was those staff aligned with technology transfer and commercialisation who appeared to have a greater sense of belonging to an emerging profession.

10.5   Contribution to the research

This study contributes to a variety of different research fields as well as having the potential for a practical application since it provides an alternative route for employers and line managers to understand how the life experiences of KT staff informs their values, field interpretations and practices (Graham, 2012; Ibarra, 1999). In terms of field studies, this study contributes to Bourdieu's (1985a) notion of a socially constructed world of fields which are dynamic places of hierarchy, power and privilege and where the juxtaposition

between private and public space practices are in a constant state of negotiation (Grenfell and James, 2004; Habermas, 2004). It also contributes to the epistemological debates (Ternouth, 2004; Van Der Heide, 2008) surrounding the definitions, scope and attributes of KT within the HE sector by suggesting that KT is primarily a process which has morphed into a field which is dependent upon other fields to exist.

Although third space research is referred to in the analysis of the KT space in terms of its physical and philosophical location (Gutierrez, Baquedano-López and Tejeda, 1999; Whitchurch, 2013), the findings do not necessarily strengthen the argument for its existence. Instead, they promote the idea of shared, owned and contested spaces that are transient in nature and formed by temporary relationships between academics and KT staff which are dependent upon goal congruence. Once a goal is achieved the partnership may dissolve until the next opportunity comes along so this research brings the permanency of third space into question. Having said this, it does support elements of the work undertaken by third space theorist, Whitchurch, (2008) in the area of boundary spanning, blended professionals since KT staff also appear to negotiate and work across the boundaries of academic and non- academic domains.

Finally the empirical findings about KT staff's experiences of how they perceive themselves and the expectations that others might have of them appears to resonate with those findings from Watson and Hall's (2015) study. Whilst, their study identified concerns around personal credibility, reputation management and a lack of clarity as being the main barriers to academic engagement with third mission activities, my study suggests that KT staff have similar concerns about their own personal credibility and lack of clarity about their roles and consider these to be a barrier to engaging academic staff in third stream activities.

10.5.1 Applying theory to practice

Through the creation of an embryonic typology of KT staff, it is possible that elements of this study might have a practical application which could impact on the recruitment, development and retention of KT staff. For example, a Type A or Type B individual with minimal experience of business is likely to require development if he or she is placed into a business facing role. Likewise, those KT staff who join institutions from business backgrounds with strong social capital are likely require opportunities to refresh their networks and connectivity, to counteract the natural degradation of social networks which occurs over time (*See Section 6.2.3*).

10.6 Limitations of the study and areas for future research

There are three key limitations in this study. First, the geographical location of the case study institutions. These were universities based in the South East of England which has the second largest Gross Value Added (GVA) of 15.1% after London and experienced 22.5% growth since the recession. This is quite unlike the north with its intra-regional GVA disparities between 3-9.4% (Harari, 2015: 5) and limited recessional growth. Therefore, the opportunity for these institutions to secure funding and participate in high value third stream activities such as commercial R&D may be greater for southern universities than those located in the north. This research would benefit from being expanded so that comparisons could be made to enable a greater understanding of challenges facing identity construction amongst KT staff who are based in northern universities in static or slowly growing economic regions. Therefore, future research should consider addressing the following question:

- Does an institution's geographical location influence identity construction amongst KT staff, and if so, how is difference articulated?

Second, the focus on non-academic staff provides does not provide any information or understanding as to how academics who take on a KT roles and remits construct their identities. Without the data from this community, it is not possible to understand how the key stakeholders on which all third-stream activities are founded combine their teaching and research identities with their KT ones in a higher education system which links the commercial world to the exploitation of his or her know-how. Therefore, future research should consider addressing the following questions:

- Do academics incorporate a KT identity into their existing academic identity, and if so how is this done and what are the repercussions on academic practice?

- How do academics view KT staff in terms of their contribution to the exploitation academic know-how and expertise, and on what basis are they making their judgements?

Finally, by focusing on two UK based membership associations such as AURIL and PraxisUnico there was limited opportunity to undertake international comparisons with other existing organisations such as PROTON and AUTM about the KT profession, notions of the KT professional and how professionalisation of the KT field may or may not be occurring. Because of this, further research might be conducted in the following areas:

- How is hierarchy negotiated in the KT field and sustainability maintained or does selective withering occur as high value activities secure dominance?

- What is the relationship between the KT player, sub-community status and intra-field positioning?

Finally, although the typology was mapped against the interviewees in this study, to further validate and enhance the category descriptors, it would be useful to undertake a survey of the wider KT community.

10.7   Final reflections

KT staff exist within a world of ambiguity that is at the mercy of internal and external forces. These are sometimes beyond the control of the institution, and at other times at the behest of the institution as it struggles to articulate the KT agenda and the activities which are required to drive it forward. For KT staff there are issues with credibility, validity and clarity of role as well as an on-going requirement to meet the expectations and assumptions of KT antagonists and protagonists. This results in them having to juggle a plurality of roles as they restructure and reposition their identities. Whilst they are in some respects working in emergent territories as part of an avant-garde movement, they are also crossing boundaries and encroaching on some existing academic and support service domains. Therefore, in this study, identifying distinctiveness has proved difficult. In addition, the findings also raise a question which has yet to be acknowledged and answered. If some KT staff are undertaking areas of work that has traditionally been the domain of existing non-academic staff like research managers, would they be missed if they were not there?

In the meantime, as the sector embarks on another cycle of change following the publication of the Green Paper *Fulfilling Our potential: Teaching Excellence, Social Mobility and Student Choice* (2015), like an on-going project (Hollway, 2010; Wetherell and Mohanty, 2010) KT staff will continue to re-negotiate their identities, explore and define their field, and promote artful practices as they respond to the mercurial nature of knowledge transfer in English higher education institutions.

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APPENDIX ONE: GLOSSARY & TERMINOLOGY

ATTP	Alliance of Technology Transfer Practitioners
AURIL	Association for University Research and Industry Links
AUTM	Association of University Technology Managers
BIS	Department for Business, Innovation and Skills
Catalyst	A form of R&D funding for specific priority subject areas
Catapult	Formerly IKC
CKE	Centre for Knowledge Exchange
ECIF	Economic Challenge Investment Fund
HE	Higher Education
HE-BCI	Higher Education Business and Community Interaction Survey
HEI	Higher Education Institution(s)
HEIF	Higher Education Innovation Fund
HEFCE	Higher Education Funding Council for England
HEFCW	Higher Education Funding Council for Wales
HEROBC	Higher Education Reach-Out to Business and the Community
IAA	Impact Acceleration Accounts – An ESRC funded initiative
IKC	Innovation & Knowledge Centre where business, scientists and engineers are co-located and work together on commercialising technologies
IP	Intellectual Property – This refers creations of the mind; inventions; literary and artistic works; and symbols, names and images used in commerce. (WIPO, 2016) http://www.wipo.int/edocs/pubdocs/en/intproperty/450/wipo_pub_450.pdf.
KE	Knowledge Exchange
KS	Knowledge Sharing
KT	Knowledge Transfer
KTE	Knowledge Transfer and Exchange
KTN	Knowledge Transfer Network - an Innovate UK backed initiative
KTP	Knowledge Transfer Partnerships is a UK-wide programme that has been helping businesses for the past 40 years to improve their competitiveness and productivity through the better use of knowledge, technology and skills http://ktpinnovateuk.org
LEP	Local Enterprise Partnership
NCUB	National Centre for Universities and Business
PSRE	Public Sector Research Establishment

R&D	Research and Development
RC's / RCUK	Research Councils UK
REF	Research Excellence Framework
R2M	Route to market strategy for exploitation and market penetration
SFC	Scottish Funding Council
TEF	Teaching Excellence Framework
TT	Technology Transfer
TTC	Technology Transfer and Commercialisation
UUK	Universities UK

APPENDIX TWO: KEY DOCUMENTS, 1996-2016

Year	Titles
2016	**HEFCE** – Knowledge Exchange Performance Framework **McMillan** – Review of Good Practice in Technology Transfer **BIS** - Higher education: success as a knowledge economy - white paper
2015	**Dame Ann Dowling** – Review of Business-University Research Collaboration
2014	**National Centre for Universities and Business** – Growing Value **Dr Herman Hauser** – Review of Catapult Centres **House of Commons BIS Committee** – Business-University Collaboration **BIS** – Our Plan for Growth: Science and Innovation
2013	**House of Commons Science and Technology Committee** – Bridging the Valley of Death **IPO** – Collaborative Research between Business and Universities the Lambert Toolkit 8 Years On **Lord Heseltine** – No Stone Unturned **Lord Young** – Growing your Business **Sir Andrew Witty** – Encouraging a British Invention Revolution
2012	**Sir Tim Wilson** – Review of Business-University Collaboration **National Centre for Universities and Business** – Enhancing Value Task Force (a series of reports)
2010	**Dr Herman Hauser** – The Current and Future Role of Technology Innovation Centres in the UK **TSB** – Driving Innovation **PACEC and CBR** - Synergies and Trade-offs between Research, Teaching and Knowledge Exchange
2009	**BIS** – Higher Ambitions: The Future of Universities in a Knowledge Economy **PACEC and CBR** – Evaluation of the Effectiveness and Role of HEFCE/OSI Third Stream Funding
2008	**HEFCE** – Higher Education Innovation Fund (Round 4): Invitation and Guidance for Institutional Plans & Competitive Bids
2007	**Lord Sainsbury** – The Race to the Top
2006	**RCUK –** Knowledge Transfer in the Eight Research Councils
2005	**HEFCE** – Higher Education Innovation Fund (Round 3): Invitation and Guidance for Institutional Plans & Competitive Bids
2003	**Sir Richard Lambert** – Review of University-Business Collaboration **HEFCE** – Higher Education Innovation Fund (Round 2): Invitation to Apply for Funds
2001	**HEFCE** – Higher Education Innovation Fund – Invitation to Apply for Special Funding
1999	**HEFCE** – Higher Education Reach-Out to Business and the Community
1998	**HEFCE, SHEFC, HEFCW, PREST**- Industry-Academic Links in the UK
1997	**Richard Dearing** – Higher Education in the Learning Society

APPENDIX THREE: CONSENT FORM

Dear Colleague

Thank you for your interest in contributing to this PhD study. This sheet should provide you with all the information you need to make an informed decision to participate.

Section A: The Research Project

1. <u>Title of the project:</u>   Identity construction amongst KT staff in English H.E.I.s

2. <u>Purpose and value of the study:</u> By 2015, HEFCE and the Government will have invested £1.8billion into the UK Higher Education system to increase capacity to support knowledge exchange between higher education, business and the community. The problem is that over the last decade, a group of professional staff has emerged within higher education to help deliver this aspiration that does not have its roots in the core missions of teaching and research - The Knowledge Transfer professional. There is no agreed definition of a Knowledge Transfer professional, no role taxonomy or clear understanding about what, if anything makes them distinctly different from other professional roles. Their sphere of influence can be considerable, both internally and externally since the activities within which they engage have multiple touch points across HEI teaching, research, employer engagement and employability arenas. Knowledge Transfer staff can sit outside traditional support service structures and yet be privy to highly confidential matters which in the private sector would be considered as commercially sensitive. They feed into and in some cases define fundamental commercial protocols, regulations and frameworks which have an impact on the research and development working practices of the academic and student communities. HEIs need a clear understanding of the Knowledge Transfer roles that exist in their organisation, the spheres of influence and engagement these staff have and understand what could happen if they were removed from the equation.

3. <u>Invitation to participate:</u> The invitation to participate is being extended to HE academic and professional staff that are either responsible for the leadership of a 3rd stream knowledge transfer arena or who have an operational remit.

4. <u>Researcher:</u> I am undertaking this research as a part-time doctoral student at the Institute of Education in London. The study is motivated by my own experience of working in the knowledge transfer arena for more than 10 years and observing the development of a group staff that do not necessarily have their roots, value systems or sense of belonging aligned to the community they serve.

5. <u>What will happen to the results of the study?</u> The results of the study will be written as a doctoral thesis. The study will also be presented at academic and professional conferences and it is anticipated that aspects of the work will be published more widely.

6. <u>Funding:</u> This is an independent study and is not funded by any organisation.

7. <u>Contact for further information:</u> Participants can contact me at any point in the study, my details are: Deborah Lock (dlock@ioe.ac.uk)

Section B: Your Participation in the Research Project

1. <u>Why you have been invited to take part:</u> You have been invited to take part in the study because you work in the Higher Education sector and have a remit or portfolio of activities that includes knowledge transfer.

2. <u>Whether you can refuse to take part:</u> Participation in the study is voluntary and there is no requirement upon you to agree to participate.

3. <u>Whether you can withdraw at any time, and how:</u> You can withdraw from the study at any point – before the interview, during the course of the interview and/or once the interview has been recorded. To withdraw all you have to do is email me at the address provided.

4. <u>What will happen if you agree to take part:</u>

    a) You will be asked to complete a short biographical questionnaire which I will collect from you on the day of the agreed interview;

    b) You will be interviewed about your experience and your understanding of the knowledge transfer arena. The interview will be semi-structured and based around a topic guide that will be sent to you in advance. The interview will last no longer than 45 minutes and will be tape-recorded to ensure that your contribution can be properly represented within the study;

    c) In some cases, you will be asked to complete a location perception map;

    d) The tape-recording of the interview will be transcribed and analysed along with the interviews of other participants; the findings from the analysis will be published in a doctoral thesis, presented at conferences and may be published as journal articles and in books.

5. <u>Risks and personal well-being:</u> The study should not pose any risks to yourself or others. However, discussing professional-personal experience can be sensitive, if the interview were to become difficult or distressing we would stop the discussion. In such circumstances, we would agree the next best course of action for you as a participant.

6. <u>Managing information and data:</u> All information and data will be treated in the strictest confidence. All transcripts of interviews and consent forms will be stored in a locked filing cabinet. Tape recordings will be stored in a password protected file on a password protected personal computer. Paper documents and digital recordings will be destroyed on successful completion of the Doctorate. Electronic copies of the transcripts will be destroyed after a period of 5 years, unless it is decided to archive them for future analysis.

7. <u>Confidentiality:</u> Details about institutions and participants will remain anonymous. Institutions will be coded (e.g.: U1, U2, etc.); individuals will only be differentiated by role (e.g.: L1 – Vice Chancellor; L3 – Director of a professional service; L6 – A manager with no direct line management responsibilities).

8. <u>Benefits of taking part:</u> It is anticipated that your participation will contribute to a more significant understanding of how knowledge transfer professionals construct their identities, (specifically their values, and their sense of belonging to the institution) and how they use their knowledgeability in the knowledge exchange process and add value to the academy.

9. Agreement to participate in this research should not compromise your legal rights should something go wrong

Section C: *Interview Consent Form*

Title of Project: Professional Identities in Knowledge Transfer

You are being invited to participate in the above titled PhD research study. The purpose of the study is to understand how Knowledge Transfer Professionals construct their identities and how they shape their representation in the knowledge transfer process in Higher Education. You are eligible to participate in this study because you either have experience of working in or with UK university knowledge transfer services between 2005 and 2010. The project aims to be of value and interest to the higher education community, business and government policy makers.

Researcher declaration:

If you agree to participate in the study, your participation will involve 1-2 interview(s) about your experiences of either working in a Knowledge Transfer role or with the knowledge transfer community. The interview(s) will take place in a location convenient for you and will last approximately 45mins (with the possibility of a 30min follow-up telephone interview should clarification be required).

The contents of the interview(s) and the identity of the interviewee and institutions will remain anonymous and confidential. Any interview transcripts will be stored securely in accordance with the UK Data Protection Act and will be destroyed on completion of the project.

The information obtained will be used only in relation to reports or publications arising from my doctoral studies. There are no known risks from your participation in this study and you may withdraw from the study at any time.

Interviewee consent:

1. I agree to participate in the study and be interviewed by Deborah Lock on the basis outlined above participate in the study

2. I agree to the interview(s) being recorded

By participating in the interview(s), I am giving permission for Deborah Lock to use my information for research purposes providing that confidentiality and anonymity is maintained. This includes, but is not limited to:
  – the PhD Thesis,
  – articles, presentations and conference proceedings; and
  – other scholarly works.

Name of participant:

_____

Signature:

_____

Date:

APPENDIX FOUR: PRE-INTERVIEW QUESTIONNAIRE

PERSONAL INFORMATION		ID CODE:	
1. Age		2. Gender	
3. What is your current job title?			
4. How many years have you been in your current post?			
5. How many years have you worked in the following sectors?			
a. Public sector	*Number of years*	*Organisational type e.g. university, hospital*	
b. Private sector	*Number of years*	*Sector e.g. engineering, finance*	
6. What is the highest educational qualification you have?			
7. What professional qualifications do you have?			
ORGANISATIONAL INFORMATION			
8. What is your institutions mission group affiliation?			
♣ *Russell Group*		♣ *2005*	
♣ *Million +*		♣ *1994*	
♣ *Alliance*		♣ *1992*	
♣ *Cathedral*		♣ *Non-Aligned*	
♣ *PSRE*		♣ *Other, please state*	
9. What organisational knowledge transfer (third stream) model does your institution have			
♣ *Internal central service*			
♣ *Internal central service with faculty / school based satellite teams*			
♣ *Internal service wholly faculty/school based*			
♣ *External service – shared provision*			
♣ *External service [wholly owned subsidiary company]*			
♣ *External service [outsourced to a private contractor]*			
10. To whom do you report?			
11. What core strands of activity come under your remit? (*Please tick all relevant*)			
♣ *Business development*			
♣ *Knowledge transfer*			
♣ *IP management, exploitation and commercialisation (TT)*			
♣ *Incubation services*			
♣ *Facilities hire & management e.g. sports & conference facilities*			
♣ *Research development e.g. identifying funding & partners*			
♣ *Research management*			
♣ *Community & civic engagement*			
♣ *Institutional programme / project management*			
♣ *Urban / economic regeneration project development & management*			
♣ *Science / Research Park management*			
♣ *Workforce development e.g. CPD, short course provision*			
♣ *Student enterprise & entrepreneurship*			
♣ *KT / TT training for students & academics e.g. PhD training sessions*			
♣ *Other, please state*			

12. What Institutional Committees are you a member of?	
✦ *The top management team (along with the VC, DVC, PVC)*	
✦ *Research Committee*	
✦ *Knowledge Transfer / Enterprise (Innovation) Committee*	
✦ *Converged Research & Enterprise (Innovation) Committee*	
✦ *Commercial Approvals Board*	
✦ *Other, please state*	

APPENDIX FIVE: INTERVIEW GUIDE & PROMPTS

Scene setting:
- Purpose: Trying to understand the role of the KT staff in an unsettled economic climate
- Focus: Staff working in or responsible for third stream agendas
- Scope:
    - VCs, PVCs, Directors of KT Services
    - Academic & Non-Academic staff working in 'knowledge transfer' roles
    - KT 'experts' (rtd and/or in-post)

Explorations:
- *Knowledge of knowledge transfer:*
    - What do you understand by the term knowledge transfer?
        - The space within which KT sits – mission
        - Do you have a sense of whether or not staff involved with knowledge transfer consider themselves as KT staff or something else, if so is this term known by the academic and/or business community (gang culture?)
- *Roles & Identity:*
    - What is a knowledge transfer professional – distinctiveness, difference with other HE staff
        - Transfer, exchange, create, promote, innovate
    - Do you think there is a KT community?
        - Sense of belonging: institution, profession, faculty, peers
        - Who is their peer group?
        - Contested areas of activity between KT and other staff
    - Common threads or a group of disparate activities loosely banded under an umbrella term
    - What does a successful KT career look like?
- *Differences in approaches across the strands:*
    - How do the various roles differ in their approach to engagement?
    - How is knowledge transferred,
        - Is knowledge created in the process?
        - Is the KT professional part of the creation process and if so why
        - What role do they play?
        - Does the potential of co-creation of knowledge exist, is this recognised /acknowledged?
    - How does the academic & business view the role of the KT professional?
    - What is that KT staff do that academic or other support staff don't do?
    - What is the nature of the relationship between academic and other support staff?
    - Relationship to change, how far are KT staff reactors or agents of change?
        - Degree of initiating change, innovators, promoting, risk taking, entrepreneurialism
        - Has their change/catalyst behaviours altered over time – more established, balanced, sense of belonging
- *Horizon scanning:*
    - Impact of more commercially savvy academics (what will they expect from KT professionals, will this require a different level of engagement, if so why and how?)
    - Does the KT practice have a future in Higher Education, if yes, why and if not why not?
        - Blurred boundaries between academic and professional roles
        - Strengths, weakness, opportunities or threats (futurology)

APPENDIX SIX: CODING STRUCTURE

CAPITALS	CONSTRUCTIONS	UNDERSTANDINGS	PRACTICES
Cultural capital	Agency	KT as an art (experiential learning)	Advisor & concept scrutineer
KT career push & pull factors	Boredom	KT as a career enhancer	Advocate & champion
Personal profile raising	Boundaries	KT as a contested activity	Agent-Broker & Agents of change
Private sector - own company	Boundary spanning systems	KT as a cultural differentiator	Alliances-Allegiance leader
Private sector - administration	Business engagement strategies	KT as a means for regional & local economic growth	Asset stripper
Private sector - defence	Chameleon tendencies	KT as a means of enabling creativity	Bid manager
Private sector – manufacturing	Changing & shifting roles	KT as a means of income generation	Business creator
Private sector - engineering	Demonstrating value	KT as a means to change & challenge	Business Development Manager
Private sector - pharma-bio	Ethical issues	KT as a means to raise profiles	Business Liaison & Engagement Manager
Private sector – sales /mar	Giving approval	KT as a mechanism to make a difference	Capacity builder
Public sector - administration	Hearts & Minds	KT as a pathway to impact	Catalyst
Public sector – teaching (>16yrs)	Incentives	KT as a practitioner skill	Coach & leader
Social capital	Independence	KT as a product of student employability	Co-creator
Symbolic relationships	Intellectual challenge	KT as adding value	Coder-Encryptor
Symbolic capital	Isolation & difference	KT as meaningless term	Commercial portfolio manager
Symbolic Stories	Judging academic value	KT as part of a research lifecycle	Consultancy manager
Values & beliefs	Keeping one step ahead	KT as part of civic and public engagement	Contract Manager
	Language-Understanding differences	KT as part of social enterprise	CPD & short course manager
	Leadership & management	KT as part of the innovation cycle	Deal maker
	Loyalty	KT as service providers	Development Manager
	Management style	KT as unpolitical	Employability ambassador
	Multi-tasking	KT community issues	Entrepreneurship ambassador
	Opportunistic tendencies	KT definitions	Entrepreneur
	Power games	KT dependent upon academic BE skills	Facilitator, enabler & coordinator
	Process improvement assessments	KT elitism	Funding manager
	Project management	KT expert vs KT novice	Game-playing
	Recognition	KT formulaic process	Gate-keeper

	Self-preservation	KT functions	Income generator
	Sense of identity	KT futurology	Innovator
	Spy-like & Subterfuge	KT infrastructures	Intelligence gatherer
	Training the university	KT Language	Management consultant
	University blocking tactics	KT profession – emerging profession	MarComs-Sales
	War of attrition	KT profession – emergence of closure & exclusion	Match-Maker
		KT ripple effect	Mediator
		KT staff characteristics	Mentor
		KT tactics & strategizing	Monitor & regulator
		KT tribes	Movers & shakers
			Networker
			Persuader & Influencer
			Refugee
			Relationship & collaboration manager
			Research administrator
			Research development manager
			Risk manager & Trouble shooter
			Saviour
			Scout
			Shaper
			Teacher or Lecturer
			Technology Transfer Manager
			Translator

APPENDIX SEVEN: COMMERCIALISATION INCOME 2012/14

	Institution	2013/14		
		Intellectual Property (IP) income (£000s)	Sale of shares in spin-offs (£000s)	TOTAL: IP REVENUES (£000s)
1	The University of Oxford	9,185	33,800	42,985
2	The Institute of Cancer Research	20,289	0	20,289
3	The University of Cambridge	9,246	5,720	14,966
4	The Queen's University of Belfast	7,987	2,600	10,587
5	The University of Leeds	766	4,485	5,251
6	University College London	2,875	0	2,875
7	The Open University	2,575	0	2,575
8	The University of Edinburgh	2,334	0	2,334
9	Loughborough University	2,030	0	2,030
10	The University of Manchester	1,731	250	1,981
11	Oxford Brookes University	1,767	0	1,767
12	University of Nottingham	706	964	1,670
13	Imperial College of S, T & M	1,586	0	1,586
14	The University of Aberdeen	662	657	1,319
15	London School of Economics and Political Science	1,166	0	1,166
16	The University of Dundee	1,087	0	1,087
17	Cardiff University	974	0	974
18	The University of Glasgow	940	0	940
19	The University of York	916	0	916
20	The University of Bristol	640	160	800
21	The University of Southampton	706	0	706
22	The University of Bath	343	344	687
23	University of Newcastle-upon-Tyne	660	0	660
24	The University of Surrey	597	0	597
25	The University of Birmingham	579	0	579
26	The University of St Andrews	540	0	540
27	Aston University	537	0	537
28	Queen Mary University of London	480	0	480
29	The University of Hull	452	0	452
30	Cranfield University	433	0	433
31	The University of Sheffield	429	0	429
32	St George's Hospital Medical School	414	0	414
33	University of Ulster	407	0	407
34	The City University	389	0	389
35	King's College London	360	0	360
36	Birmingham City University	358	0	358
37	The University of Strathclyde	332	23	355
38	The University of Liverpool	278	0	278
39	Institute of Education	248	0	248
40	The University of East Anglia	225	0	225
41	The University of Lancaster	215	0	215
42	University of London (Institutes and activities)	203	0	203
43	De Montfort University	190	0	190
44	The University of Leicester	190	0	190
45	The University of Greenwich	178	2	178
46	The University of Warwick	176	0	178
47	University of the Arts, London	174	0	174
48	The University of Reading	170	0	170
49	Sheffield Hallam University	159	0	159

50	The University of Sussex	150	0	150
51	The University of Portsmouth	131	0	131
52	Aberystwyth University	130	0	130
53	The University of Keele	129	0	129
54	The University of Exeter	117	0	117
55	The University of Kent	113	0	113
56	University of Plymouth	107	0	107
57	Royal Holloway and Bedford New College	107	0	107
58	The University of Salford	102	0	102
59	The Royal Veterinary College	99	0	99
60	The University of Bradford	85	0	85
61	Heriot-Watt University	85	0	85
62	London School of Hygiene and Tropical Medicine	82	0	82
63	University of Durham	20	54	74
64	The University of Central Lancashire	66	0	66
65	Swansea University	63	0	63
66	University of Northumbria at Newcastle	45	0	45
67	Courtauld Institute of Art	43	0	43
68	Bournemouth University	34	0	34
69	University of Derby	33	0	33
70	Royal Academy of Music	33	0	33
71	The University of Sunderland	30	0	30
72	The University of Wolverhampton	30	0	30
73	The University of Huddersfield	24	0	24
74	University of the West of England, Bristol	24	0	24
75	University of South Wales	23	0	23
76	London Business School	22	0	22
77	The University of the West of Scotland	22	0	22
78	Leeds Trinity University	21	0	21
79	Brunel University London	20	0	20
80	Bangor University	18	0	18
81	University of Hertfordshire	18	0	18
82	The Nottingham Trent University	13	0	13
83	The University of Lincoln	12	0	12
84	London South Bank University	12	0	12
85	Queen Margaret University, Edinburgh	11	0	11
86	Royal Northern College of Music	11	0	11
87	Royal College of Art	10	0	10
88	Staffordshire University	10	0	10
89	Coventry University	8	0	8
90	University of Cumbria	8	0	8
91	The University of Essex	8	0	8
92	The Robert Gordon University	8	0	8
93	The University of Brighton	6	0	6
94	Birkbeck College	5	0	5
95	Anglia Ruskin University	4	0	4
96	The Manchester Metropolitan University	4	0	4
97	Southampton Solent University	4	0	4
98	University of Abertay Dundee	3	0	3
99	The University of Northampton	3	0	3
100	Teesside University	3	0	3
101	The University of East London	2	0	2
102	The University of Bolton	1	0	1
103	Trinity Laban Conservatoire of Music and Dance	1	0	1
104	University of the Highlands and Islands	1	0	1
	Total	**£82,058.00**	**£49,059.00**	**£131,117.00**

Source: 2013/14 FSR, HE-BCIS   Russell Group Income   £92,892.00
Table 4: Intellectual Property   % of overall income   70.8%

Figure 45: Commercialisation Income, 2013/14