How can NHS-University Partnerships collaborate to deliver translational clinical research?

A case study of local responses to the evolving external policy environment

Thesis submitted in accordance with the requirements of the University of Liverpool for the degree of Doctor of Education by Catherine Anne Cochrane

May 2016

Dedications Page

For my parents, Ernest Astin Cochrane and Pauline Cochrane (nee Butterworth).

Ernest was born in the mill town of Burnley, East Lancashire, to Florence and the late Ernest Astin. He became the much loved son of Jack Cochrane, and worked alongside his father for many years as a brick-layer. From a young age, Ernest developed an appreciation of culture and travel, and experienced the highs and lows that come with a life-long support of Burnley Football Club. He was a socialist, a working man, and a thinker, who lived by principles of fairness and equality.

Pauline was born to Ada and Jack Butterworth, just down the road from Burnley in the small town of Padiham. She worked as a Secretary and Personal Assistant in the NHS whilst bringing up three children. Pauline was a warm and open-minded woman, whose gentle nature and sense of fun allowed her to connect with people from all backgrounds. She had a keen intellect and embarked upon new learning opportunities throughout her life.

Ernest and Pauline understood the power of education to change lives, recognising it as a route into new opportunities, regardless of class or circumstance. They worked hard to allow my brothers and me a university education, and proudly saw all three of us graduate with our first degrees. Sadly, they missed much of what came after, Pauline passing away on the 8th September 2005, and Ernest on the 1st May 2009.

I miss them still and think of them often. My thesis is dedicated to their memory.

Acknowledgements

Studying for a Doctorate has been a huge challenge, made all the more memorable by the help that I have received from my friends, family, and colleagues.

I am especially grateful to Caroline Diaz for the wise words of guidance and for always having faith in me; to Brenda Jones for the stoical assistance, and to my friends in the EdD community for showing me the many different ways of thinking and being, particularly Professors Ian Willis, Morag Gray and Ann Qualter.

Finally I could not have got this far without my family; to little Frankie for keeping me smiling throughout, and to Mark, Ian, Lindsay, Steven, and Anne for your endless support and encouragement.

Abstract

The strategy of Government to improve translational clinical research in England is being driven through a policy framework that aligns investment to the requirement for collaborative NHS Trust – University arrangements. This has resulted in the creation of new partnerships that in theory should better facilitate the effective delivery of translational clinical research. The study presents new knowledge into how these macro level policy interventions are being translated at the meso (organisational) and micro (individual) levels, utilising Huxham and Vangen's theory of collaborative advantage as the lens through which to view the perspectives of clinical academics from two case study NHS-University partnerships.

A comprehensive analysis of the policy environment from the launch of 'Improving National Health: Improving National Wealth' in 2003 through to 2015, provides an insight to Government's ambition to increase the volume and quality of translational clinical research. The study contrasts this ambition with data gathered from qualitative, semi-structured interviews of senior clinical academics working in two case study NHS-University partnerships. A detailed analysis of how policy levers are being translated in the two case study settings is provided, revealing data that has a wider application to other similar partnerships in the Health and University sectors.

The study also presents data which demonstrate that whilst funding for translational clinical research has increased at a national level, the majority of this is focussed upon partnerships operating mainly in London and the Southeast. The study's two case study partnerships have been purposively selected to sit outside of these areas, such that the national policy decisions could be tested in regions that historically receive less funding for translational clinical research. This was aligned to the central hypothesis that that the national policy developments will not be sufficient to increase the volumes and quality of translational clinical research across England.

The data analysis revealed that both of the NHS-University partnerships displayed individualistic attributes that are not necessarily in-step with, or conducive to, the new national policy environment. These included a lack of clarity with respect to joint performance measures, made more challenging by virtue of the different cultures and priorities that exist within the NHS and University sectors, and a lack of joint leadership to provide the necessary impetus and vision with regards to a strategy for translational clinical research.

At an individual level, these pressures were translating into a frustration around the high volume of Government initiatives to which clinical academics are expected to contribute, with the suggestion that a move towards devolved regional approaches would allow partnerships a degree of necessary flexibility.

The research also found that the national shortage of clinical academics is a particular issue for NHS-University partnerships based outside of London and the Southeast. Without the necessary numbers of clinical academic staff, the objectives of the new national policy environment for translational clinical research will not be realised, and this is therefore an important finding.

The study brings new knowledge and perspectives to an area which has been under researched within the literature, by focussing on two non-accredited NHS-University partnerships, operating outside of London and the SouthEast that have been formed in response to the national policy environment. Its conclusions and recommendations therefore provide a useful insight into how this macro level framework is translated at a local level.

As a piece of practitioner research, the study utilises the data analysis to support a series of recommendations that could be applied within the two case study environments or within similar NHS-University settings. It also presents a proposed suite of joint performance measures, suggesting that these might be a useful stimulus at the early stage of NHS-University partnership formation.

Keywords

Clinical academic, collaborative advantage, NHS-University partnerships, research Impact, translational clinical research

Glossary of Terms

Abbreviation	Term
ACF	Academic Clinical Fellow
AHSN	Academic Health Science Network
AHSC	Academic Health Science Centre
AMS	Academy of Medical Sciences
BIS	Department for Business Innovation & Skills
BRC	Biomedical Research Centre
BRU	Biomedical Research Unit
CLAHRC	Collaboration for Leadership in Applied Health Research Centre
DoH	Department of Health
Golden Triangle of Universities	The universities of Cambridge, Imperial, Kings College London, London School of Economics, UCL, and Oxford.
HRA	Health Research Authority
MRC	Medical Research Council
NIHR	National Institute for Health Research
NOCHR	NIHR Office for Clinical Research Infrastructure
Northern Powerhouse	Political concept introduced by the then Chancellor George Osborne to mean the collective economic strength of the North of England
OSCHR	Office for the Scientific Coordination of Health Research
QR	Mainstream quality related research funding
RCUK	Research Councils UK
REF	Research Excellence Framework
TRPs	Translational Research Partnerships

Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet the requirements for any other award or credit at this or any institution of higher education. To the best of my knowledge, the thesis is wholly original and all material or writing published or written by others and contained herein has been duly referenced and credited.

Signature: Catherine Anne Cochrane

Date: 01 May 2016

Contents Page

Chapter 1. Introduction to the research

Since 2003, there has been a succession of Government policy and funding initiatives that have aimed to improve the clinical research environment, making it more conducive to successful translational research. These have included 'Best Research for Best Health' (Darzi; 2006), 'A review of UK Health research funding' (Cooksey; 2006) and the establishment of the National Institute of Health Research NIHR in 2006.

Subsequently, the funding for translational clinical research has increased (UK Clinical Research Collaboration; 2014), providing new opportunities for supporting research in collaborative NHS-University settings, including Biomedical Research Centres (BRCs), Collaborations for Leadership in Applied Health Research & Care (CLAHRCs), Academic Health Science Centres (AHSCs) Academic Health Science Networks (AHSNs) and a series of competitive grant programmes aimed exclusively at joint NHS-University projects.

The driver that have influenced the shift towards this new policy environment has been an ambition by Government to increase the volume and quality of translational clinical research in England, as part of a wider strategy to grow the life sciences sector, and to improve the health of the national population by applying research outcomes into practice. For example, the UK Strategy for UK Life Sciences (Dept. for Business Innovation & Skills; 2011) sets out a vision for a new eco-system consisting of NHS Trusts, Universities, Industry and Charities working more closely together to achieve translational clinical research.

The majority of health funding in England is focused upon a small cluster of University and NHS Partnerships that mainly operate in London, the Southeast, and East Anglia, referred to in my thesis as the 'Golden Triangle', and defined within the Glossary of Terms as the universities of Cambridge, Imperial, Kings College London, London School of Economics, University College London, and Oxford. It is a term well used and understood within the UK higher education sector to include those elite universities that attract the highest level of research income in the country. The UK Clinical Research Collaboration's UK Health Research Analysis 2014 demonstrates that 60.78 percent of health research funding in the

UK is committed to these areas. However, it is the ambition of Government to grow the volume and quality of translational clinical research on a national level, so therefore the new national policy environment shall have to impact beyond the Golden Triangle and in those regions which together share the remaining 22.7 percent of health research funding in England, these being the Northwest, Yorkshire & Humber, the Southwest, East Midlands, the North, and the West Midlands.

I hypothesized that the new macro level policy environment for translational clinical research will not in itself be sufficient to meet the Government's objectives, requiring instead positive action and culture change at meso (organisational) and micro (individual) levels. I tested this hypothesis via a qualitative research study designed with an interpretative approach that asked,

> 'How can NHS-University Partnerships collaborate to deliver translational clinical research?

The lens through which I explored this research question was that of two case study NHS-University partnerships, each operating outside of the 'Golden Triangle', and comprising NHS Trusts and Universities that have contrasting histories, cultures, and systems of governance. Case study partnership one comprises a research intensive university and a number of NHS Trusts. The University in this partnership has over one hundred years of history and grew out of its Medical School. Case study two partnership consists of one University and one NHS Trust. The Medical School in this partnership is less than twenty years of age and its NHS Trust is embryonic in terms of its research culture. The two partnerships therefore provided the opportunity to reflect on the interpretation of the national policy environment within two different local contexts, but which share the characteristic of operating outside of the Golden Triangle.

My study participants were a small sample of the key players that are involved in the delivery of translational clinical research within my case study NHS-University partnerships.

They represent senior clinical academics that, along with their delivery of clinical care and research, are also involved with various leadership and administrative responsibilities.

Drawing upon constructivist principles of knowing and 'truth', and through my subjective understanding of the perceptions of my study participants, I bring new knowledge to the phenomena of NHS-University research partnerships. My study provided the opportunity to construct a new dialogue around the phenomena, based around the perceptions of my participants. I gathered data from a series of open ended, semi-structured participant interviews. These data were analysed hermeneutically and using a manual coding technique. To support my research I have used Huxham & Vangen's (2004) well established theoretical framework as a lens through which to consider the data gathered. A series of common themes emerged and I drew these into a set of recommendations for future action and further research.

The key underpinning concept to the study is 'translational clinical research' but, despite many attempts by both academics and policy makers to define it, I found a lack of clarity in the literature, alongside evidence that the term had become increasingly politicized in the quest to shift public investment from 'basic discovery science' to 'translational clinical research' (UK CRC 2014). After some searching, the definition suggested by Hanney et al. (2015) was the one that I selected for the purposes of my study, specifically their 'human research and review track', which encompasses Phase II clinical trials through to projects that review 'effectiveness and safety' (p 3-4).

This definition was appropriate because both of my case study partnerships contain within them translational clinical research activities that span this full continuum, and therefore this was a practical choice that reflected the current state of my two units of analysis.

My thesis is relevant to a range of settings in the higher education and health sectors. Given the importance of health and life sciences to productivity, it may also be of interest to the new Combined Authorities and those working in economic regeneration. It offers new knowledge to practitioners and academics concerned with the delivery of

translational clinical research in an NHS-University setting, and provides some new thinking around leadership in NHS-University collaborations, the centrality of the 'clinical academic' to the new NHS-University partnerships, and the establishment and delivery of NHS-University research partnerships.

My study is also of direct relevance to the new concept of non-academic 'research impact', something that will be of specific note to those working within the higher education sector. Its findings and recommendations can be drawn upon by established and new universities that wish to engage with the NHS, to the NHS itself, to researchers who wish to engage with, or better understand, University-NHS partnerships and to Government bodies and the funders of research.

I begin the thesis with a review of the different definitions that have persisted around the central concept of 'translational clinical research', before providing a comprehensive documentary analysis of the national policy environment, detailing how this has evolved over the past decade to its current state, and explaining how this has created a network of new NHS-University partnerships. The academic literature review follows, before I outline my methodological framework, along with my chosen methods. Chapters Four and Five present my Findings, Analysis and Recommendations, including a series of suggestions for future actions and potential further research into the dynamic and still evolving phenomena of NHS-University research partnerships.

Chapter 2. Literature review

2.1 The definition of translational clinical research

My study explores how two case study NHS-University partnerships are responding to the new policy environment for translational clinical research.

The definition of 'translational clinical research' has been studied by a range of authors over the past decade, in parallel with the development of a new policy framework for translational clinical research in England. However, the first well documented attempt to define the term 'translational clinical research', came from the United States, when, in 2003, the IOM Roundtable (the 'Roundtable') developed a definition that was based around the blocks to achieving translation, with a view to influencing future action by funders and policy makers.

The Roundtable brought together a range of stakeholders to promote increased investment into the application of results from basic science into clinical outcomes. They suggested two translational stages, 'T1 and T2', with T1 being the translation of basic science into clinical science, and T2 the translation of clinical science into public health, outlining the blocks that they felt were impeding translation in both stages. The Roundtable blocks, presented in Figure 2.1 below, are, for T1 (basic to clinical science) the, 'lack of willing participants, regulatory burden, fragmented infrastructure, incomplete databases and lack of qualified investigators', and for T2 (clinical science to public health) are 'career disincentives, practice limitations, high research costs and lack of funding' (Sung et al. 2003 p. 2)

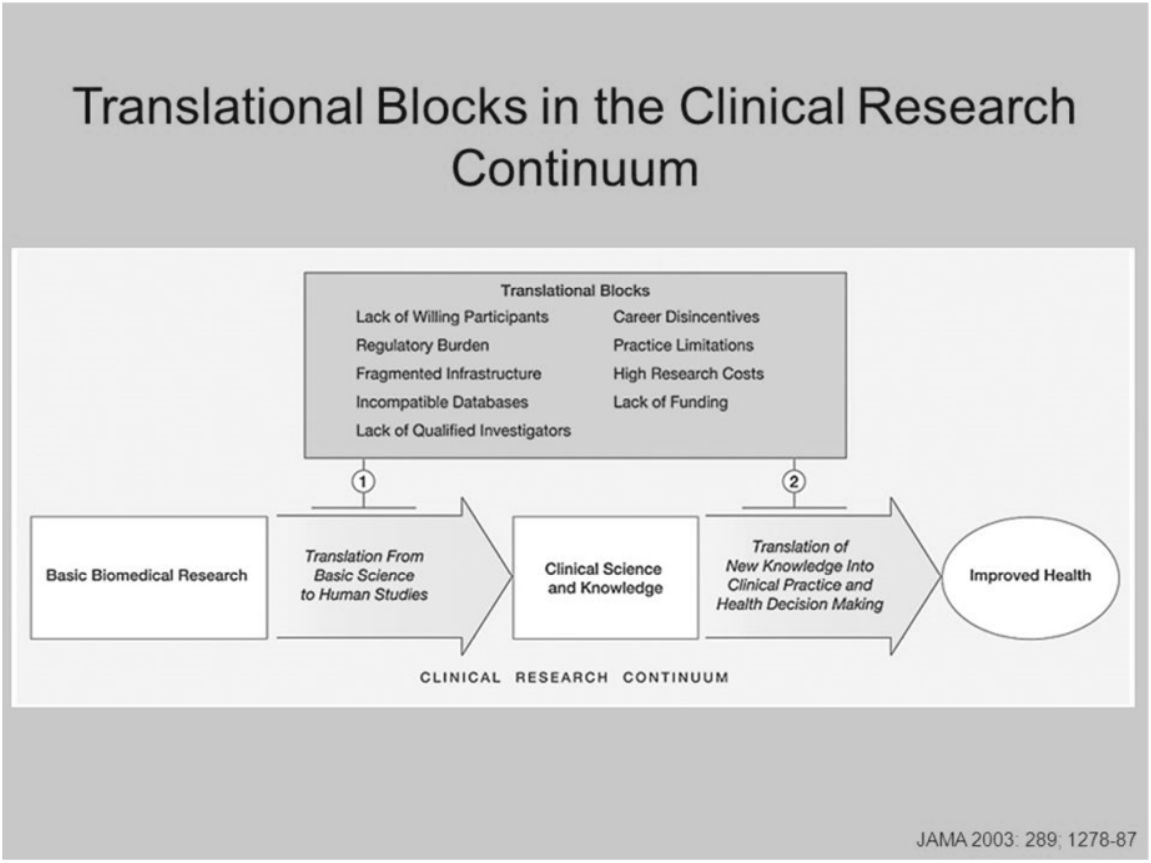

Figure 2.1: The Clinical Research Roundtable definition of the clinical research continuum (Sung et al. 2003; p.1279)

Subsequent to the Roundtable's two stage definition of translational clinical research came attempts to redefine it, with some authors suggesting a three stage model of T1 (basic science to clinical science), T2 (clinical practice) and T3 (health improvements) (Westfall, Mold & Faguan; 2007), and others a four stage approach, comprising translation to humans; translation to patients; translation to practice; translation to populations; that became known as the 'four Ts' (Drolet & Lorenzi 2011) (Figure 2.2 below):

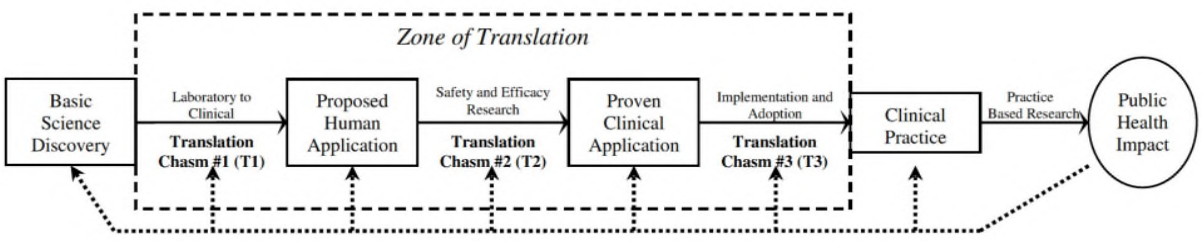

Figure 2.2 Drolet & Lorenzi's four stages of translation

The four T's model has similarities to the IOM definition, in that it is also based around the perceived blocks towards achieving translational clinical research, defined by Drolet & Lorenzi in Figure 2.2 above as 'chasms'.

A practitioner perspective of the 'four Ts' was offered by Dr. Maria Briones of the University of California's Clinical & Translational Science Institute, in a presentation given in May 2013 (retrieved from http://www.ctsi.ucla.edu/education/files/view/docs/CTSI_ResearchWkshop051013.pdf.) Briones outlined the activities that could sit within each of the pathways, and these are presented in Table 2.1 below, alongside a further column that I have added to link Briones's descriptors to the UK Government definition of clinical trials.

Drolet & Lorenzi's Translational Stage	Briones's Definition	Practical Application	UK Government Definition (Column added by me to link Briones's descriptors to the UK Government definition of clinical trials).
T1: Translation to Humans	Basic discovery research findings are tested for clinical effect & feasibility	Preclinical and animal studies, first in human, proof of concept, Phase 1 clinical trials	Phase I trials test a small number of subjects to find out how the treatment works in the body. This type of trial aims to find the lowest dose at which the treatment is effective (the minimum therapeutic dose) and the highest dose at which it can be taken without causing harm.
T2: Translation to Patients	Clinically test interventions in controlled environments to determine clinical application. Results yield knowledge about safety & efficacy	Phase 2 and Phase 3 clinical trials	Phase II trials test the treatment in several hundred people with a given disease or condition. They aim to find out how well the treatment works in larger numbers, identify common side effects, and refine the dose and length of treatment. Phase III trials typically compare the treatment across several thousand patients to gather more detailed information on how well it works in groups of patients and its safety. The results influence the prescribing and patient information of a medicine once it is marketed.
T3: Translation to practice	Explore ways to implement recommendations from clinical studies to general practice	Phase 4 clinical trials, health services research, clinical outcomes research	Phase IV trials are carried out after a medicine has been licensed and put on the market. These trials are designed to find out more about the long term harms and benefits of a medicine and to discover new uses for it.
T4: Translation to Population Health	Examine factors and interventions that influence the health of the population	Population outcomes research, social determinants of health	

Table 2.1: Practical definitions of Drolet & Lorenzi's four stages of translation (Briones 2013)

In the mid to late 2000s, the literature around the definition of translational clinical research was having an impact upon the evolving policy and funding framework, as exemplified by the work of Woolf (2008), who suggested that the Roundtable definition, in categorizing clinical research as 'T1' and applied health research as 'T2', had created an over emphasis of funding towards basic research, and away from translational research.

This funding in-balance was also highlighted by Professor Sir John Bell, then the chair of the Office for the Scientific Coordination of Health Research (OSCHR), in a presentation that he made in 2007. Drawing on 2004/2005 health research investment data from the UK Clinical Research Collaboration, Bell demonstrated that 69 percent of health research funding in the UK in that year was being spent on basic discovery science (Figure 2.3):

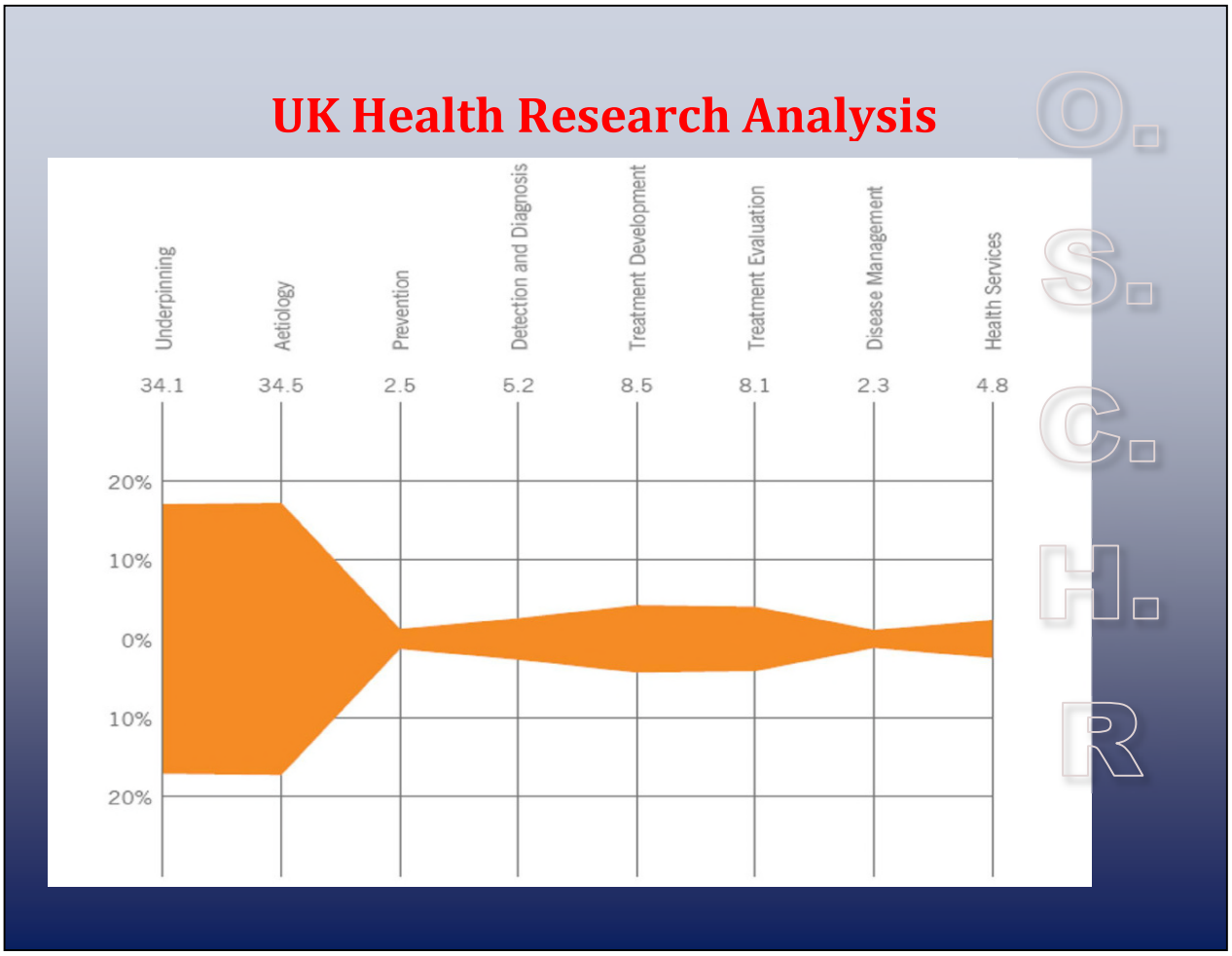

Figure 2.3 UK health research funding analysis presented at the inaugural address of the Chair of the OSCHR (2007). The figure can be accessed via the UK-CRC website (http://www.ukcrc.org/wp-content/uploads/2014/03/Health-Analysis-Report-FULL-final.pdf)

The academic and policy debates developed in parallel such that, in 2006, Sir David Cooksey recommended in 'A review of UK Health Research Funding', that there should be a shift in the UK policy and funding environment to better support translational clinical research (Cooksey 2006; p.32).

Subsequent data from the UK Clinical Research Collaboration (UK CRC), in its UK Health Research Analysis 2014, demonstrates the impact that this policy environment had on funding allocations, noting that the balance of public funding for health research had shifted, post-Cooksey, 'from basic to translational research'. The UK CRC linked this shift directly to the work undertaken by the OSCHR to implement Cooksey's recommendation of increasing the funding for translational medicine (p. 32). One could assume therefore that the external policy environment has made a positive influence on the overall framework for translational clinical research, across England. My research project tests this proposition by asking how the macro level policy and funding environment has played out at the organisational (meso) and individual (micro) levels, taking an interpretative methodological approach to the study, in order that both organisational and individual factors are highlighted.

From 2006 onwards the academic literature looked to some of the post-Cooksey initiatives as a vehicle via which to define 'translational clinical research', providing a further example of the co-terminus nature of academic literature and external policy developments at that time. Delaney (2010), for example, in his review of Academic Health Science Centres (AHSCs), argued that the traditional linear description of 'bench to bedside' failed to understand the cyclical nature of translational research. He contrasted this theoretical definition with the work done by the renal impairment team of the Kings Health Partners Biomedical Research Centre. Here, a whole system approach to

translational clinical research was taken, with clinical care informing basic science, which informed new discoveries, in a mutually beneficial and co-enforcing relationship, something that Delaney argued was a more accurate representation of 'translation' in practice. Kenneth & Pienta (2010), however, suggest a more linear definition, saying that, 'translational research encompasses the effective movement of new knowledge and discoveries into new approaches for prevention, diagnosis, and treatment of disease' (p. 316).

Morgan et al. (2011) also use a practical example with which to define their understanding of translational clinical research, this being the MRC funded 'Knowledge Translator' placement programme. Morgan et al.'s study provides a perspective into the status and standing of 'translational clinical research' and how this plays out amongst basic and clinical scientists. In their interviews with clinical researchers and basis scientists in the University-Hospital partnership, the researchers found a range of views and understandings amongst the community, with the basic scientists inclined to be more wary or cautious about the new funding for translational research, whilst clinical scientists were more positive. A common feature across both groups, however, was a lack of clarity around the definition of translational clinical research.

Cremades, Baulbastre-Benavent & Dominguez (2014) studied a successful Research Institute in Spain, and defined translation as the, 'translation of medical research to clinical practice and the productive sector' (p. 380). Also in 2014, Hanney, Musford, Grant & Buxton suggested that translation is initially research related, the publication of research articles in journals for example, before being followed by further research, leading onto to clinical policies and guidelines, and finally to application and adoption (p. 941). Van der Laan and Boenink (2015) suggest that translational clinical research should not be seen as a linear process but rather as a 'nexus or web' (p.46) in which the design of research should be continuously viewed in light of the future impact that may arise from it. Thus, they suggest a move away from a simple translational pathway with a set of external factors, to a system within which translation happens in many different ways and

is delivered by a range of actors, all of whom should be asking what the potential future benefit of the research could be, in order to factor this into research and study design (p. 44-46).

Hanney et al. (2015), like the Roundtable over ten years previously, focus their definition of translational clinical research on the gaps or 'time lags' (p.1) that impede the translation of basic science into clinical application. In their definition I found a practical and accessible way of defining translational clinical research. They suggest a matrix approach, which was tested on seven case studies of 'interventions in cardio-vascular disease and mental health' (p. 2) and is presented in Figure 2.4 below. It suggests that there are two main tracks that sit within the translational pathway, 'human research and review' and 'public policy development', with activities in each track being 'not linear' but over-lapping. The Hanney et al. (2004) matrix presents the translational pathway from the 'most relevant basic research' through to 'clinical practice using the intervention'. Whilst their main aim was to identify the places in the pathway in which gaps or time-lags most often occur, by presenting their understanding of the concept in a matrix format, they provide a really useful practical overview of what translational clinical research looks like in practice.

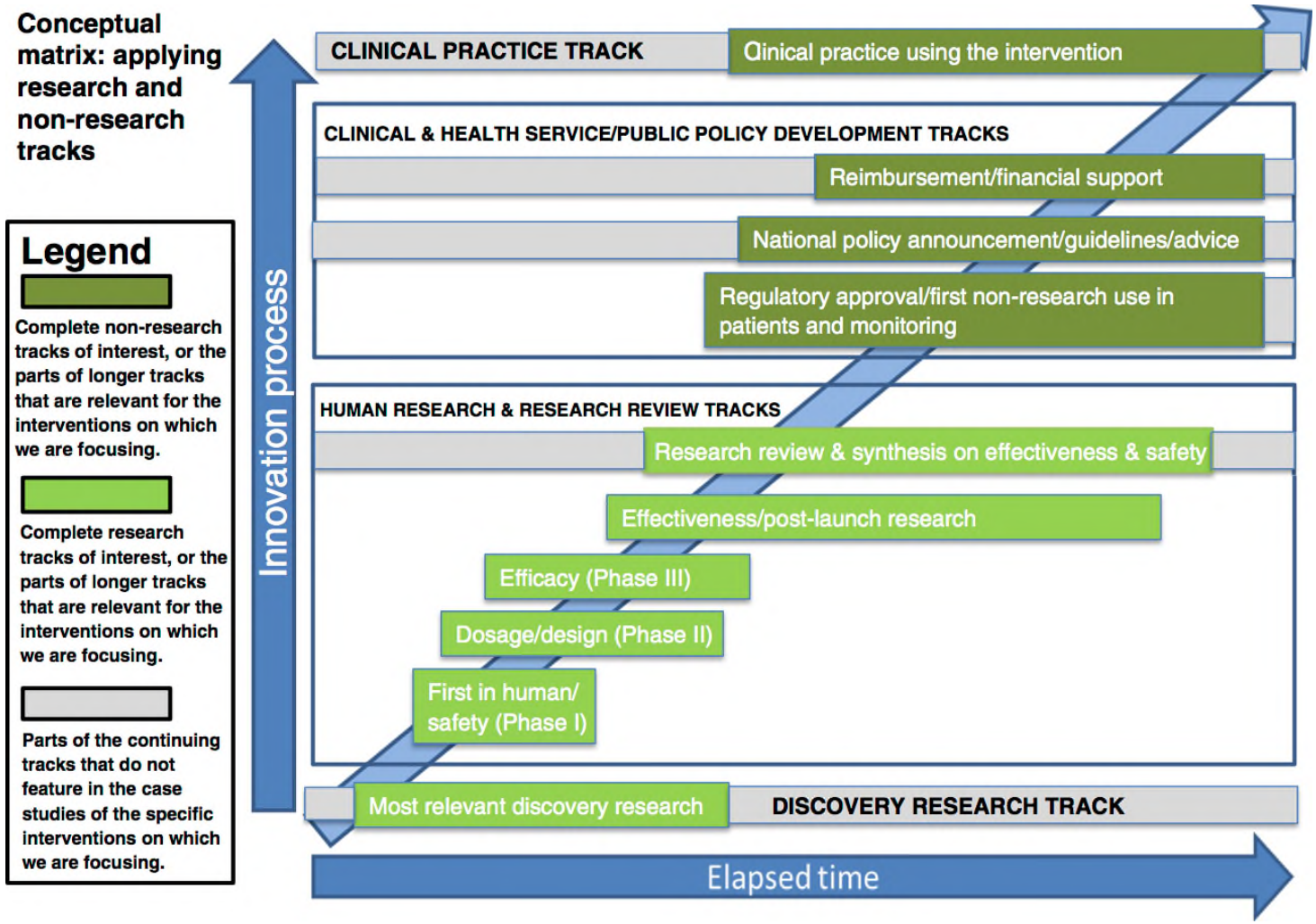

Figure 2.4: Hanney et al.'s conceptual matrix for understanding and measuring time lags within translational clinical research

The research that took place within my two case study partnerships reflects the breadth of activity in Hanney et al.'s 'human research and review' track, commencing from Phase II clinical trials through to the 'research review and synthesis on effectiveness and safety' (p. 3-4).

Hanney et al. couch their definition of translational clinical research within the context of 'gaps' to translation, and this concern around the 'gaps' to achieving the outputs from research, is a further example of the links that exist between academic literature and the policy framework in this area. Outlined in Section 2.2 and Table 2.2 below is a documentary analysis of the external policy framework that was developed by Government with a view to addressing these gaps and facilitating an increased volume and quality of translational clinical research.

2.2 Translational clinical research: policy framework

A national policy framework has developed over the past decade to improve the conditions for translational clinical research in England. A chronological summary is presented in Table 2.2 below. A comprehensive documentary analysis of this policy environment has been provided on the basis that it provides an 'important base for the research' (Finnegan, in Sapsford & Jupp (1996, p. 138).

My research question is concerned with the way in which my two case study partnerships have responded to the national policy environment for translational clinical research. Taking an interpretative approach to understanding the views and perceptions of ten senior clinical academics that are operating within the partnerships, I investigate how the policy framework is playing out on the ground and ask whether it leading to its ultimate goal, which is to support the NHS and Universities to work together to deliver research with impact. It is therefore important that this policy framework is presented in detail, such that the scale and ambition of it can be contrasted with the perceptions, reactions, and interactions with it by my two case study NHS-University partnerships.

It was also important to demonstrate the breadth of the policy environment and the way in which policy direction from the Government has influenced the way that NHS Trusts and Universities must work together in order to access funding for translational clinical research. Taken together the documents presented in this section demonstrate a parallel agenda, shared by Government, academia and clinical medics, that the national environment for translational clinical research required a fundamental shift in order that a range of outcomes could be achieved, including public health, growth of the life sciences sector, research and innovation. Therefore, by including a comprehensive review of the policy environment I demonstrate how Government and other influential bodies are attempting to change behaviours at a local level, (Duffy in Bell 2010 p. 131) and I later contrast this policy and theory against my study data in Chapter Five, Analysis and Recommendations.

The rationale for the development of this new policy environment is explained by Ovseiko et al. (2010) who argue that a new policy approach was needed to address the issues created from the separate governance and funding arrangements for NHS Trusts and Universities, which were themselves created by policy decisions of the past. They highlight as deeply unhelpful the fact that legislation for Foundation Trusts 'permits rather than mandates' research and 'gives limited representation to academic partners in governance and management structures' (p. 1288) and in a later paper Ovesiko et al. (2014), state that in England, 'university medical schools and their partner healthcare providers employ disparate finance and performance reporting metrics and indicators' and hence there is a lack of cohesive arrangements across the tripartite mission' with the system of separate Ministerial responsibility creating 'barriers to cross departmental working' (p. 2).

The policy environment that has been created from 2003 onwards has been intended to address these problems, by creating a more facilitative environment within which NHS Trusts and Universities can deliver an increased volume and quality of translational clinical research. It is presented in chronological order in Table 2.2 below, prior to an analysis of some of the most significant developments.

Date	Report or Policy Development
2003	**'Strengthening Clinical Research'** (Academy for Medical Sciences): highlighted a concern that UK clinical research had not kept pace with advances in basic scientific discovery, to the disadvantage of patients **'Improving National Health; Improving National Wealth'** (Dept. of Trade Industry, Bioscience & Innovation Growth Team): an attempt to create an integrated strategy for Biosciences & Innovation which included as a key ambition the objective of improving the ease with which clinical research can happen in the NHS.
2004	Government announces **increased funding** for NHS Research & Development of £100m per annum by 2008, and the establishment of the **UK Clinical Research Collaboration (UK-CRC).**
2005	'**Medically & dentally qualified academic staff: Recommendations for training the researchers and educators of the future'** (UK-CRC and the 'Modernising Medical Careers' Group): a report and set of recommendations aimed at improving the career path for clinical academics via a more integrated and easily accessible clinical academic training programme for those who demonstrate an aptitude for clinical academic research during under-graduate studies.
2006	**'Best Research for Best Health'** (Lord Darzi): set out the blue print for a new, collaborative NHS-University clinical research environment. Recommended the creation of National Institute for Health Research (NIHR) **'A review of UK Health Research Funding'** (Sir David Cooksey): endorsed 'Best Research for Best Health', and suggested that the NIHR be a physical rather than virtual entity; also recommended that research be afforded a higher status in the NHS via ring-fencing budgets for research, that the HTA be provided with more funding to support the effective pathway of drugs to market, and that a new culture of research in the NHS be supported by the introduction of clinical scientists and fellowships awards. The **NIHR is established**.
2007	NIHR launches first competitive round of funding for **Bio-medical Research Centres and Bio-medical Research Units –** new centres of excellence delivered by 'leading NHS and University partnerships', led by an NHS Trust. Eleven Biomedical Research Centres are established. The **Office for the Scientific Coordination of Health Research (OSCHR)** established, in response to the Cooksey Report, to provide funding and policy integration across the Medical Research Council (MRC) and NIHR, with a view

Date	Report or Policy Development
	to improving the transition from basic science to translational research in the UK.
2008	Sixteen **Biomedical Research Units** are established. NIHR launches eight pilot **CLAHRCs (Collaborations for Leadership in Applied Health Research & Care),** to address Cooksey's second translational gap of moving research findings into clinical practice (http://www.clahrcpp.co.uk)
2009	**'The Life Sciences Blueprint'** (Office of Life Sciences): Committed Government to creating an 'integrated sector' of NHS, Industry and Universities, and to establishing a Life Sciences super-cluster. **'High Quality Care for All'** (Lord Darzi): Recommended the creation of accredited Academic Health Science Centres, as new governance structures for NHS-University partnerships that would improve both clinical service and translation of clinical research into improved health care. First five accredited NIHR **Academic Health Science Centres** announced following a national competition (Cambridge, Kings, UCL, Imperial and Manchester). **'Biomedical research – a platform for increasing health and wealth in the UK':** (Academy of Medical Sciences): States that an increasingly coordinated approach to the UK's life sciences sector will deliver economic benefits.
2011	**'A new pathway for the regulation and governance of health research'** (Academy of Medical Sciences): States that the overly complicated and slow governance structures of health research in England is seriously impeding the delivery of clinical research and relates outcomes. In response, the NIHR adopts the Research Support Services framework, intended to facilitate a proactive start up to research in the NHS. **'Plan for Growth'** (Dept. for Business Innovation & Skills): Announced the continued commitment of UK Government to health research funding, committed to the establish of a new health research regulatory agency to streamline health research governance processes along with new metrics to measure performance on clinical trials. **'Strategy for UK Life Sciences'** (Dept for Business Innovation & Skills, and the Office for Life Sciences): Sets out a vision for a new way of working across NHS, Universities, Charities and Industry to create a life sciences eco-system, underpinned by continued NIHR investment and announcing new investment of £310m of Government funding to support stratified medicine (£130m) and commercialisation of biomedical advances (£180m). Contains a commitment to developing a talent base across research, innovation and clinical care, and a commitment towards working with MHRA to reduce governance barriers to clinical research.

Date	Report or Policy Development
	Innovation, Health & Wealth' (Dept. of Health): proposed a set of measures to improve the take-up of innovation in the NHS, including Academic Health Science Networks to move innovations into take-up across NHS networks. The **Health Research Authority (HRA)** established, with an objective to 'streamline the regulation of research' (http://www.hra.nhs.uk)
2012	**'Faster Easier Clinical Research'** (NIHR): Briefing document setting out NIHR's commitment to working alongside the HRA to streamline clinical trials governance processes and speed up trial start times.
2013	The second round of NIHR Academic Health Science Centres announced, as Cambridge, Kings, Oxford, UCL, Imperial, and Manchester NHS establish fifteen **Academic Health Science Networks**, in response to the 'Innovation Health & Wealth' Strategy to establish effective networks with the NHS, Universities and Industry to implement innovation at 'scale and pace' (http://www.nwcahsn.nhs.uk/about.php) **Responsibility for public health** transfers from the NHS to Local Authorities: 'one of the most significant extensions of local government powers and duties in a generation' (**www.local.gov.uk**). **Healthcare commissioning** responsibilities transfer to the new NHS Clinical Care Commissioning Groups and NHS Commissioning Board. **NHS England R&D Strategy** (out for consultation) https://www.england.nhs.uk/2013/12/development-strategy-consult/
2014	**NHS Five Year Forward View** (NHS England): included a commitment for 'test bed sites' for research into the improvement of care via the combination of different technologies. For the first time the **NHS Standard Contract** issues by NHS England contains important conditions relating to research. The NHS planning guidance issued by NHS England**, Everyone Counts: Planning for Patients 2014/15 to 2018/19,** highlights the importance of research to Providers and Commissioners as a means of delivering high-quality care for all. **CLAHRC** Programme re-launched by NIHR with thirteen partnerships across the UK.

Date	Report or Policy Development
	The HRA receives funding to develop and roll out a new centralized NHS review and approval process for research projects, this to replace local NHS R&D review. The Dept. for Business Innovation & Skills and Dept. of Health combine their life sciences functions to create a joint and extended **Office for Life Sciences** Non-academic research impact forms part of the **Research Excellence Framework (2014)** for the first time
2015	HRA announces that the first cohort of health research projects to be taken through the **new centralised NHS approval process** will be health services research projects involving NHS staff.
2015	HRA announces the second and third phases of the **new centralised NHS R&D approvals.** NIHR opens new call for **Biomedical Research Centres,** announcing at the same time that BRUs will be discontinued. **Population health systems – Going beyond integrated care** (The Kings Fund): Challenges Local Authorities, NHS, and community groups to work together in a system of 'population health. (p.6). **Innovative Medicines and Medical Technology Review** announced by Government: into plans to give NHS patients quicker access to innovative medicines and medical technology. Chaired by Sir Hugh Taylor, Chair of Guy's and St. Thomas' NHS Foundation Trust. He will be supported by an expert advisory group headed by Professor Sir John Bell, Regius Professor of Medicine at Oxford University (https://www.gov.uk/government/news/review-into-medical-innovation-and-technology-further-details).

Table 2.2: Clinical research in the UK: Funding and policy Environment, 2003-2015

In 2003, the problems facing the UK were exemplified by 'Strengthening Clinical Research' and 'Improving National Health; Improving National Wealth' produced by the Academy for Medical Sciences (AMS) and the Department of Business, Innovation & Skills (BIS) respectively. Both warned that the standard of translational clinical research in the UK was lagging behind basic science, due to a number of barriers to making research happen in the NHS. The reports concluded that unless there were improvements made to the current environment, industry investment into the UK life

sciences sector was at risk, a point confirmed by Kinapse (2008) who highlighted that 'the UK's share of global patient recruitment in clinical trials dropped from 6% in 2000 to 2% in 2006'. Both reports observed that the funding of the translation of basic s into translational science had to improve, with a more integrated approach to funding and policy required. This led to a succession of policies and funding vehicles that were intended to address the problems facing translational clinical research in England.

In 2006, Lord Darzi produced 'Best Research for Best Health', setting out a new vision for the way that research would be promoted, facilitated, and governed in the NHS. It committed to the establishment of the National Institute for Health Research (NIHR), which would provide funding for translational clinical research. In the same year, and in response to a Government commission, Sir David Cooksey produced 'A review of UK Health Research Funding'. This supported Darzi's ambitions in 'Best Research for Best Health' but went further, proposing that the NIHR be a physical, rather than virtual, entity. The NIHR was subsequently established just twelve months later.

Cooksey also offered his views on the funding for translational research in comparison to basic or discovery science, stating that 'perverse incentives' had created an in-balance away from the former, and suggesting this be remedied. Cooksey recommended that translational research should be a 'joint responsibility' of the Medical Research Council (MRC) and the NIHR (Smyes & Wynick 2007 p. 543) but stopped short of recommending a merger, instead proposing the establishment of an Office for the Scientific Coordination of Health Research (OSCHR) to oversee the funding and performance of both organisations, reporting in this regard directly to BIS and the Department of Health.

The OSCHR was formed in 2007, consisting of Members from BIS, the Department of Health, the National Institute for Health Research (NIHR) and the Medical Research Council (MRC). It selected five work-streams as its priorities, Translational Medicine Research; Public Health Research; E-Health Records Research; Methodology Research; and Human Capital (retrieved from (http://pharmaboardroom.com/companies/office-for-the-strategic-coordination-of-health-research-oschr/). From 2007 to 2011, it had

some notable successes in improving NHS 'electronic data capabilities for research' and in creating a 'research programme for public health and greatly enhanced translation science' (retrieved from www.cso.scot.nhs.uk/funding-2/office-for-strategic-coordination-of-health-research-oschr/).

In 2008, the OSCHR Partners worked together on one of Cooksey's key recommendations, to agree a 'set of health research priorities for the UK that target the biggest and most important health challenges for the UK for the coming decade' with these being named 'The Health Research Opportunities' and being published in 2009 (retrieved from www.publications.parliament.uk/pa/ld200910/ldselect/ldsctech/104/10011203.htm)

From 2011 onwards the OSCHR shifted into a monitoring and advisory role.

The first significant programme launched by the NIHR following its creation came in 2007, with the announcement of the first round of competitive funding for Biomedical Research Centres and Biomedical Research Units (BRCs and BRUs), new collaborative centres of excellence delivered by 'leading NHS and University partnerships, to drive progress on innovation and translate research in biomedicine into NHS practice' (www. nihr.ac.uk/documents/about-NIHR/Briefing-Documents/2016/4.02-Biomedical-Research-Centres.pdf). These were a significant addition to the translational clinical research environment because they insisted upon a collaborative approach to NHS-University partnerships, thereby creating a new environment within which large amounts of funding for translational clinical research was made dependent on closer working between NHS Trusts and Universities. One year later, the NIHR launched its network of CLAHRCs (Collaboration for Leadership in Applied Health Research Centres), collaborative partnerships involving NHS service providers, commissioners, and universities that operated further along the translational pathway than BRCs/BRUs, being concerned with the 'applied health' and patient 'outcomes' (www.clahrcpp.co.uk). Then in 2013 came the NIHR Academic Health Science Networks (AHSNs), operating beyond the CLAHRCs, to 'implement innovation at 'scale and pace' (www. nwcahsn.nhs.uk/about.php)

The UK Government Office for Life Sciences produced the 'Life Sciences Blueprint' in 2009, in partnership with industry. It committed to increasing the integration of NHS, industry, academia and government, creating a new environment for translational clinical research, underpinned by a more innovative NHS (pp. 18, 20) and leading to increased numbers of patients accessing UK clinical trials (p. 14-15). It was in this same year that Lord Darzi published 'High Quality Care for All', which recommended that the successful Academic Health Science Centre (AHSC) model of North America and Sweden be applied in the UK as national policy. AHSCs brought together clinical care, teaching and research into one joint governance arrangement, and subsequent to Darzi's recommendation, in 2009, the Department of Health launched a competition to establish a network of AHSCs in England, with the first five being announced as Imperial College London, University College London, Cambridge, Kings College London (all within the Golden Triangle) and Manchester.

This new initiative was a further example of attempts at a policy level to create new working arrangements for NHS Trusts and Universities, aligning collaborative partnerships to large scale government funding for translational clinical research. Ovseiko, Oancea, & Buchan (2012) neatly summarise the position by stating that,

> 'following the formation of the NIHR in 2006, the majority of NHS R&D funding is now awarded competitively to NHS/University partnerships on the basis of peer review and bibliometric indicators' (p. 12).

Public funding, and its importance to the UK's 'life science's eco-system', was a point strongly made by the AMS in its 2011 briefing 'Biomedical research – a platform for increasing health and wealth in the UK'. Later that year, the Government announced a new investment of £310m of Government funding in its Life Sciences Strategy, whilst the AMS conducted a review into the current environment for research within the NHS. The resultant report, 'A new pathway for the regulation and governance of health research' (2011) was scathing in its assessment of the current arrangements, stating that the 'process of obtaining NHS R&D permissions is the most significant barrier to health research in the UK' (p. 38). A recommendation was made for the formation of

new, centralized NHS governance procedures, to be established at a national level via the formation of the new Health Research Authority, which Government subsequently established with a mandate to streamline the governance systems for clinical translational research.

In 2012 'A strategy for UK Life Sciences One Year On' emphasized the need to support 'the 'life sciences eco-system' by funding collaborative research proposals, removing barriers to research via a new centralized process to be developed by the Health Research Authority, and by an increased emphasis on innovation within the NHS. Also in 2012, 'The New UK Life Sciences Prospectus' set out the Government's commitment towards innovation in the life sciences, including particularly the importance of collaborations with business, the NHS and universities. In 2013, the second round of NIHR Academic Health Science Centres were announced, with Oxford joining the original five, and in the same year the NIHR expressed its commitment to streamlined governance, in **'**Faster Easier Clinical Research', by imposing performance metrics onto NHS Trusts aimed at reducing the time taken to commence trials from the date of funding approval.

Also relevant to the creation of a new environment for translational clinical research, was the decision by Government to include a new expectation for non-academic research impact in the Research Excellence Framework 2014.

The Research Excellence Framework (REF) is the UK's national system of research assessment, undertaken every six or seven years, and underpinned by a system of expert peer review. It assesses the quality of research within universities in the categories of research outputs (65% of the overall assessment), non-academic research impact (20%) (first introduced to the REF 2014) and environment (15%). The REF is critical to universities, in terms of funding, with performance in the REF driving the allocation of mainstream 'Quality Related' (QR) grant from Government, and reputation, performance in the REF driving a selection of university league tables.

It has been calculated that approximately £1.6 billion worth of public funding over the next five years will be determined by impact case studies (Kings College London and Digital Science March 2015). The inclusion of non-academic impact to the assessment criteria is a strong indicator from Government of a need for universities to change behaviour on the ground. The quote below, taken from the UK Strategy for UK Life Sciences (2011), provides an insight into the driver from Government for including Research Impact in the REF exercise, as part a wider shift within the Higher Education sector for universities to demonstrate both high quality academic output as well as translation into non-academic spheres,

> 'In life sciences, impact relates especially to improvements to healthcare and economic, commercial and production benefits. The funding bodies have agreed that for the first time REF 2014 will include explicit assessment of the impact arising from excellent research…Industry bodies, such as Confederation of British Industry (CBI), have endorsed this approach. HEFCE has already appointed user members to the assessment panels, including representation from GSK, AstraZeneca, Pfizer, Department of Health, British Heart Foundation and INVOLVE. Additional user experts (including industry) will be appointed for the impact assessment phase – to ensure that impact assessment is undertaken by a broadly equal number of users and academics' (p. 19).

This REF category, new in 2014, is the first example of national research funding being allocated on the basis of non-academic impact being applied across a research system (Jones & Grant, in Dean at al. (Eds) (2013). It places a new demand on universities to demonstrate the impact of their research in a non-academic context, therefore being highly relevant to the concept of translational clinical research. In their article detailing the different usages of the term 'translational research,' Van der Laan and Boenink (2015) go so far as to suggest that the increasing importance of research impact reflects a 'change in contract between science and society' (p. 3), and Dembe et al. (2014) suggest that in the US, 'government and private research institutes strive to justify expenditures and document tangible outcomes from research programs' (p. 54).

The UK policy framework appears to be reflecting this thinking, with the Chancellor suggesting in the Autumn 2015 Spending Review and Budget Statement that non-academic impact would become more prominent in future REF exercises, in line with the earlier recommendation made by Sir Andrew Witty (2013) who suggested that REF Impact be increased from 20% to 25% of the overall assessment.

The new REF driver for non-academic impact should provide a compelling reason for University Medical Schools to engage in NHS partnerships that deliver translational clinical research, but will it change behaviours on the ground? This was one question asked by Ovseiko, Oancea, & Buchan (2012) in their review of HEFCE proposed clinical research impact indicators, undertaken with reference to 289 clinical medicine faculty at the University of Oxford, all of whom had been returned in the previous Research Assessment Exercise 2008. A response rate of 48.1 percent was achieved, with the authors accepting the potential limitations, in terms of a slight over representation of women and early career researchers, and a slight under representation of senior researchers.

Based on data gathered from '15 open-ended questions structured around the proposed impact indicators', the authors suggest that the REF measure itself is not sufficient to change long term academic behaviours. In order to do so, collaboration across the sector would be required to develop systems, cultures, and understandings to allow universities to capture and monitor impact in a 'continuous' manner. Morgan et al. (2011) make a similar point to Ovseiko et al. (2012), suggesting that whilst translational research is clearly an important element of what funders and government expect from universities, it is far from the dominant factor, with academic output remaining a key priority for research universities.

Boaz et al. (2014) also assessed the impact of external policy and funding interventions on researcher attitudes, in this case within the context of 'Public Engagement in Science' (PES) and 'Public & Patient Involvement' (PPI), the former concept being the communication of science by scientists to the general public, and the latter being a newer concept which places patients and the public within individual projects giving them influence over important factors such as project design, for example. Boaz et al.

explain that there has been a push by the funders of research to increase engagement in both PES and PPI, and ask if there is evidence that this has influenced a 'shift in attitudes amongst researchers' (p.3) within the translational research community.

They utilise three NIHR accredited BRCs to draw together a sample of nineteen participants, these being stratified to represent all levels of researcher and involving research that spans the clinical – health services spectrum (p.3). They conclude that whilst the participant group gave evidence of having engaged with PES and PPI, and were able to encapsulate some of the benefits therein, there was evidence across the group of an unwillingness to 'sharing power and control in the process of knowledge generation' (p. 9). The outcomes of this Study, along with Morgan et al. (2011) and Ovseiko et al. (2012), therefore suggests that policy and funding levers alone are not sufficient to change 'underlying attitudes' (Boaz et al. p. 4).

My research project takes the national policy context and applies it to organisational and individual levels, asking how it is being played out on the ground in two localities. Other researchers have used a similar approach; Adams, Caffrey & McKevitt (2015) for example contrasted the national policy framework around clinical trials with patient recruitment on the ground, in a qualitative study comprising interviews with eleven members of a clinical research group in an NHS hospital. Asking each Participant two questions focused on 'what factors support' and 'what factors hinder' patient recruitment (p.4) the researchers produced a thematic analysis of the responses using NVivo9 software (p 4).

Certain of the themes that emerged around the barriers to patient recruitment on trials could be linked by the authors to the national policy environment, with the dichotomy that the two were at odds with each other, and that the policies themselves were creating barriers, in what could be seen an unintended consequences of well-meaning interventions. Taking each in turn; national efforts to ensure the recovery of 'excess treatment costs' (p. 5) of research was reported as not being translated to ward level, leading to patients not being recruited because ward staff were not aware of the availability or mechanism for recovery of these costs; secondly, that the national

targets around patient recruitment and associated publication of league tables and financial penalties around low recruitment served to create unhelpful competition at the local level, such that clinical groups protected their own patient databases and acted as a disincentive between groups to 'share' patients (p. 5). In addition, the national efforts to 'double the numbers of patients in research within 5 years' by imposing strict and public rankings, led to the unintended consequence of 'reducing collaboration' at the local level (p. 5). Finally, the participants in Adam et al.'s (2015) study openly questioned the merit of a high-profile national marketing campaign by the NHS to encourage patients themselves to enquire about clinical trial participation (the 'it's ok to ask' campaign), saying that in reality there was often a lack of suitably experienced personnel on the wards or in the clinics to address any such questions from patients.

The review of the primary documents outlined here helped me to frame my central research question; I elected to include the analysis within my thesis to 'supplement' the data provided elsewhere and to demonstrate the environment within which the research question was asked, and had merit. (Duffy in Bell, 2010).

2.3 Academic Health Science Centres

A number of the initiatives outlined in Table 2.1 'Policy Framework' have been intended to create new collaborative arrangements for NHS and University Medical Schools, to support the more effective delivery of translational clinical research. This has been part of a strategy to address the dual funding and governance arrangements of NHS Trusts and Universities that have increasingly been viewed as a barrier towards effective collaboration (Ovseiko et al. 2010).

The partnerships that have emerged from the new policy environment have seen NHS Trusts and Universities attempting to coalesce their strategies for translational clinical research, influenced by macro level funding and policy decisions. One of the most significant of these new arrangements is the Academic Health Science Centre (AHSC), launched by the NIHR in 2006 via a national competition to establish a network of

NIHR accredited AHSCs. There are now six NIHR-accredited AHSCs in the England, but a series of non-accredited AHSC-type arrangements have also sprung up around the country, again reflecting the new national policy context, and creating a network of new NHS-University collaborative arrangements.

A body of literature has emerged around the AHSC concept, including papers that have reviewed the governance arrangements of AHSCs in the United States and Canada, from where the concept originated. In the US context, Weiner et al. (2001) suggested that there were eight different types of clinical-academic partnerships in the US in the 1990s through to the 2000s, a situation that seemed to be much the same in Canada, with Ferris et al. (2004) explaining that in Canada, each of the AHSCs operated to a different governance model:

> 'Organisational structures range from operational aggregation – for example, a university, its medical school and the teaching hospitals are governed more or less separately from each other…. Where the hospitals are autonomously governed, the collaboration with a university or medical school is typically codified in an affiliation or partner agreement' (p.25).

Michener et al. (2012) focused upon Academic Health Centres in the United States but raised some generic issues that apply to NHS-University partnerships, including the need for recognition within academic promotion panels and for partners to address the issue of finance, in order for this not to become a barrier to meaningful collaboration, whilst Dzau et al. (2010), also writing in a US context, argued that the AHSC concept was too narrow, suggesting instead that a whole system approach (the Academic Health Science System) was required.

Drawing on the developments at Duke University, where they were themselves employees, Dzau et al. argued that this full system approach should 'not only include the traditional medical centres but also a network of community hospitals and practices working to shared values and strategies' (p. 949). Echoes of this idea can been seen in the NIHR's attempt to create collaborations at every stage of the

translational pathway, from BRCs and BRUs, through to CLAHRCs and onto the AHSNs. The NIHR Translational Research Partnerships (TRPs) are also reflective of the approach illustrated by Dzau et al. These bring together leading research centres with NHS Trusts in key areas such as Inflammatory Respiratory Disease and Joint and Related Inflammatory Disease. Members of the TRPs include specialist centres, research institutes, universities, biomedical research centres (and units), Academic Health Science Centres, University Hospitals, Foundation Trusts, and Centres of Experimental Medicine. Together they represent the geographic spread of expertise in these disease areas from across the country. Each has its own steering committee and receives assistance from the NIHR Office for Clinical Research Infrastructure (NOCRI) that provides support for effective partnership work, such as template collaboration agreements. (NIHR Briefing Document 4.01 'Translational Research Partnerships' January 2014. Retrieved from www.nihr.ac.uk).

There also exists a body of literature written within the context of England's new system of NIHR accredited and non-accredited AHSCs. Fish et al. (2003), emphasize the importance of culture and leadership, rather than governance structures:

> 'The culture of the partnership is crucial. Progress relies on the shared vision, trust and transparency, rather than further contracts between autonomous partner organisations' (p. 6).

This is a point also made by Davies & Bennet (2008) in their comparison of the policy paradigm of academic clinical partnerships in the UK with that of the more established systems of the US, Canada and the Netherlands, observing that 'partnerships between the universities and the NHS are… always built on non-integrated governance and separate accountabilities' (p.536) making culture and leadership critical to successful collaborations. One such leader, Steve Smith (2009), writing as the then Chief Executive of the AHSC Imperial Health Partners and the Dean of Imperial Medical School, outlined the challenge as the fact that clinical research in England was not translating into new innovations at the bedside, and presented this alongside his ambition for Imperial Health Partners:

> ‘This integrated model for an Academic Health Science Centre has the potential to bring about transformational change in universities and hospitals. The NHS will have higher regard for innovation and the contributions of research and development from the university, and in turn universities may come to view the delivery of high-quality care in such a centre as a legitimate academic goal and output’ (p.1057).

Grainger (2010) focused on how a specific clinical profession, in this case nursing and midwifery, could be embedded into the operation and strategy of an AHSC, concluding that this can be achieved by close communication channels being created between the partner organisations and the AHSC, allowing for an embedding into the AHSC via a series of practical measures, which in this case included the training of staff in Masters and Doctoral programmes (p.239).

In 2014 Ovesiko et al. reviewed the governance arrangements between hospitals and universities in northwest London. They argued that the divided nature of accountability across NHS-University organisations impedes the ability to deliver across the tripartite mission of teaching, clinical care and research, and that AHSCs are not in themselves sufficient to address this, arguing that whilst the establishment of the NIHR is helping to create joint accountability in clinical research projects, NHS and universities still operate ‘parallel structures’ for clinical research (p.6).

French, Ferlie & Fulop (2014) writing at the time as members of the UCL and Kings AHSCs, argue that the AHSC concept has evolved from its original North American base to have international significance (p. 382). They present a literature review into the ‘managerial, institutional, political, or cultural aspects of AHSCs’ (p.383) and conclude that there remains a lack of theoretically driven research into the phenomena, suggesting that a research framework is now emerging, into which further investigations into AHSCs would help to develop a better understanding of the local conditions that are required to make translational clinical research happen (p.389). In reviewing the different configurations of AHSCs that now exist internationally (in England these being split between the accredited NIHR AHSCs and the non-accredited

AHSC type arrangements) French et al. suggest that AHSCs operate on a continuum between full and loose integration of governance around the functions of clinical care, teaching, and research.

2.4 Understanding collaborative working:

In addition to the literature around AHSCs, there is a body of work that is concerned with the development of collaborative working in different healthcare settings. This includes Schwartz, Young & Hicks's (2015) research into medical education practice-based research networks in the United States; research by Long, Cunningham, Carswell & Braithwaite (2014) into a Translational Cancer Research Network in Australia; and Rajasekhar, Rees, Rutter, & Hungin's (2014) experiences of a regionally based endoscopy network in the north of England. These are relevant in terms of offering a range of perspectives around collaborations in different healthcare settings.

Schwartz, Young & Hicks (2015) draw on their own experiences of the 'Association of Pediatric Program Directors Longitudinal Educational Assessment Research Network (APPD LEARN), a medical education practice based research network that was formed in the United States in 2009. At the time of their paper this was one of fifteen such networks that had emerged since the early 2000s, with a view to creating collaborative approaches to social sciences research into medical education programmes.

The APPD LEARN network was 'an organization or consortium consisting of multiple education sites' (p.65) specifically focused on pediatric medical education. Schwartz et al. explain that the network was drawn together via a small central team of research and administrative staff operating within a governance structure that involved representatives from each participating university, sharing an IT infrastructure for the collection, storage and analysis of data.

They provide four recommendations aimed at supporting the future development of other practice-based research networks for medical education, commencing with the suggestion that medical faculty shall require some form of development in education

or social sciences research to support their participation in education research projects. The authors also recommended that 'productive and sustainable' central resources need to be available for things such as IT support and data collection, and that the embryonic nature of the networks supports the need for performance measures to assess success or failure. Finally, they recommend that over the longer term an 'international network of networks' should be considered to share best practice in medical education practice based research on a global scale (p. 73).

The recommendations offered by Schwartz et al. are specifically focused on a particular type of healthcare collaboration, but there is a general application to these recommendations that may apply to other collaborative health settings.

Long et al. (2014) reviewed a research, rather than education based, cancer network operating in Australia. They conducted an online survey of sixty-eight 'cancer clinicians and researchers…from six university and hospital campuses' (p.3), receiving a 76.5 percent response rate. The survey sought to understand participants' views of the importance of a range of factors, including physical proximity, professional allegiance, past history of collaboration and of translational research. They concluded that collaborative practices within the network were highly influenced by the clustering of individuals based upon 'geographic proximity and previous collaborations' (p.13). However, they also found strong evidence to suggest that there was a common ambition towards wider collaborations, and the authors therefore recommend that the network, and others like it, consider the ways in which the gaps between geographical clusters that exist within and between networks can be bridged.

Long et al,'s discovery that there was a tendency towards collaboration outside of the cancer research network suggests that individuals collaborate beyond the formal boundaries of a partnership, and therefore it would be interesting to understand what factors drive this, and why there is a perception by the participants that the required benefits from collaboration cannot be achieved within the network. Long et al. suggest that bridges between networks be established such that existing collaborations can be nurtured and developed further.

Rajasekhar, Rees, Rutter and Hungin (2014), like Long et al., explore collaborative working via the lens of a clinical research network, but in this case, the network operated on a regional rather than a national basis, and was the unofficial clinical research network for Endoscopy medical professionals operating in the North of the England ('The Northern Region Endoscopy Group). The network was formed by clinicians to aid collaborative working across the different endoscopy units in hospitals across the North of England. The network in question could demonstrate a level of success by virtue of its publications record (over twenty papers and sixty abstracts) and grants portfolio (holding £1.3m of external funding).

Like Schwartz et al., the authors utilise their own experiences of the network to offer recommendations for future collaborations, suggesting that 'inclusivity' is the key concept that underpins this successful collaboration, basing this on the evidence from the network that all units that want to collaborate are permitted entry to it, and are treated as an equal partner, regardless of size and reputation.

Currie & Suhomlinova (2006) also contribute to the research that exists around 'collaboration'. They reviewed the impact of 'institutional' forces (the NHS; the Higher Education Sector) on collaboration as opposed to the impact of 'organisational' forces (the individual hospital trust; the medical school). The authors selected two case examples from an academic health centre that included a medical school and NHS organisations comprising commissioners and providers.

Following initial interviews with 29 individuals from the centre, two units of assessment were selected with which to test the proposition that it was institutional, rather than organisational, forces that were having the biggest impact on collaboration. The two units selected were the clinical areas of 'digestive diseases' and 'vascular surgery' (p.11). NHS Consultants and Academic Professors were selected as the participant group on the basis of their influence, and working group meetings of key stakeholders were also observed as part of the data gathering exercise.

Currie & Suhomlinova (2006) concluded that institutional pressures were creating a divergence of priorities at NHS and Higher Education sectoral level, and were therefore working against the central government policy of inter-organisational collaboration. The NHS for example was becoming increasingly focused on clinical care and patient outcomes, whilst the Higher Education sector was being judged upon academic outputs in the form of high quality journal publications. This led to a 'struggle to establish a common ground' (p.5).

Currie & Suhomlinova (2006) concluded that this divergence at institutional level affected individuals at a very early stage, for example at the beginnings of the career path of clinicians, who are expected to purse either a predominantly clinical or academic career, with the lack of cross-fertilisation between the two contributing towards an increasing divide between NHS employed clinicians and University employed academics. Thus, Currie & Suhomlinova (2006) argued that central government policy makers should pay more attention to institutional forces in order that collaborations are not impeded by the regulatory, cultural and managerial differences that otherwise emerge between NHS and University organisations.

Currie & Lockett (2011) make a similar point, arguing that whilst central Government policy in England is pushing a collaborative, distributed leadership approach, the parallel institutional target-based polices serve to push individuals in the opposite direction, towards a less collaborative way of working (p.295).

None of the papers specifically contrast a stated policy objective around increased collaboration with actions in local settings. This is something that the NIHR wanted to better understand, and funded Davies, Powell & Nutley (2015) to investigate the potential potential dichotomy between the meso level interventions by research producers, funders, and intermediaries, and the translation of these efforts into practice.

Davies et al.(2015) undertook a multi-methods, multi-phase study into the CLAHRCs and the UK-CRC Public Health Research Centres of Excellence, conducting interviews

with fifty-two participants from across such collaborations, as well as a web-survey extending to national and international organisations, with a response rate of fifty-six percent (106 respondents).

They concluded that whilst there was evidence that efforts such as jointly funded projects and collaborative secondments were intended to aid successful collaboration, tensions between organisations remained. The authors discovered that organisations were not learning sufficiently from programme evaluations and recommended that there should be a facilitation of more cross-sector and interagency learning, of increased reflection at an organisational level as to what works, and more meaningful evaluation of programmes and initiatives.

2.5 Summary of key themes and gap in the literature

This chapter commenced with a summary of the literature that has developed over the past decade around the definition of translational clinical research and demonstrated the range of organisational structures that have developed to deliver this type of research. Hanney et al.'s (2015) definition of translational clinical research, specifically their 'human research and review' track, encompasses all of the activities that were being delivered by my two case study partnerships, these being Phase II clinical trials through to projects that review safety and effectiveness (p.33), and was therefore of most relevance to my study.

A detailed analysis of the policy framework followed, and demonstrated a synergy between academic thinking and the development of external policy. This new policy framework included the creation of the NIHR, which in turn announced a tranche of funding opportunities for translational clinical research, all of which were dependent on a new type of NHS-University collaboration, typified by arrangements such as the Biomedical Research Centres (BRCs), Biomedical Research Units (BRUs), CLAHRCs, AHSNs, and AHSCs. I have presented literature that has asked whether policies change behaviours in the context of non-academic research impact (Ovseiko et al. 2012; Morgan et al. 2011; Boaz et al.; 2014) and recruitment of patients enrolled on clinical

trials (Adams et al. 2015) and these suggest that policy levers are not a guarantee of changing behaviours.

The more recent examples of academic literature around NHS-University collaborations (Currie & Suhomlinova; Currie & Lockett; Davie, Powell & Nutley) suggests that there are institutional factors that impede the successful translation of policy levers into improved delivery on the ground.

However, there is a lack of knowledge within the literature around the way in which the new macro level policy environment for translational clinical research has been responded to at meso and micro levels by organisations and individuals that are working in the resultant collaborative partnerships.

This gap includes a lack of understanding around the way in which NHS-University partnerships, operating outside of the Golden Triangle, have responded. Given the in-balance in public funding for translational clinical research between the Golden Triangle and the rest of England bringing new knowledge to this area is useful from a research and policy perspective.

The next chapter presents the theoretical framework within which I sought to answer the central research question in the context of two local NHS-University partnerships. It explains how I drew upon a constructivist methodological approach to devise a list of semi-structured, open interviews with clinical academics, and used the lens of Huxham & Vangen's theory of collaborative advantage to frame the interview questions and analyse the data.

Chapter 3. Methodology & Method

3.1 Methodological preference

A new phenomena of NHS-HEI collaboration has developed in England, in response to the policy framework that is outlined above. Drawing on the principles of

interpretative research, I sought to bring new knowledge into this area, by researching how participants within two NHS-HEI partnerships made sense of the new policy environment. This approach was underpinned by my view that social environments are created by the actions, beliefs, and behaviours of the people within them, and that, in turn, the social environment itself impacts upon the behaviours of its inhibitors, and those engaging with it. Thus, I embarked upon a study that is grounded within constructivist ontology, and I do not therefore claim to provide a universal truth.

I begin with the hypothesis that, in England a new policy framework has been developed, with a view to better facilitating the delivery of translational clinical research across NHS Trusts and Universities. I test this hypothesis by exploring the interpretations and understandings of a group of pre-selected participants within two units of analysis. The constructivist approach that I have taken is grounded within the key concepts of the socially constructed world, the importance of language and communication, and the acceptance that whilst truth may be subjective, there are nonetheless patterns of behaviour that may help us to understand how a social construct is developed and interacted with, by the people within it.

Moses & Knutsen (2012) provide a history of constructivism, commencing with the works of Immanuel Kant, whose theory that the world can never be truly objectively understood was antithetic to the ontology of the natural scientists. However, Kant did provide them with a paradigm that allowed them to continue with their sensory perceptions of truth, via his idea of the shared 'basic preconditioning concepts' of the human mind (p.175) which together are what 'it means to be human'. William Whewell (1794-1866) provides a lens through which to engage with Kant's body of work. Whewell argued that the naturalist paradigm was at its heart arrogant and self-denying, incorrect in its view that it could offer objective views of truth on the world. He placed the historical nature of human knowledge at the centre of his argument that knowledge is collectively owned by groups or societies, and is constantly evolving through time, such that one form of truth eventually replaces a former (the world is flat – the world is round, for example). Kuhn (1922-1996) further developed these

ideas by arguing that shifts in knowledge occur totemically and disrupt periods of relative stability and gradual evolution.

Whewell also argued that human knowledge transcends individuals and is contextual to the social environment, a point that was expanded upon by Scheller (1920s) ('society of knowledge'), in which the argument goes that societies are 'pools of knowledge' and that knowledge is influenced, but not determined, by social conditions (p. 185). Later came the 'Verstehen' concept, developed from the early 1800s and beyond by Dilthey, Rikert, Simmel, and Weber (p. 187) and being the counter to the cause-and-effect naturalist ontology in arguing that social phenomena can be illuminated by the exploration of social relationships.

Dilthey's evolution of hermeneutics transferred ideas from theology into a method for couching knowledge within an observed and iterative understanding of individuals and context. Similarly, the idea of a 'cultural apparatus', as a window through which individuals view, and formulate, social realities, is underpinned by an appreciation of the importance of linguistics and communication to the accumulation of knowledge and 'truth'. In short, constructivism is not a simple nor easily summarised ontology, but its theorists share a belief that,

> 'Knowledge about the social world is always knowledge in context; it is socially situated and has social consequences' (p. 201).

3.2 Interpretive research

> 'What constitutes interpretive research is the explicit recognition of the researcher being engaged in the act of interpretation from the beginning of the research process to the end' (Radnor 2001, in the introduction to her book 'Researching your Professional Practice: Doing interpretative Research).

I draw upon this principle in my study, in which I seek to interpret the new social phenomena of NHS-University partnerships, by recognising these exist within a wider

contextual policy framework around translational clinical research. They also exist within older, more established social pools of understanding, including the worlds of the NHS, of Universities, of Science, and in bringing these worlds together into new collaborative arrangements, the partnerships have in themselves created a new form of social construct that is embryonic in terms of the research that exists around it. The interpretivist approach is compatible with the hermeneutic style that I have taken to the observation of the external policy environment and my study data, and is relevant to Verstehen principles of pooled societal knowledge, and the importance of language to concepts of truth.

I hypothesized prior to commencing my research that the delivery of the new phenomena on the ground may not be completely aligned with the objectives of the policy makers, who were trying to create a new reality for translational clinical research. I believed that my study participants and the two units of analysis should be approached from the understanding that knowledge is not rooted purely within individuals, but is also determined by broader social contexts.

The interpretative approach to research encourages researchers to be aware of their own subjectivity and to be proactively reflexive in the analysis of data (Radnor; 2001; p. 31).Throughout my research, I was careful to recognise my own preconceived ideas about the phenomena being studied, and to ensure that the questions I asked were objective as possible. To this end, I embarked upon a pilot set of interviews with critical friends, to remove as far as possible any research bias. At the time, I recorded my thoughts in my reflexive log, and for the sake of transparency, I have presented the most relevant of these in the section below 'myself as the researcher'.

I brought to the study an interpretivist curiosity about how individuals interact with social environments that have been created for a particular purpose, in this case the new NHS-HEI organisational structures that had been 'created' directly (the accredited NIHR partnerships) and indirectly (the network of non accredited organisations), by Government policy. As neither an academic clinician nor a leader of a Medical School or NHS R&D Office, I felt that I was able to maintain a distance from the participants

during the interviews, and this allowed me to ask open-ended questions without having any pre-conceptions about the answers. The collation of the interview data was a fascinating process that I feel privileged to have been a part of.

The questions that I asked were semi-structured. My epistemological perspective led me to design open questions that were focused on understanding people's interactions and perceptions of the new NHS-HEI arrangements:

- What is the vision for translational clinical research in the University and the Trust?
- How well understood is this vision (with clinical academics with non-clinical academics)?
- Is it focused on particular groups or themes at the moment – why is that?
- What have the NHS and University done to engage with each other at senior and operational levels?
- What do you think are the main opportunities for the University/NHS Trust in terms of engagement with the local NHS trust(s)?
- How should the organisations manage these?
- What do you think are the main challenges for the University/NHS Trust in terms of engagement with the local NHS Trust(s) and how should the University manage these?
- What particular challenges and opportunities does the University/NHS Trust relationship pose in terms of your own area of research and academic leadership?
- How would you define 'translational clinical research'?
- Is there anything else that you would like to tell me about?

Throughout the interviews, I drew upon Mead's 'perspective of symbolic interactionism' (Radnor 2001; p.6) to observe how my participants interacted with the social construct of the NHS-HEI collaboration, underpinned by my view that it is this process of interaction that influences and evolves the world around us. I do not believe

that these new phenomena, created as they are by the social world, stand still; rather, I expect them to develop into different social constructs as the individuals within and around them, interact with each other and with the construct itself to create a new environment, a new way of being. I sought to better understand whether the new policy context had created a change in the actions of the organisations and individuals that interact with it.

My study relates to the new policy environment that has developed to support translational clinical research, and I explore whether this is leading to new behaviours. I have conceptualized the new wave of NHS/HEI partnerships and sought to understand the activities of those within them by taking an interpretive approach, which accepts the hermeneutic nature of a reality as a learned experience in a social world that is forever changing. In seeking to bring this new knowledge, I accept that there are no hard objective facts that are proven by my study, but I do believe that the qualitative data gathered adds a further layer of understanding to the new NHS-University collaborations, that can be drawn upon by other researchers to further extend knowledge of this area.

3.3 The practitioner researcher

I undertook the research project as part of my EdD, at a time when I was still relatively new to the Higher Education sector, and very new to research in Higher Education. In fact, a recent promotion to the role of Head of a Research Office was one of the primary drivers to my enrolment onto the EdD, as I sought to develop a deeper understanding of the sector as a practitioner researcher. The project that I selected for my thesis was concerned with an area that I had just begun to get accustomed with; that of clinical research being delivered by NHS-HEI partnerships. My interests in this area were piqued by the opportunities to study meso and micro level behaviours within a dynamic policy environment, in which a new form of partnership had emerged.

I had an underlying interest in the way in which individuals interact with each other within new social constructs, and the added dimension of translational clinical research into the NHS-University environment gave the area a highly topical dimension to it. But mainly the key driver for me in selecting this project was an observation of the frustrations that existed around it, on the ground, for those that were trying to deliver translational clinical research. I could see that there was a new external policy context that was meant to facilitate this type of research, so what were the factors at a local level that were preventing this from being the case? And how could local partnerships interact in such a way as to deliver this research in an easier and more effective manner?

I explored these questions within a practitioner based project, and by doing so, added another study to this developing area of social sciences research, which has its modern origins within practitioner research in an education context, and has grown in popularity in recent years alongside the rise of Professional Doctorate (Sikes & Potts 2008 p. 3). Practitioner researchers are often embedded within the phenomena that they are studying, but seek to achieve enough critical distance from them to develop legitimately new and robust knowledge that can move a discourse forward (Loxley & Seery in Sikes & Potts p. 24). I certainly wanted to provide new knowledge to the phenomena of NHS-University partnerships for translational clinical research, but I had an existing critical distance by the fact that I was not based within either a Medical School or an NHS Trust at any point during my study. Rather, I was employed within the central administration of a University within each of the case study partnerships at various stages in my study. This provided an element of critical distance, but it was still the case that I was employed within an organisation that had an interest in the future direction of the partnerships and therefore it was important that I was aware of my status as a practitioner researcher in both the design and conduct of my study.

My EdD was self-funded and this provided a further element of critical distance that I found useful; I did not feel that I had to focus my research towards the priorities of one or other of the organisations within the case studies.

Conducting the research provided me with a deeper appreciation of the academic research process, and the communities of knowledge that sit within this, diverging and coalescing around different ontological and methodological stances. This changed me fundamentally as a professional and as a person, whilst also giving me a new currency with the Academy at my new University. This applied not only to the social science researchers, but also to the natural scientists. In my role as a University Director of Research, I have to engage with both and in reading around the different approaches to knowledge; I gained a deeper understanding of both paradigms.

However, practitioner research has been criticised by many as unable to achieve truly objective academic output. Hammersley (in Sikes and Potts; 2004 p. 27) , for example, argues in the context of educational action research (teacher-researcher) that critical distance cannot be maintained due to an underlying bias that is ingrained within a teacher's epistemological approach. This is contested by Loxley & Seery (2008) who argue that bias can be just as present within non practitioner research and that it is the ability to think critically, reflectively, and to be able to design and conduct research that are more important (p.24). Smyth & Holian sum this up nicely by saying that 'research from within is different to, not better or worse than, other forms of research' (p. 33) but it is important to ensure that the design, ethics, and analysis are robustly planned and conducted to ensure credibility and to support the ethical treatment of the participants. (Smyth & Holian p.39).

As I progressed through my Study, I found that there was sometimes a tension between my instinct as a practitioner to shift too quickly into practical recommendations for future action. It was deeply affecting, from a personal and intellectual perspective, to discover that there is a different way of viewing 'truth' and that an academic approach can allow one to step back and view the social construct through a different lens. This has fundamentally changed my approach to thinking about things in both a work and a personal context. It is an outcome of the EdD that I was not expecting but is something that I shall look to maintain and nurture in the future.

In many senses, I found myself to be a different person as a researcher as compared to my professional context. For example, I was not as comfortable in the interview situations as I would have been presenting to a room full of people. This was at the same time frightening and liberating but culminated I hope in a project that spans both the practitioner and academic facets in a way that offers something to both audiences (which do not of course have to be mutually exclusive). The process of conducting the Study has made me much more aware of my own perspective on the world as someone who subscribes to the constructivist view of realties, whilst the practical knowledge that I have gained has helped me to develop a number of interesting professional projects, and I hope to continue as an active researcher in my future career.

3. Reflexivity

I have explained in the preceding section that my doctoral journey has been one of personal insight, in which I have developed as both a practitioner researcher and as an individual. As a practitioner researcher, I was very aware of the need to maintain a critical distance between myself and my study data, and one of the ways that I did this was to take a reflexive approach to the research process.

Radnor (2002) defines the process of reflexivity as one in which the researcher is aware of their own views (and has a deep appreciation of how these views came into being), their reaction to the participants and the data (p. 32). In my case, I was aware that as a practitioner researcher, I was naturally drawn to the large policy framework that underpins the subject area, having experience of translating policy into practice in a number of settings. This would therefore have influenced my choice of research question, in that enquiring as to how a significant policy shift was being translated at the local level, was a matter that was pertinent to me and many of my contemporaries in University and NHS organisations.

Radnor introduced me to the idea of the researcher as a 'research tool' being intertwined with the process of data collection and analysis in such a way as to be part

of the project itself. This is why I outlined my background in Section 3.3 above, to allow the reader an insight into how I came at the research project, and therefore how I may have interacted at different levels with it. More fundamentally though, the process of reflexivity allowed me to understand all of these things as though I were looking in on myself – a remarkably thought provoking and stimulating process.

To assist my reflexive approach, I did a number of things. Firstly I have maintained a learning log during the study, starting from the point that I decided on my thesis title and onto the time of writing. Some of the entries are very brief, but the most detailed are those in which I explain how I interacted with a particular piece of literature or study participant. This process of reflection throughout the study allowed me to better understand my own subjective responses and to address these during the period of the data analysis, by drawing on certain techniques with a view to ensuring that my analysis was as robust as it possibly could be.

During the data analysis stage, I began to conceptualize the data in detail, referring it back to the central research question and applying it both units of analysis. I engaged hermeneutically with the data (Radnor 2002; p/ 36) reflecting, refining, and revisiting it such that I was immersed in my study outcomes. Being aware of the need to reduce bias, I read through the data at different times to establish a critical distance from it as far as was possible, accepting an element of subjectivity will always be present within the analysis of qualitative data.

3.5 Theoretical Frameworks

Yin (2012) argues that the use of theory can be particularly useful for case study research. It supports the researcher to define the nature of the case study, identify the participants, and specify what is to be explored (p. 28).

In contrast to the natural sciences, the social sciences do not have a small number of agreed theoretical frameworks that shape research questions and approaches at a point in time. Instead, there are a number of different theoretical frameworks that

each view social phenomena through a different lens and have a different approach to understanding the social world (Kerlinger 1986 in Anfara & Mertz Eds. 2015).

Additionally, there is some disagreement within the social sciences as to whether theoretical frameworks should be utilised as a way of framing qualitative research questions (Anfara & Mertz 2015; p. 7). In their review of the literature that exists around theoretical frameworks in qualitative research, Anfara & Mertz conclude that,

> 'theory has an unavoidable place in all but a few of the authors that we reviewed and plays a substantial role in the research process' (p. 14).

Strauss (1987) refers to the integral 'complexity' (p. 10) of social phenomena and states that theory is a way in which this complexity can be understood and researched, arguing that 'there is no reason not to utilize extant theory from the outset' providing that this theory is grounded in strong research data (p.7).

3.5.1 Theory of collaborative advantage

I utilised Huxham and Vangen's theory of collaborative advantage at two critical stages of my research, during the design and the analysis of results. Prior to selecting Huxham & Vangen, I reviewed a number of other frameworks, and I present these here for completeness, to provide a further rationale for my selection of the theory of collaborative advantage.

D'Amour, Ferrada-Videla, Rodriguez, & Beaulieu (2005) analyse seven model frameworks for collaboration with a view to informing future research into inter-professional collaborations in a health setting. The seven frameworks are initially analysed according to the level at which they are underpinned by empirical data, theory, and literature reviews. Each of the frameworks draw heavily on ideas of either 'structure and process' or simply 'process' (p. 121).

The seven frameworks are underpinned by a theoretical position, either 'team working in organisations' (West, Borrill, & Unsworth (1998) and Sicotte, D'Amour & Moreault (2002); the structuration of rules (Friedberg (1993); D'Amour, Sicotte & Levy (1999); D'Armour, Goulet, Pineault, Ladabie, (2004)), social exchange as a way of understanding collaborations (Gitlin, Lyons & Kolodner (1994), or the concept of alliance (Hayward, DeMarco, & Lynch (2000).

D'Armour et al. argue that, in addressing structures and settings rather than collaborative practices, the frameworks assume that collaboration necessarily 'affects patient outcomes' (p.128), and that collaboration is inherently positive.

Huxham & Vangen argue against this assumption. Bringing together fifteen years of action research into collaborative ventures to their argument, Huxham & Vangen describe their theory for understanding collaborations as one in which there are the two concepts of 'collaborative advantage' and 'collaborative inertia' (Huxham & Vangen 2003; p. 62; Huxham & Vangen 2005; p.3).

In their 2003 paper published into their research into the role of partnership managers in achieving successful collaborations, Huxham & Vangen explain that their concept of collaborative advantage is one that often underpins the move towards collaborative working in the first place. Relating this to my subject matter, the notion of collaborative advantage can be used to conceptualize the rationale behind the Government's requirement for formalized NHS-University partnerships, the theory apparently being that this increasingly collaborative approach will improve the volume and quality of translational clinical research. However Huxham & Vangen's concept of collaborative inertia is often the unintended consequence of such move towards partnership approaches (2003; p.62; 2005; p.3). In their research into partnership managers, Huxham & Vangen draw upon data gathered ethnographically from thirteen public sector partnerships and argue that to achieve success rather than inertia requires managers to be both 'facilitative' and 'directive' (p. 74).

The theory includes a series of practitioner based themes, which both inform practice and are themselves informed by practitioner research, (p. 6-7). They present the theory by means of a series of overlapping themes or 'perspectives' (p.37) which are grouped into three areas, firstly, perspectives that have been gathered from practitioners' own views about collaborations that they have been involved with; secondly, themes which are nested in policy drivers, and third, academic perspectives which are included and intertwined to ensure a robust research base for the overall theory to reside.

Huxham and Vangen's theory also incorporates structures and settings referred to by D'Armour's (2005) analysis of theoretical frameworks. However, a criticism of their theory is that not enough attention is paid to the 'structural properties' of specific organisations and regions (Sydow; 2006). This is a valid comment, but the practitioner focused and reflexive characteristics of the theory meant that it was my preferred framework, accepting its limitations with respects to structural dynamics.

Whilst the practitioner views form the conceptual themes, Huxham & Vangen argue that there is a great deal of complexity sitting within the themes. This includes both linkages and contradictions within and across the themes, and they argue that these data should therefore be assessed with reference to 'theoretical and empirical research by others on these topics' (Sydow 2006; p.606). In Chapter Five, Discussion and Analysis, I follow this approach, presenting and analysing my data alongside relevant policy and academic literature.

Figure 2.5 below presents Huxham and Vangen's theory of collaborative advantage with reference to the themes within it. These are not expected to be a 'prescription' for success (p.34) but are presented as a framework for practitioners and practitioner researchers to progress their own collaborations and related research projects.

Therefore, this is a dynamic theory that should evolve as practitioner research and real life experiences inform it, encapsulated by Huxham & Vangen as 'an interim statement which must be viewed as a developing story' (2000; p. 1165), and they contextualize

public sector partnerships as part of a wider shift towards 'joined up' approaches that became prevalent in the 1990s (2000; p. 1159). This move has continued and now includes the subject matter for this thesis, the NHS-University collaborative partnership that is required by funders in order to access investment into research, this confirming their earlier observation that collaborations are 'often externally imposed by policy makers' (2000; p. 1166).

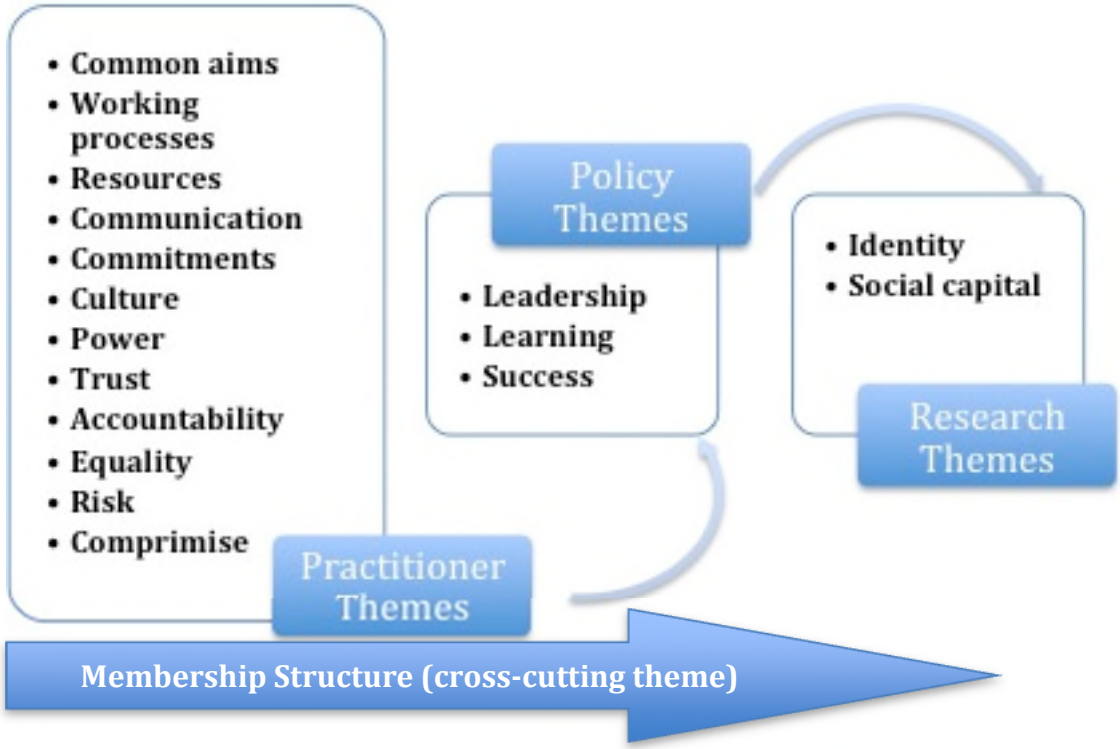

Figure 2.5: Huxham & Vangen's theory of 'Collaborative Advantage

This conceptualization of issues 'in a form that is accessible to practitioners' provided me with a framework within which I would seek to understand the collaborations within my two NHS-University case study partnerships (2003; p. 62). In the design stage of my study, the theory helped me to identify and formulate a practitioner based approach to understanding the research question, and in the analysis stage, to identify a series of practitioner based themes underpinned by a detailed analysis, that provides new data around collaboration from the views of practitioners in each of the thematic areas.

The practitioner themes that form the basis of Huxham & Vangen's theory have been drawn together via a series of action research projects, and represent the factors that, in the views and perceptions of practitioners, are key to the success or failure of a collaborative endeavor. This practitioner driven approach resonates with my study, in which I sought to understand the implications of a new policy environment from the perspectives of the senior practitioners operating within it. The theory of collaborative advantage is also one that is continually informed by practice based research and therefore is an evolving theory. It provides a framework within which each of the practitioner driven themes can be further investigated in more detail. I followed this style of analysis in my study, drawing out three practitioner driven themes, within which I provided an in-depth analysis to present recommendations for future research and practice in each area.

An example of the complexity behind practitioner generated themes is offered by Huxham & Vangen with reference to developing and agreeing joint aims. They argue that, in their experience, this is a complex process that is influenced by 'organisational' 'spoken' and 'unspoken' aims, some of which may never be fully understood (2006; p.4).

Huxham & Vangen's framework presents these practitioner generated themes against policy generated and research generated themes, these being the areas that policy makers and researchers feel are the critical areas. My focus on the collaborative NHS-University partnerships that have formed in England in response to central government policy drivers, provides the opportunity for a new interpretation of Huxham & Vangen's model, specifically aligned to the area of translational clinical research. In the data analysis chapter, I present a series of practitioner generated themes that emerged from my data within which are a series of categories and codes, these providing additional detail to each of the themes, and thereby following the Huxham & Vangen structure, whilst offering a new set of themes specific to my area of research.

3.6 Absorptive capacity

In asking how the national policy environment for translational clinical research is impacting on delivery in two NHS-University partnerships, my study could be viewed as testing the 'absorptive capacity' of the case study partnerships to respond effectively to the new policy environment for translational clinical research. Utilising the concept in this way would require me to ask how well or badly the organisations in my case study are embedding the new policy drivers into their internal infrastructures, and how this in turn then improves their delivery of translational clinical research.

The concept of 'absorptive capacity' was introduced by Cohen and Levinthal (1989, 1990, 1994) 'more than 25 years ago' (Martinkenaite & Breuning; 2016) as a mechanism for understanding the ways in which private sector companies become innovative, dynamic, and competitive. It assumes that innovation is necessary for success in high technology and knowledge based business environments, and suggests that the most successful firms are those that can 'recognise…assimilate…and apply' external information for commercial benefit (p.700). This is therefore a concept that is based on the assumption that the most competitive companies are those that possess this three-stage capacity to recognise the most lucrative information, rapidly assimilate it into their internal practices, and apply it in practical settings, improving productivity and hence achieving competitive advantage.

This three stage process of absorptive capacity could be defined as exploration, transformation, and exploitation, (Aribi & Dupouet 2015; p. 987), and it has been used by a deal of researchers to explore commercial success of failure in a variety of innovative commercial settings, on the assumption that the most successful companies were those that had the absorptive capacity to recognise the most lucrative and useful information, rapidly assimilate into their internal practices and apply it in practical settings to their commercial dealings, thus improving productivity, competitiveness and profit.

Since its introduction, the concept has been used as a way of explaining success or failure in different settings. For example, Ahlin et al. (2014) looked at how business networks impacted on the innovative practices of SMEs, by conducting a questionnaire-based survey of two groups of entrepreneurs in the US and Slovenia to understand the different approaches to business networking. They concluded that the ability to demonstrate an absorptive capacity with regards to external knowledge had a direct impact on the competitiveness of the business; Aribi & Dupouet (2015) looked at absorptive capacity with regards to the role of organizational and social capital in the uptake of innovation by three French industrial firms, whilst Backmann et al. (2015) developed a tool for assessing the absorptive capacity at the level of a team rather than organization (p. 861).

Fernhaber & Patel (2012) hypothesized that both absorptive capacity and ambidexterity were defining factors in the ability of young high-technology firms to manage a 'complex portfolio of products or PPC', this being important for competitiveness in this sector, but containing the inherent risk that, at a certain point, the costs of maintaining the portfolio outweigh the benefits. (p. 517-518). Using a sample of 215 high technology firms, being less than ten years old and each having between 10 and 250 employees, Fernhaber & Patel tested the hypothesis that absorptive capacity and ambidexterity could help firms to better manage the costs and benefits of PPC. They concluded that this was proven across both elements, and that with regards to absorptive capacity this was proven to help young firms to better 'integrate eventual external knowledge' (p. 1531).

Tavani et al. (2013) utilised Tu et al.'s (2006) proposed sub-components of absorptive capacity, 'prior relevant knowledge…communications network (and) climate…(and) knowledge scanning' (p. 3888) to bring new knowledge to the benefits of absorptive capacity with regards to new product development by firms. Their research was underpinned by literature, which argues that effective new product development is related to commercial success (p. 3385-6). Via a questionnaire survey of 161 Iranian manufacturing firms, they explore the impacts of Tu et al.'s sub-components on new product development in manufacturing, and via a process of confirmatory factor

analysis (p, 3391) conclude that prior related knowledge of both managers and workers has an impact on the financial and non-financial outputs of new product development respectively (p. 3995), that a communication climate that is open across the company supports effective new product development (p. 3996) and that knowledge scanning contributes to both financial and non-financial outcomes (p. 3996).

Tavani et al.'s findings that an individual's position within an organisation affects absorptive capacity (specifically that managers' prior knowledge impacts on financial outcomes compared to workers' prior knowledge impacting on non-financial outcomes) was confirmed by Tortoriello (2015), who found that positioning of an externally networked individual impacts directly on the levels of organisational absorptive capacity.

Tortoriello argues that there has been an over emphasis on industry Research & Development (R&D) capacity, with the effect that there is a lack of literature around the process via which firms achieve absorptive capacity (p. 587). In a questionnaire survey conducted at a ninety-one percent success rate across 276 potential respondents in a 'large multi-national semi-conductors' company (p. 59), he explored the impact of internal positioning and concluded that a company's internal communication networks are a key factor in the ability of an individual to produce or facilitate the production of, innovations as a result of absorbing external knowledge. He further concludes that companies should therefore ensure that they have open communication networks such that individuals who receive external knowledge are able to effectively assimilate it across the organisation.

Duchek (2015) also argues that much of the literature around absorptive capacity presupposes that 'R&D intensity' is the pre-requisite for industrial absorptive capacity and consequently there has been a lack of research into the process driven nature of absorptive capacity such that there is a knowledge gap as to how and in what way internal processes influence absorptive capacity (p. 2). In his qualitative, interview based case study research projects into two highly successful German engineering

firms; Duchek explains the absorptive capacity process with reference to the three stages of acquisition, integration, and exploitation (p. 6).

He found that whilst formal policies and structures for the sourcing and uptake of new ideas were in existence in both firms, it was their willingness and ability to flex these systems that was critical to the achievement of successful absorptive capacity. This flexible approach meant that ideas there were not raised through formal pathways were nevertheless still considered within more informal settings, and that this was critical to ensuring an innovative and responsive approach. Duchek argues that ability to flex and not be overly constrained by internal rules is required for firms to be absorptive to new products, processes, and practices (p. 16).

It can therefore be demonstrated that absorptive capacity has been 'a very influential framework in the study of organisational innovation' (Tortoriello 2013; p. 587).

There is evidence that absorptive capacity can also be specifically applied to the research and knowledge transfer in the higher education sector. Belderbos et al. (2016) further developed the concept, from simply 'absorptive' to 'scientific absorptive capacity'. They asked why some businesses maintain university-business interactions in a more meaningful way than others (p. 32), and concluded that firms with the most demonstrable scientific absorptive capacity were those with in-house research teams, who take ownership of their university interactions, as opposed to those business that rely on external brokerage. This research therefore assumed that absorptive capacity was a pre-requisite for the maintenance of business-university relationships.

Denicolia et al. (2016) also worked from this assumption, but arrived at a different conclusion to Belderbos et al. They asked what the differences were in terms of future exploitation, between internally produced and externally driven innovation. They concluded that an internal R&D research infrastructure should not be viewed as a pre-requisite or guarantee of absorptive capacity in the context of innovation (p. 57), arguing instead that internal R&D is 'not a simple proxy for absorptive capacity, but

rather a basis to create complementary assets and capabilities' (p. 64). However, whilst arriving at a different conclusion in terms of the importance of internal R&D capacity, both Denicolia et al. and Belderbos et al. agree that the concept of absorptive capacity is a valid way of investigating the ability of a firm to compete more effectively.

Duchek (2016), in his study of organizational structures and their impact on absorptive capacity, comments that understanding of the different components, drivers, and impacts of absorptive capacity is presently at an 'early stage' (p. 143). It is a concept that could be utilised in future research into NHS-University partnerships for translational clinical research. To do so, it would be useful to understand the factors that the partnerships would be expected to absorb, in order to support more effective research outputs. I suggest that my research project was undertaken at a step prior to this, when it was not clear what factors would emerge from the two case study partnerships as being critical to the overall success of the partnership. I return to the concept of absorptive capacity in the final chapter, where I suggest that future research may useful evaluate the absorptive capacity of the two partnerships with regards to the key emerging factors for successful collaboration that are suggested by my data analysis.

3.7 Methods

3.7.1 Case Study

My study was exploratory in nature, and was carried out within the theoretical proposition that a new national policy framework has been developed to support the increased delivery of translational clinical research, in different local contexts. I wanted to explore how this was playing out in reality. The new collaborative NHS-University working structures that had in effect been created by this new framework are both NIHR accredited and non-NIHR accredited. An academic framework for the business of collaborating across organisational boundaries was offered by Huxham & Vangen's (2005) theory of collaborative advantage.

I wanted to ask how the new national policy framework for translational clinical research was being delivered at a local level and why, and in what circumstances, certain policy levers worked or didn't. My aim was to investigate a real life and dynamic phenomena over which I had no influence or control (the new NHS-University partnerships) and in which an understanding of the 'contextual conditions' was required (Yin 2009 p. 18). The ambition to ask 'how' and 'why' and to understand the complexities and subtleties that exist at a local level, led me to select the case study as my chosen research method. My initial idea to select one unit of analysis subsequently developed into having two units of analysis, allowing me to research local responses to the national policy environment in two different local contexts.

Case study partnership one was a non-NIHR accredited NHS-University partnership, operating outside of the Golden Triangle. It had been formed to facilitate the delivery of translational clinical research within the new national policy environment for translational clinical research, and the University within it had over one hundred years of history that grew out of its Medical School. The partnership also included a number of NHS Teaching Hospitals, most of which had a long established relationship with the University, others being less mature; overall however, this was a well-established health research eco-system.

In contrast, case study partnership two a more recently formed NHS-University partnership based around a much younger Medical School and University Hospital Trust (both being less than twenty years old) and in which the research structures and policies within the NHS Trust could be best defined as embryonic.

Both partnerships had been established as non-NIHR accredited NHS-University collaborations, with a view to reflecting back the new national policy environment for translational clinical research, recognising that this was necessary in order to attract investment from the NIHR and other bodies. Both partnerships operate in regions outside of the Southeast, and are therefore not a part of the Golden Triangle of partnerships into which the majority of funding for health related research flows (UK Clinical Research Collaboration 2014).

The constitutions and structures of both universities are distinctly different; case study partnership two University exhibits a flat management structure, in which each academic Head of Department reports directly to the Vice-Chancellor, but where the Departments themselves have no degree of financial autonomy from the central University, thereby creating a culture which was referred to by one participant as 'strong departments, strong centre' (2:8), Case study partnership one, in comparison, has three strong academic faculties, each with a degree of financial devolvement, where Heads of Departments report into Heads of Research Institutes who in turn report into Executive Pro-Vice-Chancellors (an Executive position that does not exist in Case Study Two). The NHS Trusts within the case studies are also very different in terms of their internal research cultures. A senior participant from within partnership two was open about the fact that 'research is still new to our Trust' (2:6) whereas the Trust in partnership one has an established research infrastructure. One participant, for example, spoke in detail about the impact of decisions made back in the '1930s by the then Chair of Medicine' stating that 'we live with many of these decisions in terms of the structure of local hospitals today; they still impact on us and affect how we deliver research together' (2:5).

The two NHS-University partnerships had been formed with the same aim in mind; to reflect back the new national policy environment and to be structured in such a way as to gain access to national funding for translational clinical research. Within case study partnership one in particular, there was a driver towards simplifying local structures for translational clinical research, not only between the University and the NHS, but also across the NHS Hospitals themselves. This was not as apparent within partnership two, which had an inherently more straightforward partnership structure to work within (one University and one NHS Trust as opposed to the multiple NHS Trusts within case study partnership one).

The Literature Review explained that a network of accredited and non-accredited NHS-University partnerships has developed as a result of the new policy framework, the accreditation being deemed as such via a competitive process that was established by

the NIHR. My Literature Review also demonstrated that funding for translational clinical research is increasingly dependent on NHS Trusts and Universities operating in a close partnership arrangement, whether accredited or not, and the actions of the two case study partnerships in my project are a natural reaction to this new environment.

Prior to selecting the case study approach, I considered and discounted other methods. A survey of NHS-University partnerships was one possible route but this was discounted on the basis of my study's aim and epistemological approach (I sought to under the factors of 'human agency' at play at a local level; Moses & Knutsen p.11), as well as the fact that the relative embryonic nature of this new policy area meant that the literature presented very little in the way of potential variables from which I could base a set of survey questions. Rather, I was intending to ask open-ended questions so that I could better understand the 'subtleties and complexities' that are present (Burns 2000 p. 13).

Therefore the idea of a survey, whether across the different AHSCs or within one established AHSC, has a number of limitations with respect to this particular research question. In addition, it would not have complemented my interpretative approach to the central research question, in which I wanted to gain an understanding of participant views in a hermeneutic manner, and I believed that I needed to interview the participants on a 1-1 basis, so that I could engage with the data (the researcher as the 'research tool' as Radnor (2002) would suggest), and interpret body language, probe more deeply where required, such that I could not imagine this being possible or practical within a Survey context,

> 'The way in which a response is made (the tone of voice, facial expression, hesitation, and so on) can provide information that a written response would conceal' (Bell 2010; p. 161).

The more traditionally qualitative approaches to research design were also considered, including ethnography, which was not practical in terms of my status as a practitioner

researcher employed full-time, and, even setting aside these practical considerations, would have been time consuming and difficult to frame, as my question involved participants from across different organisations and operating in different localities (the hospital, the Medical School). Grounded theory (Glaser; 2006) likewise may have been more suitable if I was embarking on a larger study but it was neither practical nor preferable in terms of the desire to establish what elements of the new structures work best in what circumstances. Action research (Lakin; 2004) was rejected early on as I was not actively involved in the research project and this therefore would not have been an appropriate choice. The final method to be reviewed and discounted was experimental research, most routinely used to study cause and effect' (Bell 2010 p.13) and requiring a minimization of variables that would have been at odds with my research question.

I was aware of the potential limitations in terms of subjectivity and generalizability. (Flyvbjerg; (2006) and McCutcheon & Meredith (1993)) However, case studies do not seek to identify causal relationships in the way that experimental research studies do, and in this sense the two can be complementary to each other (Yin 2009 p.16; Moses & Knutsen 2012; p.133), and it would provide me with the opportunity to explain 'causal links that are too complex for the survey or experimental strategies' (Yin 2009 p.19), and to provide data from 'real life' situations to illuminate the practical applications of the new NHS-University policy environment, in two different units of analysis. Moses & Knutsen argue that in this sense, and despite the criticism levied at it by some from the naturalist paradigm, the case study, in the right circumstances, can be more appropriate than statistical research,

> 'the case study may home-in on causal processes as they actually existed in the Real World, untainted by control techniques' (p.135).

My epistemological leaning towards an interpretivist view of the world does not demand that my case studies were wholly interpretivist in their application; rather, I sought to generate a series of hypotheses from the data, which would be suitable for further exploration.

I was attuned to the risk of researcher bias being more likely to occur in a case study context (although this can be a risk for methods based research too) and carefully designed my research questions, my units of analysis and my theoretical context, assessing all of these with the help of a number of critical friends and my thesis supervisor to minimise bias as much as possible. I was also sensitive to the fact that my analysis of the data, for which I drew upon a manual coding approach, had the potential for researcher bias. Bryman (2013) makes the point that,

> 'although codes will reflect the perspectives of research participants, when the qualitative researcher makes sense of the codes, he or she may end up viewing their social world somewhat differently from them' (p. 569).

The interpretivist approach allows one to accurately recognise this potential for bias but believes that it is possible to ethically and accurately deal with this potential for subjectivity by openly treating the researcher as a 'research tool' being involved in the project from start to finish, and engaging 'reflexively in the process', being aware of their own 'interpretive framework' (Radnor 2002 p. 31). By doing so I was able to keep a 'critical distance' from the data during the collection, analysis, and drafting phases of the project.

With regards to the issue of generalization, I refer here to Yin (2009) who argues that,

> 'case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes' (p. 16).

Thus whilst my research was not to be generalizable across the whole policy framework for translational clinical research, it was intended to be an exploratory study into how different contexts and other factors were at play and influencing delivery in specific local contexts. It was intended that the results of my study would bring new knowledge that could be tested within different environments and which could be easily replicated, in terms of the selection of study participants and units of

analysis.

Others have used the same approach, for example Currrie & Suhomlinova (2006) and Adams et al. (2015),

> 'We are mindful here that we examined two sites out of the many that might have been chosen. However, in terms of our findings, our intention is to generalize in a theoretical/analytical rather than statistical manner' (Currie & Suhomlinova; 2006).

> 'The study is limited due to its small samples size although the findings are not invalidated by this since qualitative research seeks theoretical rather than statistical generalizability' (Adams et al. 2015)

Whilst Yin states,

> 'The case study method has proven that it is suitable for providing new knowledge on phenomena' (Yin, 2009, p.15).

3.7.2 The two units of analysis

The two NHS-University partnerships provided a local lens through which to view the translational of the national policy environment within two distinct local contexts
The literature review demonstrated that the funding and critical mass of translational clinical research takes place mainly within the Golden Triangle universities. However, one of the drivers to the new policy environment was to increase the volume and quality of this research outside of this small area and the two case studies provided an opportunity to explore this in more depth. The case studies were comparable in that both were delivering the same types of translational clinical research, and were operating within the same national policy framework for translational clinical research. I utilised Yin's basic type of design for case studies, as outlined in the Figure 3.1 below (format taken from Yin 2009 p.46).

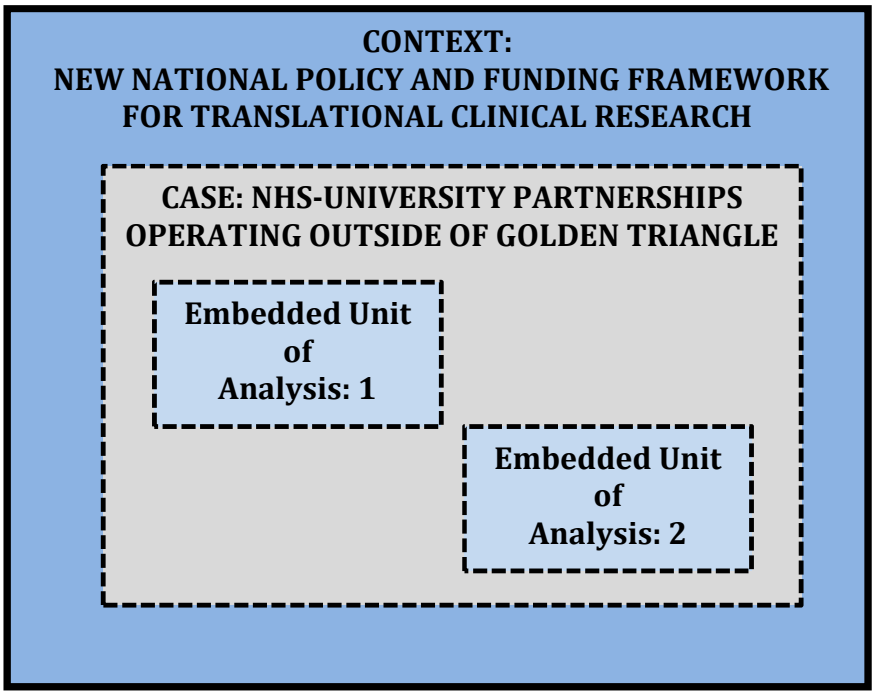

Figure 3.1: Diagram of my case, units of analysis, and overall context

The selection of participants was a key element of the research design. I selected ten senior clinical academics, who, in addition to their clinical and research work had leadership and administrative portfolios that meant they were critical and influential stakeholders within the two partnerships. Purposely not selected as part of my study group were patients, policy makers, funders of research, and university/NHS staff not directly involved in the leadership and/or delivery of translational clinical research.

Participants were not selected 'randomly' (Boardman & Bozeman 2007; p. 437), but rather were identified as having direct experience of working at the interface of NHS and University research. My aim was firstly to understand, from the perspectives of the participants, the way in which their local partnership operated, and to contrast this with the ambitions of the NIHR to create a national system that is conducive to the delivery of translational clinical research. I predicted that not all potential participants would be available, and therefore my long list consisted of twelve individuals, one of whom declined and the other who moved roles prior to me requesting an interview. Consequently, I interviewed ten participants (four from Case Study One and six from Case Study Two).

3.7.3 Semi-Structured interviews

Ten interviews were conducted across the two case studies. Access to the study participants was no doubt helped by my professional links to each of the organisations within them, although I did not have close working relationships with any of the participants and therefore it was not difficult to maintain a critical distance during the interview process, whilst being careful to ensure that the participants were at ease during the dialogue. Interviews were therefore all arranged to take place within the participant's own working environment, with the exception of one participant, who, by virtue of not having their own office, selected a University meeting room as the venue. All of the other interviews took place within the participant's own offices, and were held during working hours. Interviews lasted on average 45 minutes and all participants consented to the tape recording of the dialogue. A written transcript of each interview was sent to the participant afterwards, each of which checked and approved them. I followed each interview with a short written note thanking the participant for their time.

In preparing for and conducting the interviews, I was aware that my participants were each working within senior positions, with the potential for high levels of influence both within the partnership and in their own organisations. Literature exists that deals with the issue of interviewing such individuals, often referred to as 'elites'. Harvey (2006) drew on his doctoral and post-doctoral experiences of interviewing 'CEOs, Vice-Presidents, Directors and Senior Partners' in the Pharmaceutical and Legal sectors (p.431) to offer guidance to researchers that are about to embark upon 'elite' interviews.

Harvey commences with a review of the literature that exists around the definition of 'elites'. He draws attention to Smith (2006) who points out that a senior role title does not necessarily confer elite status, whilst Zuckerman (1972) describes an 'ultra elite', being those individuals that have additional influence within an already powerful group. Harvey accepts that there is a range of valid perspectives around the term 'elite', which for him, and in his research, is defined as 'those who occupy senior

management and Board level positions within organizations' (p. 432-433). This definition has a resonance with my study given that my participants can all be seen to be falling within this definition.

Harvey advises that the process of gaining the necessary amount of trust should begin from the researcher's first contact with the respondent. This should include an open and transparent approach with regards to the status of the researcher, the breadth, methods and purpose of the study, and the methods via which data will be stored and communicated. The issue of confidentiality is particularly important and the researchers should clearly state if, and how, anonymity will be assured.

Open ended questions allow elites the freedom that they prefer when framing their responses, but Harvey suggests that these can be combined with closed questions, if this is required to gather the data necessary for the study. Time is also a factor, with Harvey advising that 'it is important to strike the right optimistic/realistic balance to achieve the best quality data from the most feasible amount of time' (p. 436).

It is also important for the researcher to understand as far as is possible the wider contextual environment inhabited by the respondent at the time of the interview. Harvey recounts a particularly tense interview that he conducted with an elite participant that was subsequently revealed to have been influenced by a programme of large-scale redundancies in the elite's company, and concluded that this information, which was publicly available, would have been useful to have known beforehand (p. 437).

Neal and McLaughlin (2009), like Harvey, point out that there are an increasing number of social science projects that research 'up', in that they involve the researcher interviewing those in positions of power and influence (p. 690). However, they add to the work by Smith (2006) and Cochrane (1998) that the definition of elites and their status is neither linear nor necessarily permanent, but rather can only be understood within the wider context within which elites not only operate, but are perceived by others. Like Harvey, Neal and McLaughlin draw on their own experiences, which in this case was their research into the work of the Commission on the Future of Multi-Ethic

Britain, which was made up of twenty-three senior figures from public policy, media, and university sectors.

Neal and McLaughlin add to the literature by explaining that in the context of their research project, the 'elite' status of the participants was challenged by the highly negative, public, and personal accounts in multiple media outlets that followed in the wake of the Commission's report and recommendations. They conclude that their experience of interviewing the Commissioners, and the data gathered therein, serves to add to the argument in the existing literature that elite status is neither linear nor permanent, rather it is multi-layered and constantly shifting across different environments and in different times.

With regards to my participants, it is true that their senior status would not necessarily extend outside of their immediate partnership or locality; whilst their roles would likely confer a certain amount of respect and profile, they would not necessarily be able to exert influence merely by virtue of their roles or individual profiles. However, a number of them would have a voice that would be heard by Government as part of a wider group of senior clinical academic leaders, and all of them had the ability to influence, to different degrees, their partnerships, organisations, and immediate localities. In addition, all were working within what would be externally viewed as senior roles with responsibilities or within highly senior leadership roles, and therefore I was sensitive to this in terms of both ensuring that my interviews were conducted such that I was able to gather high quality data, but also in terms of participant confidentiality.

Each of the participants had received an information sheet (or 'protocol') regarding my research project prior to the interview. This is included as Appendix One. In addition to this I gave a verbal summary to each participant of myself as the researcher, explaining my career path to date as well as my progression through the EdD. I also explained the nature of the study, being qualitative in nature, and in some instances this led to a short pre-interview dialogue with the participants about the future usage of the research. I did not include these conversations in the subsequent data analysis but they may have indirectly influenced my thinking around the applicability of the

research to practice and to future academic thinking.

This time before the interview allowed me to establish an open and trustful style to the dialogue, and I attempted to sustain this throughout by actively listening to the participants, and checking that I had understood their point by saying things such as 'So if I understand you correctly, you are saying that…' and 'Could you tell me a little bit more about that'. In this sense I would describe my interviews as semi-structured rather than structured, as I gave myself the option of asking supplementary questions and prompting participants in terms of how they felt about certain key concepts.

I explained to each of the Participants that I would be using the data in a thesis, which would be publicly available, and forwarded a transcript of the interview to them for their review and approval. This followed the 'democratic principle' that participants have the moral right to review their data prior to it being made public (Smith 1984 cited in King & Horrocks (2010) p. 121) but is not without its challenges, particularly where participants begin to amend what they perceive to be 'poor grammar' or 'colloquialisms' that the researcher would prefer to retain in order to stay true to the contextual framework within which the interview took place (King & Horrocks p. 121). Despite these challenges, I decided that allowing my participants the opportunity to review the transcripts was ethically sound, and in the event all of my participants approved my written records of the interviews, without requesting any changes.

In taking care to ensure anonymity of my elite participants, I was aware that aligning role descriptors to them may be unhelpful, and, despite the fact the such role descriptors may have added interesting contextual information to the thesis, I decided that on balance it was preferable to simply identify the participants by the case study partnership that they were part of (either 1 or 2) and their own participant number, such that I had the following list of participants,

- 1:1; 1:2; 1:3; 1:4: all being part of case study partnership 1;
- 2:5; 2:6; 2.7; 2.8; 2.9; 2.10 all being part of case study partnership 2.

Thus, for example, participant 1:2 denotes participant 2 from case study 1. My

approach to protecting the identity of my participants concurs with the guidance of professional bodies in this area, including for example the British Sociological Association's Statement of Ethical Practice (2002; updated 2004). (King & Horrocks; 2010 p. 117), and of scholarly research ethics that participants in research projects should be protected from harm (Sapsford & Jupp; 1996 p. 319).

A further factor that is relevant in terms of protecting the identities of those that were interviewed, is the fact that many of the participants have subsequently moved into different roles, outside of the NHS-University partnership, and therefore this is also helpful in terms of preserving anonymity.

The semi-structured nature also meant that I didn't have to ask the question in regimented style, rather I allowed the conversations to flow, and would ask the questions as I felt they best worked within the overall dialogue. In terms of both the questions and my interviewer style, I decided to run three mock interviews in which I could hone these into a format that I felt would best support the gathering of data in the interpretative style. The three mock interviews were conducted with a clinical academic who I had worked with a little on a separate research project, the Director of an NHS Hospital Research Office, and a colleague from a partner University. All were outside of the two case studies. The process of running trial interviews made me realise that my initial questions were closed rather than open; I subsequently redrafted them to support a more flexible dialogue. I also found the trial very useful for getting used to the technology; in one of the trial interviews my tape recorder had not been switched on, and, had it been one of my 'real' interviews I would subsequently have lost all of the data. I learnt from this, and in the interviews was careful to ensure that the technology was properly set up; relating the previous mishap to the participants also served as something of an ice-breaker.

3.7.4 Data analysis

A rich set of data emerged from each of the ten participant interviews, which were transcribed verbatim. A manual coding process initially identified a long-list of 80

categories. Further analysis was undertaken to identify linkages and synergies between the categories. The process allowed me to 'collect and rigorously examine the narrative accounts' of the participants within my two case study partnerships (Miller & Glasser in Silverman 2011, p.144).

A manual approach was taken to the coding of the participant interview data, with the codes emerging from the data rather than being developed prior to the data collection, hence being 'faithful to the data' (Coleman 2011; p. 560). Other case study researchers have utilized IT software packages to assist in the transcribing and categorization of case study data. Carcary (2011) outlines her personal experience of using such a package in the analysis of data gathered across multiple sites from '49' participants (p.1). Like Carcary, and other case study researchers, I identified 'in vitro' ('codes that emerge directly from the informants interview transcripts' p.14) and 'in vitro' data ('terms that the researcher creates to encapsulate a concept discussion by an informant' p.16). However, I took a manual, desk-based approach to this, rather than using an IT programme to assist me. This was appropriate in terms of the amount of data being collected, but was also a personal choice to take a hermeneutic approach to the understanding of the participant's views and behaviours; emerging myself in the data, by firstly transcribing and then manually coding it, helped me to do this.

Auerbach and Silverman (2003) provide an example of coding interview transcripts for a 'Haitian Father's Study' (p.35). Here, the researchers took a 'step by step' approach (p.35); firstly, text that was not relevant to the 'research concern' was removed; then 'repeating ideas' were identified, these being things mentioned by more than one participant; groups of repeating ideas were subsequently organized into themes. I drew upon this approach, and my coding method was undertaken as follows; first, I transcribed each interview in tabular format, transcribing precisely the taped recording of the discussion. Thus the table contained the Interviewer asking the question, followed by the participant's response to it. The third column was titled 'Codes', and in here I jotted down, in real time, potential codes from the participant's responses, as they occurred to me whilst transcribing the data, so the table looked as follows:

Who	Transcript	Code
Interview	Text Here	N/a
Participant	Text Here	

Table 3.1: Example of my interview transcription table

At the end of each process of transcription and manual coding, I extracted all of the codes from the table and replicated them in the top right hand corner of the sheet, so that they were easily visible when referring back to the transcript. I repeated this process for each of the interviews. At the culmination of the interviews, I created a separate table for each of my ten interview questions, and into that table I copied each of the participant responses and potential codes, using the Word copy and paste option. This allowed me to recognise patterns within the questions, and I manually analysed each question separately, finishing one before progressing to the other, following which I began to cross-reference the data within the questions, drawing out the cross-cutting themes.

My coding progressed from 'initial coding' to 'focused coding' (Bryman, 2013; p. 569), with me initially creating a great many codes, on a line-by-line basis. Bryman refers to this initial process as being the 'first steps towards making sense' of the data. During the second, focused stage of the process, many of the codes were removed as not being relevant to the research question. Data that were not relevant within the two units of analysis were removed and stored in a separate document.

Chapter 4. Findings

4.1 Overview

Ten participants, all senior clinical academics, each with leadership responsibilities, were interviewed in an interpretive style from across the two units of analysis. After seven interviews, the data was becoming saturated (Baker & Edwards) 2012. In addition, the senior and 'elite' nature of each of my participants meant that they were harder to access, as referred to by Adler & Adler (2012),

> ' a small number of cases, or subjects, may be extremely valuable and represent adequate numbers for a research project. This is especially true for studying…hard to access population such as …elites' (in Baker & Edwards, p.12).

This, given the saturation of the data, meant that I was able to cease data collection at ten participant interviews, having sufficient data to 'generate a subjective understanding of how and why' (Baker & Edwards p. 8) my two local partnerships were interacting with the national policy environment for translational clinical research, and being in a position of theoretical saturation, where 'additional cases' were not modifying 'my coding frame' (Hancock et. al. 2007). Should the data not have been saturated, I would have continued with my data collection until such time as saturation occurred.

Eighty codes emerged from the initial coding phase. Many were duplicating codes and others were not relevant to the research question. During the focused phase of the analysis, I reduced the number of codes to forty-eight and via a process of data clustering, I observed that there was a great deal of synergy across both units of analysis.

I discovered three consistent themes across the two partnerships, these being my 'practitioner generated themes' that in Huxham & Vangen's framework of collaborative advantage are those that participants ('practitioners') perceive to be of importance to the success or failure of the partnership (Huxham & Vangen p. 38). My

three themes, each contained categories (nine in total) and constituent codes. Thus, I follow the framework suggested by Huxham & Vangen in presenting practitioner generated themes, and within each theme, providing additional detail to provide a greater understanding of the participants' views and perceptions

The Huxham & Vangen theory of collaborative advantage is based around the development of a series of 'practitioner-generated themes' (2001 p. 8) and is therefore a 'themes based theory of collaboration' (2005 p. 30). I have followed this approach in my data analysis and discussion, such that I present three key themes, which have been developed out of the practitioner responses to my questions and represent the practitioner perspectives of collaboration within the two NHS-University partnerships. I analyse each of the themes in detail, drawing upon the categories and codes that together make the theme, reflecting the complexity and richness of data that exist within each theme. Strauss (1987) recognised that complexity that can exist within social constructs and refers to the type of investigation that I have undertaken as a 'detailed, intensive microscopic examination of the data in order to bring out the amazing complexities' (p.10).

Huxham & Vangen highlight that within a theme there can be divergence of opinion. This does not mean that the theme is unworthy of inclusion, but rather illustrates that attention to this particular theme is required in order to advance the collaboration, and I suggest this applies equally to my study, where there are a range of views expressed by the participants within each of themes.

The Tables 4.2 to 4.4 summarise the main three practitioner generated themes with the constituent categories and codes, whilst the Mind Maps in Chapter Four present the data in more detail. These mind maps draw upon the 'conceptual frameworks' presented by Huxham & Vangen in their 2003 research into partnership managers. In this paper, they develop a linked series of clustered themes out of data gathered ethnographically from thirteen public sector partnerships (p. 63). In presenting my data in a similar fashion, I form a conceptual framework for NHS-University partnerships in the context of delivering translational clinical research. My framework is based around the three practitioner generated themes of external factors, people,

and organisations.

Practitioner Generated Theme One: External Factors	
Categories	**Codes**
(1) Regionalism	Academic Perspective Policies Localism
(2) Government Funding & Policies	Drivers Positive Volume
(3) Clinical Academics	Recruitment Policy Pipeline Cluster Rare

Practitioner Generated Theme Two: People	
Categories	**Codes**
(4) Leadership	Communication Leaders Models
(5) Communication	Tension Strategy Language

Practitioner Generated Theme Three: Organisations	
Categories	**Codes**
(6) Building a Joint Research Strategy	People Key Performance Indicators Health System Strengths
(7) Governance	Barrier Solution? Disproportionate
(8) Cultures	Higher Education Institutions (HEIs) NHS
(9) Partnerships	Benefits

Tables 4.1 to 4.3: Three themes, with categories and main codes

A set of data emerged that had a number of patterns within it, and I sought to capture these patterns via a hermeneutic approach to coding analysis (Moses & Knutsen p. 134). The three overarching themes of 'External Factors', 'People' and 'Organisations', as presented in Figure 4.1 below. In each of these Themes sit a number of constituent categories, and these are presented within Figure 4.2. These provide a useful and easily digestible way of understanding the commonality of participant data. The nature of the interviews, being semi-structured and open, meant that I was able to gather and code a large amount of supportive data that together make up the different categories.

The entirety of this data is presented in a mind-map format at Figure 4.3. This demonstrates that across the two units of analysis, the participants expressed views as

regards NHS-University partnerships firstly in terms of the 'External Factors' that impact upon the phenomena (and I have ordered these views into the categories of Regionalism, Government Funding & Policies and Clinical Academics); secondly with regards to 'People' (grouped into Leadership & the Power of Personalities and Communication) and finally, with reference to 'Organisations' (Building a Joint Research Strategy; Governance and Administration; Organisational Cultures, and Partnerships). I draw upon Huxham & Vangen's theory of collaborative advantage to define these themes as 'practitioner generated', as they represent the perceptions of my participants, all of whom are active members of the two case study partnerships.

Figure 4.1: Pie chart demonstrating three overarching practitioner generated themes

Figure 4.2: Three themes with constituent categories

The Mind Map in Figure 4.3 below presents the nine categories with their constituent codes.

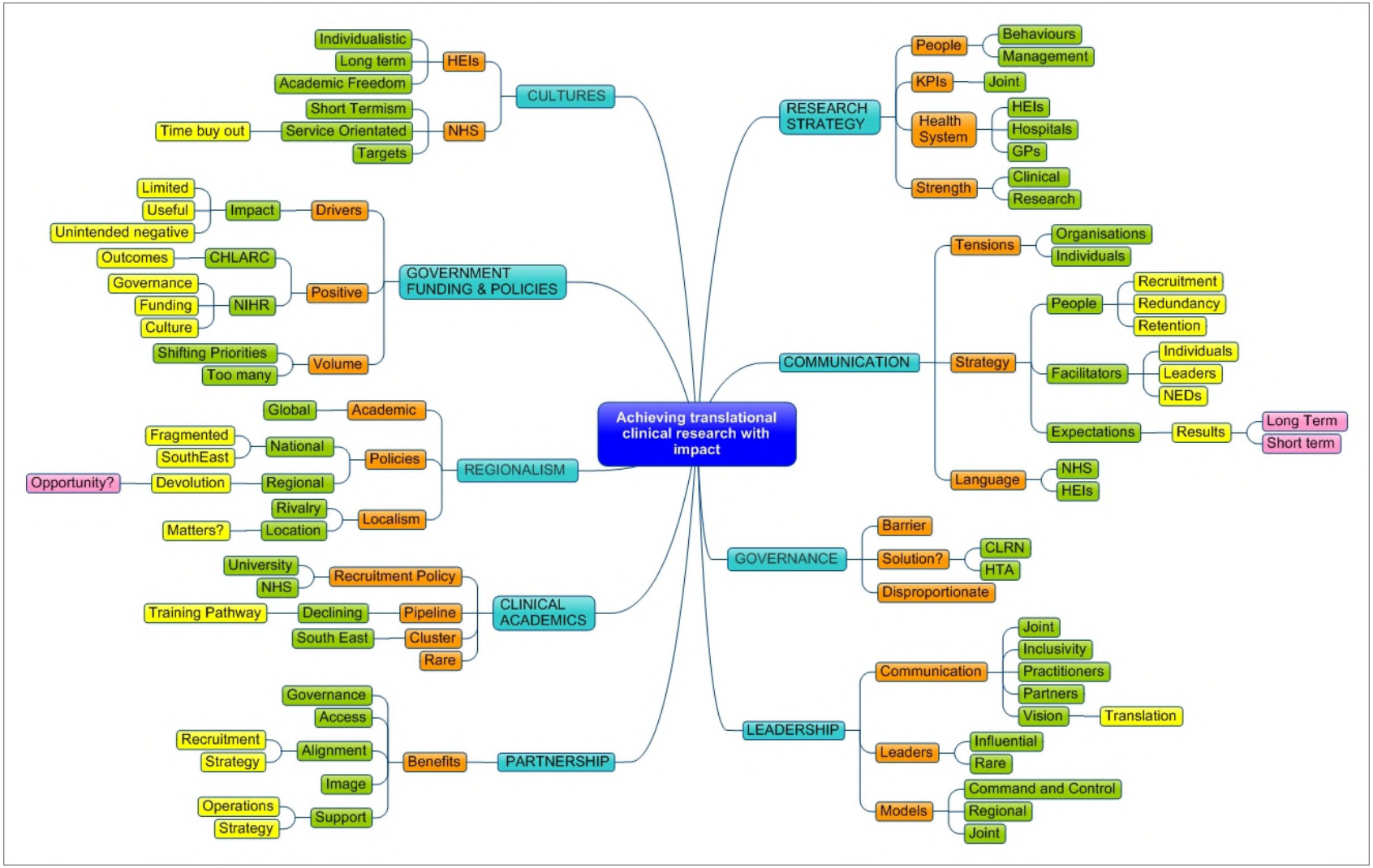

Figure 4.3: Mind map demonstrating nine categories and related codes

A separate mind map is presented for each of the three themes, showing the constituent categories and codes within a theme. A small number of participant quotations are selected throughout as 'in vivo' codes, reflecting the fact that these views are a reflection of the broader sentiments expressed by the participants within a particular area.

4.2 Theme One: External factors

Figure 4.4 below demonstrates that Theme One (External Factors) contains within it Categories One (Regionalism) Two (Government Funding and Policies) and Three (Clinical Academics). The codes that sit within each of the categories are also presented in Figure 4.4, and are discussed in the narrative below.

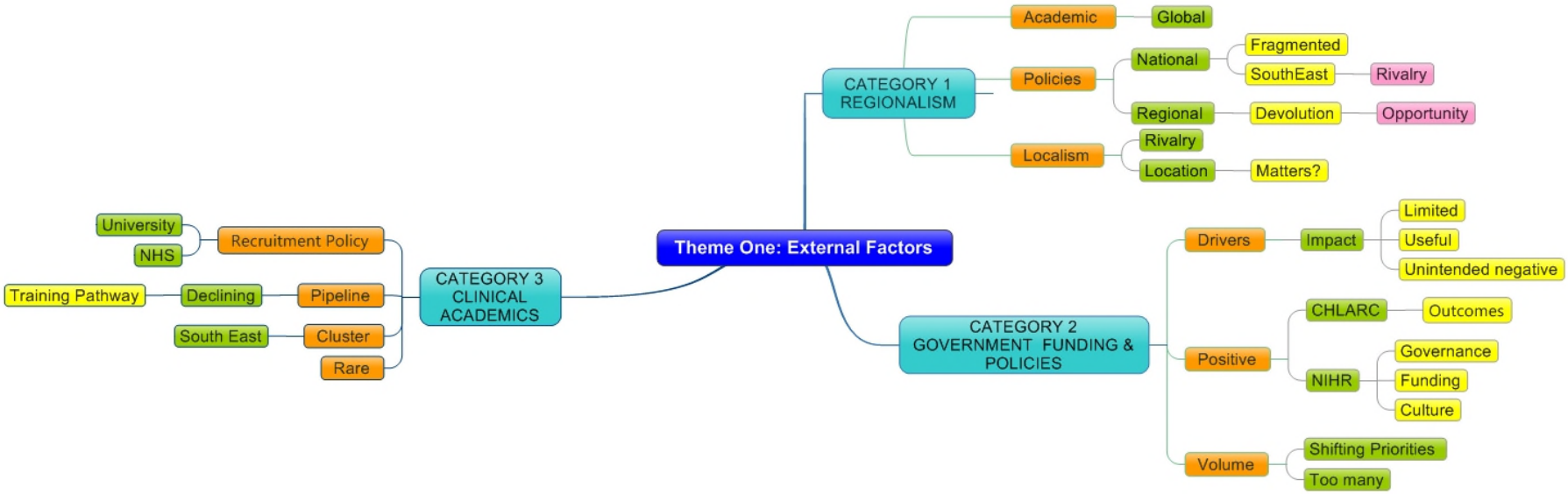

Figure 4.4: Theme One: (External factors): Categories 1-3 with constituent codes

4.2.1 Regionalism

'Leave pride at the door' (2:6)

Participants from across both units of analysis raised the importance of the region and a sense of 'place' to NHS – University research partnerships. Table 5 presents the seven codes that make up the 'regionalism' category, which, whilst not being a new concept, was a highly topical one at the time of the interviews (2014-2015), as evidenced by the Chancellor's announcement in 2014 of a programme of devolvement to new combined authorities working across regional footprints, which was followed in 2015 by the transfer of public health responsibilities from the NHS to Local Authorities.

Regionalism

• **Regional NHS-University partnerships a conduit for improving research & clinical outcomes via a regional approach**
• **Local rivalries within the region**
• **Leaders accepting need for regional approach despite local mistrust & rivalry (more an issue for NHS Trust than universities)**
  o **Compared to individual academics – most concerned with international impact**
• **Divided national system: regional disparities**
• **Regional health system includes primary care**
• **Importance of physical location**
  o **- It matters;**
  o **- It doesn't matter and can be counter-productive.**

Table 4.4: Codes within the 'Regionalism' category

A number of my participants spoke of the unique opportunities that they believed regional partnerships could bring to the organisation and delivery of specific research themes. This was particularly prevalent within the group of participants that were either leading a Faculty or Research Institute, and it is possible that they were being influenced by the wider programme of regional devolvement that was taking place at the time of my interviews,

*'I would like to see a bringing together of the (names location) for genomics, working as a single entity…making the (names location) the premier region in the country' (1:4) (*Note that the identity of the location has been removed to protect confidentiality).

'I am looking….towards regional alliances' (2:9)

However, a rather different view about regionalism was expressed by the clinical academics, who did not have leadership responsibilities for a Faculty or Institute, and who demonstrated a narrower definition of partnership. This group referred to the concept of regionalism within the context of local competition,

'So absolutely they are a competitor' (2:6)

'There is a competition between (regions) and so it's about identifying the ground that is unique to us' (2:7)

'There are some conflicts between the Trusts' (1:1)

There were also some clinical academics that expressed a preference for an international, rather than regional, focus to their research partnerships and engagement,

'The wider international community derives the collective benefit of the research…. I'm not sure how we go that extra step in terms of making our research visible to the people in the community around us' (2:7)

'If I want to achieve impact from my research, I'll publish it in a journal, where it will reach thousands of people and maybe at some point change practice, but I'm not going to go and speak to the local partnership and maybe reach twenty people' (1:2)

Despite this caution, there was a broad acceptance that NHS-University partnerships need to move towards an increasingly collaborative approach within a regional context. The quote below demonstrates a theme that became a constant thread throughout my study – the need to 'leave pride at the door', in order to collaborate with regional partners that in the past have been competitors, within closer and more mature partnership arrangements,

> *'We need to be honest and look at them and think about what we might have that would be unique and different…**Leave pride at the door'** (2:6) (emphasis added)*

The importance of physical location (specifically the proximity between the Hospital and the Medical School) was an area of some divergence, with two different opinions being expressed by the participant group. Again, a difference emerged between the more senior respondents with wider leadership responsibilities, and senior clinical academics operating at the level of active researcher but with less responsibility for a Faculty or Institute. Below the views of the senior leaders are presented first, and later these are contrasted with the perspectives of the clinical academics,

> *'Unlike the other players, we don't have a co-located university hospital. This makes a big difference. If you are five miles away, you might as well be 50 miles away. In order for us to change the culture of the hospital, actually have those organic relationships, this is a major problem (2:9)*

> *'I would love to be on one site. It would make a huge difference to both organisations…. At the moment there is a bit of the hospital that is the Medical School behind a locked door with a swipe card and the message is we are researchers and **we research behind closed doors. And … I can't get in because my card doesn't work'** (2:6) (emphasis added)*

The sentiment above expressed by Participant 2:6 that academics 'research behind closed doors' and 'I can't get in', encapsulates the frustrations expressed by some of the participants around the perceived barriers between University researchers and

NHS clinicians with an interest in research. There was a strong sense from the NHS participants that physical co-location would be a practical way of addressing this, but many of the practicing clinical academics in my study saw things differently - the two quotes below are taken respectively from one participant that is not co-located with the partner NHS Trust, and who does not see any personal benefits in changing this, and secondly from a clinical academic who, despite being co-located still feels disconnected from the strategy of his NHS-University partnership,

> *'Whilst it might make some things easier there are also advantages of geographic distance so when there is a meeting taking place that they wanted me to go, if I'm on site it is more difficult for me to say I can't come or if I'm half an hour drive away I can say with a clear head no I can't come across for that' (2:7)*

> *'I don't think there are the means for us to feed in…. I'm pretty sure that if I called (NAMES DELETED) and said, I really want to talk about how ….my research could be a key theme…well I'm pretty sure that I would get short shrift from that so I'm not going to do it' (1:2)*

With regards to the first of these two quotes, it is possible that the participant was using distance as an excuse not to collaborate, an individualistic approach that confirms a theme in recent literature around a lack of 'collectivism' within clinical academic medicine (McKinn & Mannion 2015), and explored further within my 'Conclusions and Recommendations' Chapter.

The second of the two quotes can be linked back to the in vivo code for this theme. This participant demonstrates an unwillingness to 'leave pride at the door' (2:6), and in so doing illustrates one of the challenges that appeared to exist within both Case Studies. This participant is demonstrating a frustrated ability to influence the direction of the partnership, despite being a senior clinical academic and leader of a Research Institute. His influence within the University does not appear to extend towards the NHS-University research partnership, and this confirms the observation of Long et al.

(2013) whose study of twelve NHS-University partnerships in Australia concluded that 'key player activity in one setting may not necessarily carry across into another' (p.8).

4.2.2 Government funding and policies

'They can't all be useful, and delivering – can they?' (1:2)

The second category within the 'External Factors' theme was 'Government Funding and Policies' with all of the participants expressing a view about the new national policy framework for translational clinical research. The national drivers to improve translational clinical research were broadly seen by the participants are useful, but not enough. One participant summed up his view on this as,

> *'There are external drivers at the national level to see common purpose, but they are not really strong enough; they have not really had enough impact' (1:1)*

Within 'Government Funding and Policies' were six constituent codes, and these are presented in Table 4.5 below:

Government Funding & Policies
• **National drivers useful but not enough** • **Too many initiatives and partnerships** • **Timescales/shifting government policies** • **CLAHRCs** • **NIHR** • **Unintended consequences of national initiatives**

Table 4.5: Codes within the 'Government funding and policies' category

There is now a proliferation of national initiatives and partnerships, as outlined in Chapter Two (Literature Review) that are meant to facilitate translational clinical research, but within my two units of analysis, these appeared to creating a layer of

confusion and uncertainty across the Participant group. Two clinical academics expressed their frustrations as follows,

> *'I think most of us are aware of these different partnerships,* ***but they can't all be useful and delivering can they?*** *So we've got AHSCs, AHSNs, the Research Design Service, the CLAHRC. How are we supposed to engage with all of those?' (1:2) (emphasis added)*

> *'There are so many of these partnerships and networks now; it's difficult to see how we can engage with them all' (2:5)*

There was broad agreement that the NIHR and the CLAHRCs were both in turn significant and useful additions to the NHS-University translational clinical research environment, as evidenced by the quotes taken from each of the case studies below,

> *'I think things like the CLAHRC initiatives are really important and have made a big difference' (1:3)*

> *'The NIHR bringing in funding streams such as Research for patient Benefit, that had to come through the Trusts, was absolute genius. It got conversations going that would never have happened before' (2:6)*

However, a number of participants worried that such programmes may be at the '*whim of government' (2:10)* and hence not have the necessary longevity.

There was also evidence of some participants believing that there had been unintended consequences of national initiatives,

> *'Alan Millburn's well-meant intervention to create structured contracts for hospital consultants….funnily enough it made the consultants more annoyed with the system. So we managed to pay more and upset people' (2:9)*

4.2.3 Clinical Academics

The third and final category within the Theme 'External Factors' I have defined as 'Clinical Academics: A crisis in academic medicine?' which takes the latter element of its title from the work by Aronson (2011) who asked this question in a national context.

It may seem counter-intuitive to place 'clinical academics' within the Theme 'External Factors', but I have done this precisely because other commentators such as Aronson are defining this as a national challenge, one that exists outside of the two case study partnerships, but is nonetheless critical to them.

However, whilst being a national challenge, my participants suggested that it is a particular barrier for those partnerships that operate outside of the Southeast.

The in vivo code for this category is outlined below. It demonstrates the strong view that emerged from the participants around the need to grow their own pipeline of clinical academics, or,

'… grow the next generation of investigators' (2:7)

There are seven codes within the category and these are outlined in Table 4.6 below:

Clinical Academics: A Crisis in Academic Medicine?
• **University recruitment policy** • **Trust recruitment policy** • **Changes to clinical training** • **Practical challenges of joint appointments** • **Developing a pipeline of clinical academics/recruitment policy** • **Concentration of clinical academics in Southeast** • **Challenges of attracting good people to a specific locality**

Table 4.6: Codes within the 'Clinical Academics' category

One study participant stated, '*the problem we have nationally is that we have managed to screw up our outstanding pipeline of translational researchers'. (1:4)* My case study participants felt that this is a particular issue for regions outside of London and the Southeast,

> *'Medical academics are now like pandas. They started off in the 1960s and 1970s as really quite fearsome carnivorous beasts but a number of pressures mean that they are now quite sweet little things that have trouble reproducing, only eat bamboo and you take them and you can't transplant them out of their environment. The bamboo rich areas are Imperial, UCL, Cambridge, Edinburgh, Manchester (so long as it can keep itself) Kings, Queen Marys' (2:8)*

> *'I talk to a lot of people around the country now and it's really clear to me that this type of work is getting concentrated in fewer places…. if someone is excellent and wants to come here we will appoint them; but we will be looking for years' (2:9)*

This problem is one with national and international ramifications. For example in the US context, Pickering et al. (2015) spoke of the diminishing pipeline of physician-scientists in the States and beyond, saying 'the field of translational research has a major personnel problem' (p.808).

There was a degree of convergence amongst the more experienced of my participants that the change to clinical training had inadvertently contributed to the staffing 'crisis',

> *'In order to get a consultant's position, clinicians used to have to do a research project,…. now in order to expedite the training as quickly as possible, clinicians don't have to have a higher degree in order to become a consultant and that's actually underpinned a lot of the capacity to do research in the NHS' (1:3)*

The recruitment policies of both the NHS and the universities were seen by my participants as important but not always joined up, an issue complicated by the

specific pressures of the NHS to deliver clinical services, and the different perceptions of a clinical academic within the different organisations,

> *'When I am making an appointment here, we make an appointment of somebody who publishes well, gets grants in well, and fits generally, but we don't really go out and find out how that works with the NHS Trusts locally' (1:3)*

> *'The Trust is now recording a deficit. It wants clinical professors but in quantity rather than quality' (2:8)*

My participants felt that there were many practical challenges to making joint appointments work, and drew on their own experiences in making this point,

> *'Lots of problems with joint appointments – the usual stuff about both organisations wanting 100 percent and the poor person in the middle burning out' (2:5)*

> *'In this building around 90% of people are employed on research contracts and there are already doing ten times more than the academic workload survey suggests they should be doing' (2:7)*

> *'What we find is say a clinical academic funded by the Trust, if they actually leave, then the Trust really comes under tremendous pressure to change that into a full-time NHS consultant because they get much more bangs for the buck' (1:3)*

Developing a pipeline of clinical academics that can deliver high standards of clinical service whilst also being given the flexibility to engage in clinical research, was emphasised as a priority by most of my study participants, with one stating that the Trust and University needed to,

*'**Grow the next generation of investigators** …in an environment that they can be nurtured' (2:7) (emphasis added to demonstrate that this Participant was suggesting a localised approach to developing a pipeline of clinical academics to sustain the partnership going forward)*

4.3 Theme Two: People

The second theme that emerged from the data was, 'People', and it contains within it the two categories of 'leadership and the power of personalities' and 'communication'.

Figure 4.6 below presents Theme Two, with its constituent categories and related codes.

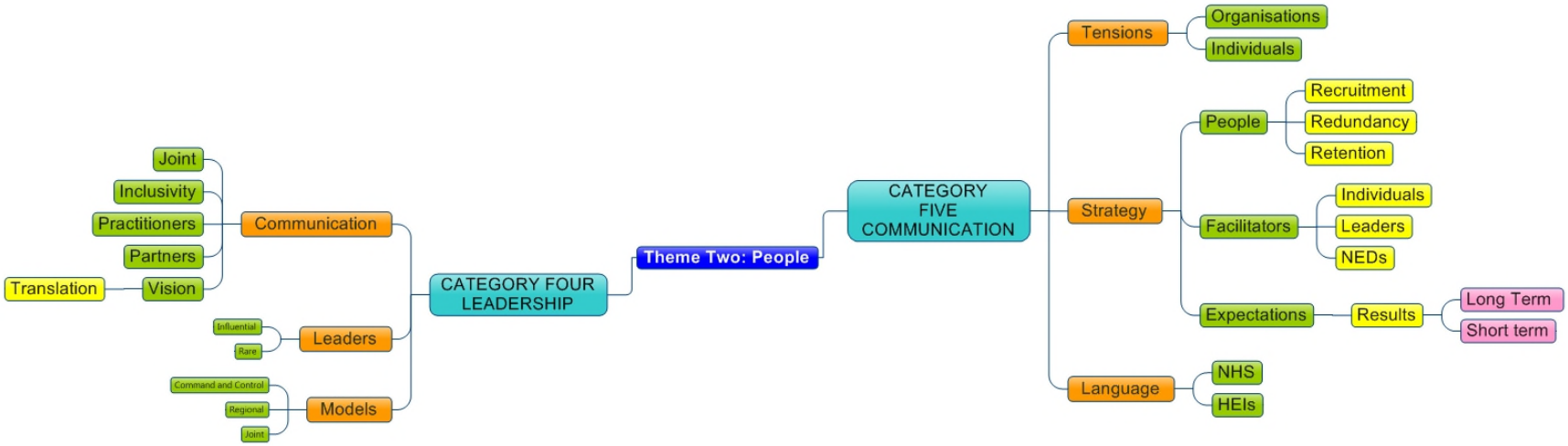

Figure 4.5 Theme Two People: Categories 4 and 5 with constituent codes

4.3.1 Leadership of translational clinical research

The first category within the 'People' theme is 'leadership of translational clinical research'. Without exception, the participants referred to the impact that one individual, or a small group of people, can exert upon the processes and structures that underpin the delivery of translational clinical research. At the same time, however, all the study participants expressed a frustration around the lack of suitable leaders, with case study two partnership in particular demonstrating some real concern around how, as a new NHS-University partnership, it would be able to attract and develop leaders into key positions. Hence the in vivo phrase in the theme is that provided by a participant from case study Two,

'It's a real issue-getting the right leaders' (2:10)

There are two codes within the category, as demonstrated by Table 4.7 below.

Leadership of translational clinical research
• **Leaders** • **Communication**

Table 4.7: Codes within the 'Leadership of translational clinical research' category

Recollecting specific examples of the impact of influential personalities encouraged many of the participants to consider the merits or otherwise of having one jointly appointed 'leader', working across both the University and the NHS. My study participants were undecided about this, with some believing that it was a necessary addition to the governance structure,

> *'Having somebody being the Chief Exec plus the Provost, I think that helps, that will align the strategy' (1:4)*

> *'I think having common leadership helps' (2:8)*

But others disagreeing, and doing so by drawing on their own experiences or on their perceptions of the problems suffered by other NHS/University partnerships that had attempted the joint leadership model,

> *'The Director of R&D was also the medical lead for the Medical School…. My perception was that he worked for the Medical School and not for the Trust…. When he left, it was decided at Trust level that we needed someone who was a Trust employee' (2:6)'.*

> *'Imperial had one (a joint university/NHS management structure) but it didn't work' (2:9)*

Leadership qualities were discussed in some detail, with the participants again drawing heavily on their own experiences to encapsulate the characteristics of a leader that they felt would create an environment conducive to translational clinical research,

> *'Having a national role as well to bring a national perspective' (1:4)*

> *'Still being a part of the NHS so that he or she understands us' (2:6)*

> *'A consistent approach across both organisations' (1:1)*

The lack of strong and available leaders was cited as an issue, drawing synergies with the earlier theme of regionalism, and the consequences of external funding policies that have created a clustering of talent in defined geographical areas of the country,

> *'It's a big job and how many people are there out there?' (2:6)*

> *'There aren't many people you can get' (1:2)*

> *'**It's a real issue, getting the right leaders**. And not those that pass through – this partnership needs some consistency now' (2:10) (emphasis added)*

4.3.2 Communication

The second category within the theme 'People' is 'communication'. There are eight codes that make up the 'communication' category, which are presented in Table 4.10 below. The in vivo quotation that I have selected reflects the key message that emerged from each of the two units of analysis, that participants recognise the importance of communication, to translate a strong and clear message around translational clinical research, but at the same time expressed a concern that communication wasn't working effectively within the partnership.

The in vivo quotation below suggests that in Case Study Two there was an issue of translating the vision 'from the top' to those on the ground,

> ***'You can have the big vision from the top but actually people need to sit down and have a cup of tea together and that's what isn't happening' (2:6)***

Communication
• **Translating vision to practitioners** • **Tensions – individuals** • **Bring individuals together** • **Tensions – between organisations** • **Manage expectations: expect longer term gains rather than quick wins** • **Benefit of Non-Executive Directors** • **Talking a different language** • **Lack of clear strategy – research & recruitments & redundancies**

Table 4.8: Codes within the 'Communication' category

Participants from both Case Studies outlined some fundamental barriers to communication, such as the participant below who believed that the communication of the NHS-University vision was simply not reaching the scientists,

'If you were to go up to my lab, and ask the people upstairs who are working day to day at lecturer level what it was, I think they would struggle to tell you very much about it at all' (1:3)

Some further research into the local NHS-University partnerships that have successfully communicated a vision for translational clinical research would be a useful addition to the current literature on this subject.

My participants also highlighted that tensions existed at both individual and organisational levels, as evidenced by the two groups of representative quotes below.

'Clinicians worry about being seen as the people that just provide the samples and…. the basic scientists worry about being used as technicians, as analysts, and overcoming that barrier is one of the big problems' (1:3)

'At the last minute they (NHS Trust) decided that the connection was not strong enough, because they were honorary appointments, so they pulled out two weeks before submission' (2:5)

'The Trusts in (city) fight against each other' (1:4)

'We are partners but our priorities are completely different' (2:6)

The participants believed that such tensions were a barrier to achieving translational clinical research, and that an important role of a successful NHS-University partnership is bringing people together,

'It's when people start to understand where each other of them is coming from that you get good non-clinical – clinical relationships. It tends to be very personal of course, you get to know people' (1:3))

'Anything virtually was surmountable with the right relationships' (2:5)

Also within the 'communication' category, and having a resonance with the cultural differences that were identified across the NHS and University, was the need to 'manage expectations'. The NHS participants observed that the short-term nature of NHS planning created a need within their organisation for a quick turn-around, something that is often out of step with the time it takes to translate clinical research outcomes into impact,

> *'We don't really get esoteric research. We are quite short termist really; all our planning is on an annual cycle, monthly reporting' (2:6)*

The expectation for quick results was not confined to the NHS participants in my study – the Universities also had expectations and this was particularly the case for the University in case study two,

> *'(the University) is not only ambitious it is also very impatient' (2:8)*

The bringing together of NHS Trusts and Universities within my two case studies to achieve translational clinical research appeared to be a delicate process, that was trying to serve two different masters. Leaders from both cultures were trying to maintain equilibrium in the partnership to keep it together, whilst progress continued gradually alongside it. But the often fragile nature of the partnerships was never far away, as illustrated in the following quotes,

> *It is partly keeping the faith because it's not going to happen overnight is it? (1:4)*

> *'The Chief Execs have to realise that this is not an overnight solution; you have to be able to invest in it to get the long term returns' (2:10)*

> *And we need a big thing, a national award or a major publication (2:19)*

> *'… we need some paradigm projects out there …then people will say 'actually yes I can see how it will start helping me as well' (1:1)*

Achieving this joint approach to outcomes (or impact) from translational clinical research appeared to have been made more difficult within the two units of analysis by a difference in language across the NHS and University partners,

> *'We meet with the University. And it is so difficult because they don't speak the same language' (2:6) (NHS Participant referring to the University)*

> *'If you speak to some of our rheumatologists, the rheumatologists here that are doing research, they are talking about specific problems that patients experience and how you might overcome them; our researchers tend to be taking much more of a longer term aim' (1:3) (University Participant referring to communication problems)*

In this sense my study confirmed the views of Pickering et al. (2015) that 'scientists and physicians' speak different languages' (p. 810). This appeared to be a deep-rooted problem that requires meaningful engagement to resolve within the context of an NHS-University partnership. For example, the quotes above both came from experienced NHS and University participants. It was clear from them that the difficulties in reaching a common understanding often prevented real progress being made.

4.4 Theme Three: Organisations

The third theme is 'Organisations', which consists of the categories 'building a joint research strategy', 'governance and administration', 'organisational cultures', and 'partnership'. The Theme with its constituent Categories and related Codes is presented below in Figure 4.7.

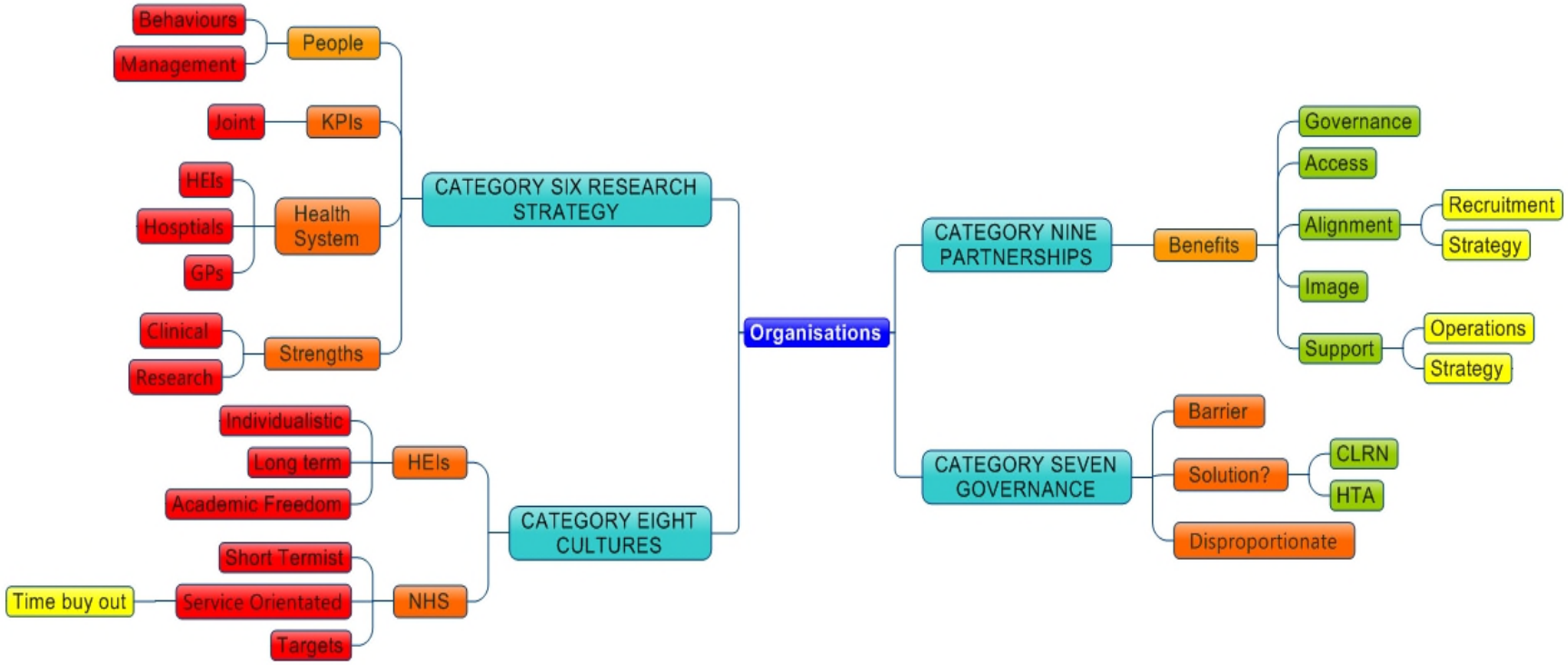

Figure 4.6: Theme Three: (Organisations): Categories 6-9 with constituent codes

4.4.1 Building a joint research strategy

The first category within the Theme 'Organisations' was based around the way that different organisations (the NHS Trust, the University) need to work together to build a joint research strategy that does more than simply span across the two organisations. The in vivo quotation below demonstrates the strong message that I received from the data in this theme was that all of the participants within the case studies were committed, at a personal and theoretical level, to the delivery of translational clinical research in a joint context,

'For research purposes the NHS provides a huge opportunity and we have to embrace that' (1:4)

However, the participant data revealed that, despite this commitment, the business of actually developing a joint strategy that both organisations could buy-into was a far from simple process.

There are five codes that make up 'building a joint research strategy, outlined in Table 4.9 below.

Building a Joint Research Strategy
• **Base around existing areas of clinical excellence and research strength** • **Need to embed a research culture in the NHS in order to deliver a joint strategy**** • **Research in the NHS** • **Lack of research time for NHS Staff** • **Joint metrics or Key Performance Indicators an important factor** **** this code is also relevant to the Category 'Organisational Cultures'**

Table 4.9: Codes within the 'Building a joint research strategy' category

There was broad agreement, amongst the participants and across the two units of analysis, that the most effective way of catalysing effective translational clinical research was to build a research strategy around existing areas of NHS clinical excellence and University research strength. However, what also emerged was a divergence between the participants as to which strengths the two organisations should work on together and this created a rather confusing picture, as demonstrated by the two contrasting quotes below taken from case study two. The emphasis added to each quote demonstrated that the University Participant (2.9) was seeking areas of joint strength in the Trust and Medical School as themes on which to build. The NHS Trust participant, in contrast, was saying that the Trust would build around their own clinical strengths, whether or not these were aligned to the Medical School,

> *' What we have to try to do, I think, but it's a tough one, is to* ***identify areas within the Trust*** *that either already have the* ***status of specialty services*** *or could do* ***and where the medical school has research excellence****, and focus upon those as areas upon which you could being to build' (2:9).*

> *'We are trying to build things around our clinical strengths, which* ***may or may not have alignment with our medical school****' (2:6) (emphasis added in both quotes to highlight the difference in approach across the two case study partnerships)*

The second component raised by participants as key to the development of an effective joint research strategy was the need for a research culture within the NHS Trust. There was also broad agreement that the NIHR has done '*really essential*' work to embed a *'research culture into the policy, procedures, and practices of the NHS'* (2.19). Another participant favourably compared the current environment to that of the past,

> *'Going from the Collier funding which was unidentifiable in trust budgets to ring fenced money that has terms and conditions linked to it that will be revoked if*

you don't follow the terms and conditions, I think that has been a revolution' (2:7)

However, despite this, the participants concurred that NHS clinical pressures continue to take precedence over research and this makes the building of an effective joint strategy a difficult one. As one participant put it, 'I *think this whole thing about releasing people and making time for them to do research is very difficult.' (2:18).* Another provided a practical example of pressures faced by clinical academics that are trying to find time to do research,

'A number of our clinical academics are just run off their feet with clinical work. It (research) is an objective for them, but the pressure of patients is such that they are struggling to do that…. we've got a couple of very bright young people….they really struggle to find any time to do research' (1:3)

A participant in the other case study site confirmed this, stating,

'One of our departments is running a vacancy rate of 18.4% on a service of only 30 people. And then I say I want two of your staff to do a research project for 12 months- it's so difficult' (2:6)

In terms of what a joint research strategy should look like, and how success should be measured, the participants all sought to identify the types of performance indicators that could be used to measure success. However, in analysing the participant views on this, it was clear to me that different metrics appealed to those from the University context, and those with more allegiance to the NHS Trust, and therefore finding a common ground is not easy.

One participant accepted that it is a *'problem'* trying to find '*Key Performance Indicators that are meaningful in both* organisations' (2.15). University staff talked about the NHS *'obsession*' (2.5) with patient numbers, something that doesn't drive

research in the university context and therefore can put the two organisations into direct conflict with each other,

> *'One other thing is a cultural barrier, is this obsession of the Trusts around numbers of patients on trials…. It can be so counter-productive' (2:5)*

Most of the University participants could see the personal benefits for them in terms of access to the NHS, as defined below,

> *'The advantage to me is that maybe I can get access to patients for my research more easily and therefore I can get better papers for the university, more income' (1:3)*

But there was less agreement as regards joint performance measures that would appeal equally to the NHS and the University, the same participant accepting that,

> *'You can see the university benefiting, but the biggest challenge is to actually show that the NHS is benefitting from this' (1:3)*

It was also interesting to note that whilst there was a fair amount of discussion about how to engage the NHS in targets that matter to them, there was also a concern amongst some clinical academics that this shouldn't be taken too far. One participant, when discussing the idea of the University placing a satellite Clinical Trials Unit into the local hospital said,

> *'It is something that will need to be carefully managed in terms of targets, so that the expertise of the Clinical Trials Unit continues to be appropriately focussed on getting in large grants….**as opposed to resource that becomes sucked into small projects led by clinicians'** (2:7) (emphasis added)*

The emphasis has been added to the participant quote to draw attention to the fact that NHS Trust projects were less worthy, in the view of the participant, than large grants.

Some of my study participants felt that targets, based around collaboration with the respective organisations, directly linked to promotion criteria, would have the most meaning to the clinical academic community, and that if the senior managers from the NHS and University could embed such targets within their respective organisations, there was a potential that individual behaviour would be more focussed on supporting the partnership to achieve translational clinical research. One participant made a direct comparison with the Research Excellence Framework, suggesting that this had been proven to direct behaviours, and that a similar message should be given to employees from both organisations with regards to joint objectives,

> *'The REF signal is heard loud and clear and that does make people change their behaviours. The signals that are sent about advancement, certainly up to chair level, are very clear and do influence people' (1:1)*

It was therefore apparent that, across my participant group, there was a strong feeling that the setting of agreed joint targets was some way off, despite this being seen as a crucial driver for bringing together joint translational research projects. It also seemed to be the case that the targets that were in existence were not helping the Case Studies to achieve a joint approach. Rather, they were working against this, and causing frustration at the level of the clinical academics.

4.4.2 Clinical research governance

The second category within the Theme 'Organisations' was 'Clinical Research Governance', this being related to the NHS administration processes that must be navigated by anyone wishing to deliver a research project that involves either NHS staff and/or patients. Within the Category were the four codes outlined in Table 4.10 below, all of which were linked to a general feeling, particularly amongst the practising clinical academics, that such systems of administration had become a key barrier to clinical trials and health research.

The in vivo quotation selected for this theme was the one that best reflected the overall sentiments of the responses in this section,

> ***'Some of the Trusts are so slow at giving you the R&D clearance…. I think it slows down the research to such an extent that it is nearly not possible to do it (2:5)***

Clinical research governance
• **Governance of clinical trials as a barrier** • **The new HTA system** • **Increased role of Clinical Research Networks** • **Over management**

Table 4.10: Codes within the 'Clinical research governance' category

The governance of clinical trials emerged as an emotive subject, particularly from the group of participants that are actively involved in delivering health projects in clinical settings. The main issue cited were the governance checks that are carried out by the NHS, as can be seen from the quote below,

> *'We have had really big problems in trying to get through the University and NHS governance…. we've had incredible delays in getting that work through' (1:3)*

A number of participants provided practical examples of the problems that they had experienced,

> *'We have one where we had the first approach to ethics and then it was over a year before we could actually start' (1:3)*

> *'We had 22 different trusts and it was awful. It has been a total pain' (2:18)*

In case study partnership one, progress had been made to establish some joined up systems of governance under the aegis of a Joint Research Office, and this was seen as a very positive step, the following quote being representative of the general view,

> *'The one thing that I do think is fantastic is the Joint Research Office; that is terrific' (1:2)*

Case study partnership two had not progressed towards a Joint Research Office, but along with the participants, in Case Study One, welcomed the planned improvements to NHS Research Governance that were being introduced by Health Research Authority (HRA) during 2015 and into 2016. This universal welcome of a potentially more pragmatic approach to research governance can be illustrated by the quote from Participant 2:10,

> *'What I hope will be a really positive development will be the HRA development around new R&D governance procedures' (2:10)*

However, some of the more experienced of those interviewed, who have seen systems come and go, offered a cautionary note with regards to too much over management and over regulation, believing this to be unnecessarily stifling of creativity and local partnership. Participants drew on their experience to emphasise their point,

> *'But anyway if you look at British medicine we did do amazing things, and we did it without having all of these structures and management…But then we fragmented the system more by actually saying 'you are university staff and you're separate, and those are separate, and so on' (2:9)*

> *'Now what I think we are doing is trying to find solutions to problems we created over the last 20 years' (1:3)*

4.4.3 Organisational Cultures

The third category within the Theme, 'Organisations' was 'organisational cultures'.

The two codes within 'Organisational Cultures' are presented in Table 4.11 below.

Organisational cultures
• **Perceptions of university culture** • **Perceptions of NHS culture**

Table 4.11: Codes within the 'Organisational cultures' category

The category was based around the views that were expressed in the Case Studies about the different cultures that exist within the NHS and the University environments. There is no in vivo quote within this section, as the sentiments are better expressed by the two quotations below, that different organisational cultures exist between NHS Trusts and Universities at a macro level, but that there are also differences within the research cultures of different Trusts within the NHS,

> *'The health service is definitely different from universities; the universities definitely have an individualised way of working which brings out a certain type of personality and certain personality traits' (1:1)*

> *'You get a different research culture in different trusts… it is a mistake to think that you can just slot into an existing infrastructure' (*2:5)

4.4.4 Partnerships

The final category within the Theme 'Organisations' is 'partnerships' of which there are six constituent codes, outlined in Table 4.12 below:

Partnerships
• **Selecting your partner** • **Presenting a unified image** • **Co-ordinated governance** • **Strategic and tactical support** • **Aligned strategies** • **Promotions based around joint vision**

Table 4.12 Codes within the 'Partnerships' category

There was an agreement that organisations should be free to look outside of the partnership for collaborators, where there is a strategic rationale to do so,

> *'As a medical school we were partnering with the closest….but (these) objectives can probably also be realised by partnering with other NHS organisations' (2:7)*

> *'When I look at our local education partnerships and our research partnerships …. With research we are still looking at half dozen' (2:9)*

However, alongside this acceptance was a view that by collaborating outside of the partnership, there was a risk that a confusing vision would be presented to external stakeholders,

> *'I think potential funders and investors can be disappointed when they encounter such a heterogonous group of organisations' (1:1)*

Some of my participants felt that a more formal partnership could assist in helping clinical academics to 'overcome some of the governance hurdles' (1:4), whilst also offering more effective strategic and tactical support,

> *'Matching people up for big funding opportunities, providing strategic and tactical support for big funding opportunities' (1:1)*
> *'It allows me to engage with the clinicians there and to see what are the things that they are really interested in' (2:5)*

And as a means by which clinical and academic strategies could be aligned, thereby creating joint strategies for translational clinical research,

> *'Aligning strategies, understanding what they are doing, and them understanding what we are doing, and then getting that interaction between individuals working' (1:3)*

> *'Because how often do the chief executives from the different trusts within the region meet with each other–very rarely – so you know this actually brings them together, and they agree a purpose – a common purpose – and that's a huge thing' (1:4)*

> *'Signing up to long term commitment to do something in certain areas would be a very useful thing' (1:3)*

There was also a suggestion that promotions for clinical academics could be formally tied into a joint vision for clinical academic research,

> *'I think people should be able to perceive that they are going to get the rewards that they want for career advancement only within the framework of common working' (1:1)*

This idea of creating new incentives to support joint working may be aided by the increasingly important Research Impact concept, which could over time create an environment within universities that is more conducive to supporting impact, this in turn being closely linked to translational clinical research.

4.5 Definition of translational clinical research

In Chapter 2, I presented examples of literature which demonstrates the complexities that have existed around the definition of 'translational clinical research'. (Boaz et al. 2011). My study participants were asked to provide their definition of translational clinical research. The responses are provided below. Emphasis has been added to demonstrate common themes that emerged from these definitions. In my literature review, I demonstrated that there had been a lack of consensus as to the meaning of translational clinical research, but in contrast, my study participants were in broad agreement about what the term meant to them, therefore adding to the current body of knowledge in this area.

Whilst individuals had their own experience of research to guide them in their definition, some common themes emerged, particularly around translation being concerned with public health and with getting research outputs into the clinical or health care setting. It is therefore possible that the political tensions and complexities demonstrated in the literature around the definition of translational clinical research simply don't translate to the local level. Alternatively, it could also be that the increased funding that is now available from the NIHR means that stakeholders are less concerned with fine-tuning the definition,

> **'***It's taking something that is fit for one purpose and adapting it to another….. And that can be medicine, or it can be a psychological intervention, or it can be a pathway of care within* ***health*** *care'* (1:1)

> *'Everything that we do in the Institute is* ***translational research****….I've been falling out recently with (name) about this – she says that I can't class our*

research *as* ***research and*** *Knowledge Exchange. Why not? It is both of those things'* (1:2)

'There are four different ***gaps*** *in* ***translational research****….number one is* ***discovery*** *number two is* ***clinical*** *validity and* ***clinical*** *utility number three is* ***implementation*** *and number four is* ***public health****'* (1:4)

'It actually slightly annoys me if people say about implementation it's just 'bench to bedside' because it is about actually getting it used in ***practice.*** *Both are important and it's not one or the other. It's pointless getting it to the bedside if no one uses it' (2:5)*

'I see the continuum and I work on the T2 gap and getting stuff that we find on the campus into the ***clinic*** *through doing randomised controlled trials' (2:7)*
'It's simply ***translating*** *science and discovery into tangible benefits for human and* ***public health'*** (2:9)

(Emphasis has been added throughout to demonstrate key phrases)

Chapter Five: Data analysis and recommendations

5.1 Drawing on the theory of collaborative advantage

In Chapter Four I presented a number of practitioner derived themes that had emerged following a period of detailed data analysis. Huxham and Vangen (2005) contend that the themes derived from consistently raised practitioner perspectives are 'extremely complex under the surface' (p. 31), and my three overarching themes are underpinned by my detailed analysis of the categories and codes that make them up.

This is in line with the approach suggested by the theory of collaborative advantage, being 'concerned with further exploration of the issues underlying the themes' (p. 33), and advocating that a detailed exploration of issues within each theme can be undertaken to bring new knowledge to a range of collaborative structures.

At the core of the theory of collaborative advantage is a stated desire to be useful to practitioners in a real-life settings. However, Huxham & Vangen do not claim that their theoretical framework offers any 'simple prescriptions' (p. 34) for future best practice. Instead, they argue that by conceptualising the views and concerns of practitioners within a thematic structure, they provide a different lens through which practitioners can view the challenge of collaboration, and this both informs and allows for a more reflective assessment of next steps,

> 'simply understanding that the problems that are being experienced are inevitable can be empowering' (p. 39-40).

In drawing upon this theory, in the preceding chapter I presented a series of practitioner generated themes that would make sense to others that are seeking to collaborate in similar settings. These themes each consisted of a series of categories and codes, as outlined in the Mind Map that was presented as Figure 4.3, and is represented below as a reminder of the detail that lies beneath each themes:

Figure 4.3: Mind map demonstrating nine categories and related code

Huxham & Vangen's theory of collaborative advantage has within it twelve practitioner based perspectives, or themes. These are,

> 'common aims, working practices, resources, communication and language, commitment and determination, culture, power, trust, compromise, accountability, democracy and equality, and risk' (2005; p. 59).

However, they do not provide a detailed analysis of each one, this being something that can develop over time in reflection of the evolving nature of the themes within the theory. Likewise, I have selected for detailed analysis in this chapter those categories which emerged as the strongest in terms of consistent or high volume practitioner perspectives. The others have been presented in the mind-maps to demonstrate the breadth of data gathered.

I present a picture for practitioners within NHS-University partnerships that is relatable to their practical experiences, and is of practical use to them. I follow the approach taken by Huxham & Vangen (2000) under which 'gradually clusters of related ideas began to emerge. Concepts deriving from the literature were also included and linked to data items or interpretations' (p. 1163).

The approach that I have taken highlights those areas that senior practitioners and leaders shall have to give attention to, in order for the NHS-University partnerships to successfully deliver translational clinical research (Huxham & Vangen 2005; p. 40-41), without providing any firm conclusions, this also being in line with my interpretative methodological perspective, which accepts the hermeneutic nature of reality as a learned experience in a social world that is forever changing.

In my study, some of the policy generated themes outlined in my literature review were either not mentioned by my participants, or were not seen by them as significant concepts. This was particularly the case in two key areas, 'research impact' as a new concept with regards to the Research Excellence Framework, and the importance of

precisely defining 'translational clinical research'. Huxham & Vangen record a similar observation with regards to the concept of leadership, which, although not referred to by their participants, was never the less seen as an important concept for policy makers.

In light of their desire to be a practice based theory with future application, Huxham & Vangen recognise that policy makers frame and perceive challenges to collaboration in a different way to practitioners, and given the impact of policy on practice, they therefore include policy generated themes in their theoretical model. I have followed this structure, including both 'research impact' and the 'definition of translational clinical research' in my discussion, as 'policy generated' themes.

In this Chapter, I add a further layer of analysis and rigour to the data analysis that was presented in Chapter Four, by contrasting the data outcomes with relevant academic and policy literature, calling upon my comprehensive documentary analysis of policy and academic literature to highlight gaps into which I bring new knowledge and those areas in which my research adds further weight to an existing body of literature

This approach also draws upon the theory of collaborative advantage, which contains within its' model both policy and academically driven themes. Utilising this approach, I am able to present a series of recommendations, for future practice, specifically for practitioners attempting to deliver translational clinical research within NHS-University partnerships, and for future policy and research. Within each category, where a recommendation arises from my data analysis and the supportive literature, I present it such that a series of recommendations are built up throughout the chapter.

The theory of collaborative advantage also provides a list, or 'ten tips for collaboration' (p. 41) which serves as a helpful framework that can be applied across a range of collaborative ventures. My recommendations are specifically focussed on NHS-University partnerships and are intended to provide a practical outcome from my research, serving as a set of recommendations for practitioners but also providing a template from which future research could be pursued. At the end of the chapter, I

pull together the full list of recommendations into Table 5.1, for ease of reference, and to allow for the entirety of the recommendations to presented in one format.

In those cases where there is a synergy between the Huxham and Vangen theme, and the one presented by my participants, I have included this into my analysis, adding further linkages between my model for collaboration within NHS-University partnerships, and the theory of collaborative advantage more generally.

However, not all of my themes were present in the Huxham and Vangen framework, and therefore in these areas I bring a new perspective to the theory of collaborative advantage. My reflections on this are outlined in Chapter Six. Huxham & Vangen also include two research generated themes in their model, 'social capital' and identity' (p. 38), and I explore these towards the end of the analysis.

The discussion within this Chapter illuminates the areas in which my research data has confirmed and added weight to existing literature, and those areas in which new knowledge has been brought to the challenges faced by NHS-University partnerships when trying to deliver translational clinical research. My recommendations are particularly pertinent to NHS-University partnerships that operate outside of the highly successful Golden Triangle where funding is plentiful, and in this sense brings a new perspective to the subject area, and one which is highly relevant in the present policy environment that is developing around different regional and local governance structures.

5.2 Practitioner generated themes: Analysis

In this section, I present a discursive analysis of my practitioner perspectives in the three themes of external factors, people and organisations. In each of the sub-sections, I contrast my participant data with relevant policy and academic literature, presenting recommendations where these arise. Linkages to similar themes from the theory of collaborative advantage are also presented where it is appropriate to do so.

5.2.1 Theme One External Factors: Category (1) Regionalism

My study participants felt that a regional approach, with devolved local powers, would bring fresh opportunities for NHS-University research partnerships operating outside of the Golden Triangle. The policy literature in this area suggests that the idea of local devolvement is one that is being pursued by the present Government,

> 'The government encourages universities to strengthen local collaboration and will continue to **reward proposals that build on regional strengths**, including through funding streams such as the Research Partnership Investment Fund.'(Summer Budget 2015.) (Emphasis has been added to demonstrate the regional agenda in Government discourse at the time of my study).

This wider contextual framework for regional devolution adds weight to the views of my participants, that the present policy environment may provide the potential for increasing power to local NHS-University partnerships, under which decisions around funding priorities could be made in a more localised context.

It is possible that the Government's strong policy statements with regards to regional devolution are an attempt to direct a change in behaviour, and there was evidence that this was happening within the two Case Study partnerships, with my participants thinking around the possibilities that a more formalised regional partnership could offer to the delivery of translational clinical research. (*'I am looking….towards regional alliances* said Participant 2:9 for example*).*

The idea of an increasingly regionalised approach to health partnerships is also supported by the literature on UK health research spending, which highlights that a regional in-balance exists. For example, the Foresight Report by Harding and Nevin (2015) stated that investment into research from 1965 onwards had been heavily weighted towards London and the Southeast, and the report by the UK Clinical Research Collaboration ('UK Health Research Analysis 2014') confirmed that London, the Southeast, and East Anglia (Golden Triangle) received 60.7 percent of health

research spending in the UK, whilst the rest of England received 22.7 percent. Table 5.1 below presents the regional split of health research spend.

Both of the two Case Study partnerships operate outside of London and the Southeast, and one can see that the possibility of rebalancing health investment on the basis of devolved regional partnerships would therefore be attractive to them:

Region	Percentage of health research spend (91 funders) (%)
London	32.1
Southeast (including Oxford)	15.8
East Anglia (including Cambridge)	12.8
TOTAL	**60.7**
Northwest (including Liverpool and Manchester)	6.1
Yorkshire & Humberside (including Leeds and Sheffield)	4.5
South West	3.7
East Midlands (including Nottingham)	3.7
North (including Newcastle)	2.4
West Midlands (including Birmingham)	2.3
TOTAL	**22.7**
Wales	3.4
Scotland (including Edinburgh)	11.8
Northern Ireland	0.8%

Table 5.1 Geographical distribution of health research spend over ten years (UKCRC 2015)

My data revealed that the participants felt that a deal of counter-productive time was spent within the case study sites trying to make an unwieldy national system work at a local level, and there was some evidence of what Huxham & Vangen would term 'collaborative inertia' in trying to fit local delivery into a national system,

> '***They can't all be useful, and delivering – can they?' (1:2)***

In addition to the health research funding data, as presented earlier, from Harding & Nevin (2015) and the UK Clinical Research Collaboration (2014) which highlight a regional in-balance in funding received, there is also strong evidence that England's policy environment is shifting towards an increasingly regional approach to delivery

and planning - the Centre for Cities reporting in May 2016 that five cities will 'introduce a metro mayor in 2017 – Greater Manchester, Sheffield City-Region, Liverpool City-Region, the NorthEast, and the West Midlands'. This follows earlier announcements in the Summer Budget 2015 of a regionalised approached to large scale science investment, and the 2013 shift of responsibility for public health to Local Authorities, deemed by the Local Government Association to be 'one of the most significant extensions of local government powers for a generation'.

This political environment, in its push towards an increasingly regional approach, appears to offer much potential for those NHS-University partnerships that can function effectively enough to convince Government and other stakeholders that they have the ability to deliver in the context of regionally devolved structures. However, this would require a functioning NHS-University partnership that could give a clear and consistent message to funders and policy makers about local strengths in clinical medicine and research, and my theme of 'regionalism' is therefore linked to my other themes of 'communication' and 'leadership', confirming Huxham & Vangen's argument that the themes within a model of collaborative advantage are often linked (2005; p. 34).

To deliver a partnership within a devolved local context would require 'leadership rather than management' (McCaffrey 2010 p.79). With devolvement would come increased responsibility and a locally led NHS-University partnership would require the right kind of leadership. Currie et al. (2013) suggest that 'more emphasis might be placed on those that…have the capability to work across organizational and professional boundaries' (p.38).

In addition to the opportunities presented by a move towards regional devolvement, there exists a parallel risk that those partnerships that are not deemed strong or functional enough for devolvement, are left behind. To an extent, this two-tier system has already been created by the current network of accredited NIHR Academic Health Science Centres, many clustered in London, Cambridge the South-East, which receive funding in excess of the network of non-accredited partnerships that have developed

elsewhere. The health research data referred to throughout this thesis demonstrates the in-balance in funding that is received by different geographical areas.
It is important that these other local NHS-University partnerships, which are critical to local health economies, and to national and local health outcomes, find a way to be competitive within the national landscape and to be as productive as possible with the funding that they receive.

In a partnership with greater devolvement of power, universities and NHS Trusts could work more closely together to achieve translational clinical research by making decisions based around local research expertise and clinical need. In order to progress this, partnerships would have to understand the wider political position with regards to local devolution in their area.

My first recommendation is therefore that the two NHS-University partnerships should,

> 'Engage with the wider regional devolvement agenda in the locality of the NHS-University Partnership. Understand what form any potential shared governance structure would take and work to ensure that health and research are considered as part of this' (Recommendation One).

5.2.2 Category (2) Regionalism: Code: (1) Physical proximity

A strong code within the Category 'Regionalism' was the issue of physical proximity. Here there was a complexity and divergence to the views expressed by my participants, with some being strongly of the view that physical co-location is a natural facilitator of increased collaboration, whilst others demonstrated a lack of enthusiasm for any such strategy, seemingly based around personal, rather than collaborative, drivers as the two quotes below demonstrate,

'I would love to be on one site. It would make a huge difference to both organisations' (2:6)

'Whilst it might make some things easier there are also advantages of geographic distance' (2:7)

This diversity of views across my practitioners in key themes is something that Huxham & Vangen suggest is a common feature within collaborative ventures (2005; p. 34). In recognising this complexity, the theory of collaborative advantage supports an approach whereby the issues raised by participants are highlighted as areas requiring management attention, and this would be the case with regards to the 'physical proximity' category in my data analysis.

It is an issue that the participants of both my case study partnerships should give some further consideration to, in order to better understand the opportunities, and challenges, that could accrue from a co-located physically proximate location of NHS and University staff. I suggest that there is a link between this category of physical proximity and the 'building a research strategy' category, as, in order to decide which clinical academics need space to collaborate, the partnership requires clarity on its key research themes, such that actions are driven via a strategic vision around key strengths.

In terms of the opinions expressed by some of my participants that co-location would be useful, there is a body of literature to support this view. For example, Cremades et al. (2014) studied the strategies employed by a high performing Spanish Research Institution, which included clinicians from the hospital and academics from the university. They did so by analysing data collected during eight in-depth, semi-structured interviews with participants working at different levels of the Institution (p.368), and found that the 'establishment of knowledge sharing spaces foster inter-disciplinary knowledge creation and inter-individual knowledge transfer' (p.380) (Cremades Baulbastre-Benavent, & Dominguez. 2014), whilst Long et al. (2014), in their 'online whole network survey' into 'clusters within networks'; (p.3) in an

Australian Translational Research Network (TRN), gathered data from ’68 members of the network’ and concluded that ‘patterns of collaboration are based around a clustering of geographic proximity’ (p.13).

Dzau, Yoediono, Ellaissi, Cho (2013) refer to the fostering of innovation by ‘clustering’ (physical co-location) and ‘cloistering’ (where a small group of people combine to focus on one key challenge) stating that such initiatives at Stanford University have extended outside of clinical research and incorporated physics, chemistry and mathematics, reporting ‘impressive achievements in translating basic research to patient care and commercialization, particularly in medical devices’ (p. 1426).

Therefore, the literature concurs with my data within this theme that co-location should be considered more thoughtfully by those within both of my case study partnerships. This does not necessarily mean, or require, co-location, but it does suggest that some physical spaces for people to come together to think about working collaboratively are required and this forms my second recommendation as outlined below,

> ‘Create physical and virtual spaces for collaborative thinking across institutions and across scientific disciplines’. (Recommendation Two).

5.2.3 Theme One External Factors: Category (2) Government funding and policies

My participants believed that external factors were highly influential with regards to the delivery of clinical research within both case study partnerships; see for example the quote below,

> *‘I think things like the CLAHRC are really important and have made a big difference’ (1:3).*

This confirms the argument made in the relevant literature that external policies have a strong impact on local conditions. For example, the report by the UK Clinical Research Collaboration ('UK Health Research Analysis 2014') records that there has been a shift in the public funding 'from basic to translational research' and links this directly to the work undertaken by the OSCHR to implement the Cooksey (2006) recommendation to increase funding for translational medicine (p. 32).

The UK CRC report makes the same point with regards to investment by the Medical Research Council (MRC), saying that,

> 'the 2007 Spending Review allocation for the MRC allowed new funding of £132m to be directed towards translational research in support of the priorities set out in the 2006 review of health research chaired by David Cooksey' (p.43).

Thus, there has been a shift in government investment priorities that has led to an increased amount of funding to be available for clinical translational research. One of my participants referred to this in his interview,

> *'We are probably doing less industry research now because we are able to do more academic research because the funding and infrastructure is there for us to do that' (2:7)*

However, a number of my participants also referred to 'initiative overload', as one put it,

> *'So we have got AHSCs, AHSNS, the Research Design Service, the CLAHRC. How I are we supposed to engage with all of those?' (1:2).*

This evidence that my participants were becoming weary of different partnership initiatives is similar to that which Huxham & Vangen (2004) define as 'partnership fatigue' (p. 195) but do so with reference to the challenges of multiple alliances and partnerships faced by many of those in collaborative ventures.

In contrast, my study data reveal what I shall call 'initiative fatigue' and is less about the number of partners within the partnership and more about the numbers of different government programmes that they are expected to respond to. Participants also referred to the uncertainty that surrounds government programmes for translational clinical research, with one saying,

> *'will it (the partnership) survive the changing whims of government?' (??)*

Despite the concerns expressed by some of my participants about 'initiative overload', there did not appear to have been any discussions locally about how best to deal with this. The present national system within which local NHS-University partnerships does not allow for local decision making in which partnerships could select which initiatives they did or did not want to engage with. A move towards regionalised partnerships, discussed in the previous theme, may go some way to counteract this, but is dependent on a range of external factors and it is therefore important that the NHS-University partnerships find ways of handling this 'inertia' or 'fatigue'.

5.2.4 Theme One External Factors: Category (4) Clinical academics

The 'clinical academic' emerged as a key category within the 'external factors' theme, in terms of firstly attracting and retaining clinical academics, with a feeling that this was a particular challenge for those operating outside the Golden Triangle, and secondly in terms of facilitating the delivery of research by clinical academics, who have many demands on their time.

In this section I focus initially on this first challenge, encapsulated by one participant as follows,

> *'Medical academics are now like pandas. They started off in the 1960s and 1970s as really quite fearsome carnivorous beasts but a number of pressures mean that they are now quite sweet little things that have trouble reproducing, only eat bamboo and you take them and you can't transplant them out of their*

> *environment. The bamboo rich areas are Imperial, UCL, Cambridge, Edinburgh, Manchester (so long as it can keep itself) Kings, Queen Marys' (2:8)*

The concern amongst my study participants of a declining number of young clinical academics, allied to a clustering of talent in specific geographical regions, was seen as a barrier towards building effective systems for research for those outside of those areas.

A lack of clinical academics has also been recognised as a problem outside of the UK. Pickering et al. (2015) refer to an 'international need for translational researchers' (p. 806) but point out that the numbers of new scientist-physicians in the US are declining, 'currently only 1.3% of all physicians being trained in the US are also pursuing a research career' (p.807). In England, there have been some high profile attempts to address what is seen by policy makers as a national problem. The 2005 'Walport Review', recommended that a more integrated and easily accessible clinical academic training programme be established for clinical academic research at under-graduate level.

Cooksey (2006) also referred to the shortages of clinical academics, and suggested that a further 50 applied fellowships per year were required. The medical community responded positively to this with an editorial in Clinical Medicine saying,

> 'This element of the Cooksey review is particularly welcomed and represents further recognition of the need to support and develop academic medicine in a systematic and sustained manner' (Smyes & Wynick 2007) (p.543)

The NIHR too has attempted to address clinical academic staffing shortages. Its 'Integrated Academic Training Pathway' contains provision for partnerships of universities, NHS Trusts, and Local Education Training Boards, to provide Academic Clinical Fellowships and Clinical Lectureships that allow 'medical and dental trainees to undertake 25% research and 75% clinical training over 3 years …and 50% research and 50% clinical training over 4 years' respectively. The idea being that by embedding

research into educational training, the number of trained clinical academics will increase over time. However, only 250 Academic Clinical Fellows and 100 Clinical Lectureships are available nationally each year. Figure 4.5 below shows the first destination data for Academic Clinical Fellows (ACFs) as at 2014, and demonstrates that 5% cite 'clinical academic' as a first destination career. Some 40 percent of this cohort enter a clinical only career.

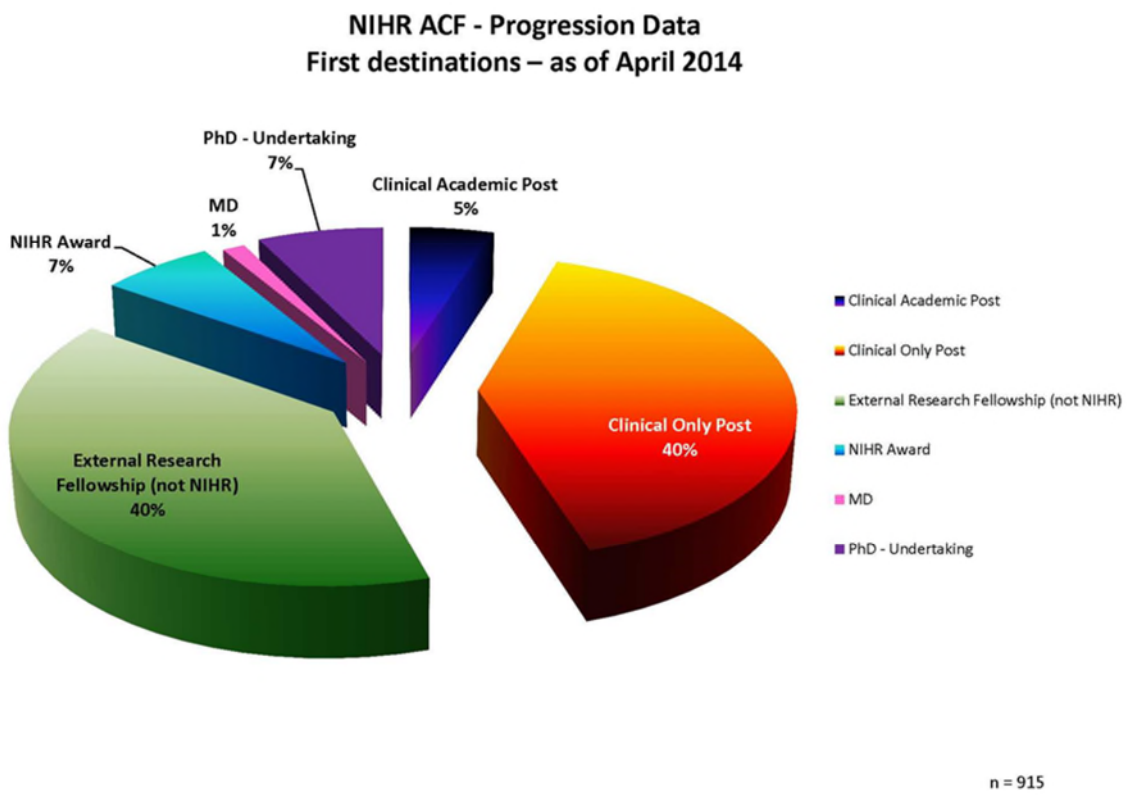

Figure 5.1: NIHR ACF progression data - first destinations: as of April 2014

My participants felt that the NIHR developments 'were useful but did not go far enough' (1:1), and none of the policy developments outlined specifically address the issue raised by participants around a geographical imbalance, with partnerships outside of London and the Southeast having the increased challenge of trying to attract clinical academics to what are perceived to be less attractive health systems.

The comment by one Participant that they would try to 'grow our own' (2:6) clinical academics is an interesting one, which loops back to the previous theme around the granting of increased powers to regional partnerships. There is a possibility that within

these potential new governance arrangements, NHS-University Partnerships could explore the development of regional training programmes for clinical-academics that could run alongside the national initiatives outlined above, with a view to both increasing and re-balancing the pipeline of clinical academics across the different English regions.

The second issue raised by my participants in the 'clinical academic' category was the pressures faced by clinicians in the NHS that wish to deliver research.

At the time of writing, a national debate was being held around the Government's proposed changes to the contracts of junior doctors. Ahmed et al. (2015) made the point in The Lancet that the proposed changes affected more than pay and conditions, and would likely increase the difficulties faced by clinicians that wish to engage with research, thereby creating another challenge for local NHS-University partnerships that is being driven through at a national level, and impacting on local level delivery,

> 'The proposed contract penalises clinicians who take time out of their training to pursue their interests in research' (p. 20).

My participants felt that there is a real challenge for NHS-University partnerships focussed around the pressure faced by clinicians within the partnership to dedicate time for research,

> *'A number of our clinical academics are just run off their feet with clinical work. It (research) is an objective for them, but the pressure of patients is such that they are struggling to do that…. we've got a couple of very bright young people….they really struggle to find any time to do research' (1:3)*

> *'One of our departments is running a vacancy rate of 18.4% on a service of only 30 people. And then I say I want two of your staff to do a research project for 12 months- it's so difficult'* (2:6)

The policy literature suggests that these challenge may increase as the NHS heads into a period of multiple pressures, including for example new productivity targets.

In October 2015, the NHS was set a challenge of delivering an estimated £22bn of productivity improvements by 2020/21' by its own Chief Executive (Alderwick et al. 2015, p.3). who doubt that this productivity challenge can be achieved within these timescales, highlighting that, 'between 1995 and 2010, for example, although NHS funding more than doubled its productivity rose by only 0.5 percent per year' (p. 9).

It is clear therefore that translational clinical research will be operating within a highly challenged NHS, and this links back to my previous observation with regards to collaborative inertia, in that the NHS-University partnerships shall have to factor this into their thinking when trying to encourage clinical academics in partnership activities.

My data revealed a strong feeling that the current demands placed on clinical academics by two masters via joint contracts of employment, had a high personal impact,

> *'In this building around 90% of people are employed on research contracts and they are already doing ten times more than the academic workload survey suggests they should be doing.' (2:7)*

> *' A number of our clinical academics are just run off their feet with clinical work' (1:3).*

> *Lots of problems with joint appointments – the usual stuff about both organisations wanting 100 percent and the poor person in the middle burning out' (2:5)*

These tensions may only be heightened by the challenges that the NHS itself is under, as outlined above.

There was a strong message emerging from my study data that the dual role of the clinical academic was not nurtured by either the NHS or the University, with Participant 1:3 demonstrating that both the University and the Trust are focussed on single organisational, rather than collaborative, factors when employing clinical academics,

> *'When I am making an appointment here…we don't really go out and find out how that works with the NHS Trusts locally' (1:3)*

> *'The Trust really comes under tremendous pressure to change (a clinical academic appointment) into a full-time NHS consultant because they get more bangs for the buck'. (1:3).*

It was clear from my study data that clinical-academics face multiple challenges in trying to deliver across two roles in two organisations. This problem of dual responsibilities is not unique to clinical research. In their study of Canadian University Research Centres, Mendes et al. (2014) draw the same conclusion with respect to faculty that are expected to engage in applied research with the community. This places pressure on the individual who at times struggles to meet the different demands of the two organisations (p.174). Mendes et al. also found that the career progression of academics could be hampered by them giving too much attention to applied research, as this is not recognised in the promotion criteria of research universities (p. 174).

In the context of my study, 'role strain' relates to the pressures that the participants observed with reference to clinical academics, and the expectations placed on them by both the University and the NHS Trust. Boardman & Bozeman (2007) published a study into 'role strain' (p. 431) of academics who are affiliated to both a 'traditional academic' department as well as to a University – Industry Research Centre (p.31). They interviewed 21 academics that were aligned to a university department and a research centre, and concluded that there was a difficulty for the University in

recognising the achievements of the academics within the research centres, because these metrics were not included within the University's promotions criteria (p.453). The authors suggest that universities need to evolve their internal processes to better recognise the achievements of academics that are working with an increasingly complex research environment, characterised by 'dual and multiple allegiances' (p. 453).

Clinical academics themselves belong to a distinct group and appeared not to have a strong connection to the NHS-University partnerships. In addition, the clinical academic group is placed under pressure by each organisation to deliver against targets or key performance measures. In the case of the NHS, this could be around the numbers of patients recruited onto trials and the time taken to recruit the first patient, or open the first site. The University on the other hand would most likely be more concerned with research grant success rates, research income secured for clinical research, and translational research that demonstrates impact in a REF sense. This was demonstrated by one participant,

> *'This obsession of the Trusts around numbers of patients on trials…it can be so counter-productive'. (2:5).*

My study data confirms Horton (2015) who argues that 'our approach to clinical leadership has gone badly wrong' (p.120). In my two partnerships, there was a strong feeling that clinical academics were critical to the success of the partnership, that these individuals were in scarce supply, and that those that the partnerships did have were being overworked. Given that my participants were all clinical academics operating at a senior level, it is reasonable to ask why these individuals themselves could not bring some leadership to this area.

Kulkari (2014), a core surgical trainee writing in the British Medical Journal, offers a perspective on this, arguing that clinical academics are not asked to direct change because they are viewed as being 'culturally resistant' to it, and consequently therefore change is forced on them 'from the outside' (p. 481). McKinn & Mannion

(2015) also suggest that 'individualism rather than collectivism' is a particular trait of clinicians, this being a direct result of their training paths, which encourage an individual approach, and therefore traditionally have not been proactive in leading change.

One of the external changes that now have a significant effect on clinical academics is the demand from the NIHR for NHS and University organisations to work together in collaborative ventures in order to access funding. My study data suggests that this is creating a new pressure for clinical academics and it is important that this group are empowered to bring some leadership to this new environment.

I suggest that this is therefore an important cultural issue that if left to evolve naturally by my two case study partnerships, may continue to impede the delivery of translational clinical research. My data suggests that local NHS Trusts and their University partners should engage with clinical academics to understand how best they can be supported to deliver clinical care whilst also having time to research. In return, the clinical academic must step outside of their own group and take a more inherently collaborative approach, something that should in the future be more embedded within clinical training - this being something that local NHS and University partnerships should themselves take a proactive role in.

The two case study partnerships should consider how to place the 'clinical academic' at the heart of their structures in a way that allows them to have an influence on the way that research is supported and delivered.

I offer three recommendations that are focussed upon the importance to the NHS-University partnerships of high quality clinical academics:

‘Recognise the importance of the clinical academic, and place him/her at the centre of your thinking. Encourage a more collaborative approach to clinical research, commencing in your clinical training programmes’. (Recommendation 3).

‘Challenge cultural understandings of the ‘individual clinician’ or the ‘individual academic’ and create incentives for collaboration. Allow people the space to make delegated decisions where it is appropriate to do so’. (Recommendation 4)

‘Develop strategies of recognition and promotion that reward clinical academics for collaboration with the NHS, and vice versa so that this important stakeholder group is both valued and genuinely supported to deliver translational clinical research. Demonstrate to the Trust Board and University Executive that this is line with both NHS (the inclusion of research in the NHS contract) and University (the research impact agenda) policy and delivery objectives.’ (Recommendation 5).

The idea of ‘growing our own’ pipeline of clinical academics was suggested by one participant, and this could be assisted by a programme of formal mentoring. Whilst mentoring was not suggested by any of my participants, it could go some way to addressing the ‘individualistic’ behaviours that I observed, which McKinn & Mannion (2015) argue is engendered by the singular nature of a clinical academic training programme. I therefore argue that a mentoring programme is worthy of consideration by both of my case study partnerships, and a particularly interested example is suggested by Byington et al. (2015), who produced a paper that reviewed the mentoring programme of the University of Utah in the United States. This was a ‘matrix’ approach to mentoring clinical academics at the University, as distinct from more traditional 1-1 mentoring. The matrix includes a senior established Professor, a small group of scientific mentors, grant writers and a select number of appropriate peers, who together deliver a structured programme of mentoring to an individual.

Around 50% of applicants are granted entry to the programme, and once accepted, the mentee, the senior mentor and the Chair of Division draw up and sign a contract outlining goals and setting out a series of agreed milestones. An important element to the matrix approach is that the senior mentor (the experienced Professor) sits outside of the mentee's Division and can intervene if necessary in cases where the mentee may not be getting the support he or she requires, or conversely where the mentee themselves is not delivering the necessary levels of self-mentorship.

Aronson (2011) cites the 'reduced numbers of academics to act as role models for clinical academics' (p.7) as a particular problem and given that the need to develop a pipeline of clinical academics was a key theme in my study, the 'Utah' approach struck me as one that was worthy of inclusion here. A note of caution must be struck with regards to the embryonic nature of the programme; it commenced in 2013, and, whilst the results in 2015 were encouraging (by 2015, 92% of mentees had at least one grant as a Principal Investigator and 99% remained in clinical academic medicine (p.4) a longer term review would be required to truly evidence the results..

Strong institutional buy-in would be required for this this to be sustained over the medium-long term. However, given the challenges that are faced by both NHS-University partnerships to both attract and retain clinical academics, I suggest that a collective approach to mentorship as one of my recommendations,

> 'Support the development of a strong pipeline of clinical academics by the development of a matrix and collective approach to mentorship that spans both organisations'. (Recommendation 6).

Some of the recommendations offered by Aronson to counter the declining numbers of clinical academics are reflected in the strategy of The Francis Crick Institute, a new partnership between MRC, Cancer Research UK, the Wellcome Trust, UCL, Imperial

and Kings College London, which has an ambition to create a world-leading clinical eco-system. Notes of a meeting of the Crick Executive in 2011 state that,

> 'Basic and clinical scientists require an environment that breaks down cultural difference; Crick PhD students – clinical and non-clinical – should be grouped together in thematic programmes'.

My study participants did not refer to research taking place outside of the Medical Schools, such as Clinical Engineering, Chemistry and so on, despite the fact that a desk-based review identified that within both case studies there is evidence of collaboration in clinical research that extends outside of the Medical School. I suggest that the case study partnerships may wish to explore the viability of a wider eco-system approach to their health research partnership, learning from innovative practice elsewhere,

> 'Observe and learn from initiatives such as the Francis Crick Institute, which is attempting to implement adopt and develop a full eco-system approach to translational clinical research. There may be ideas here that could be applied to your local NHS-University partnership'. (Recommendation 7).

5.2.5 Theme Two People: Category (4): Leadership

My participants agreed on, and in many cases drew upon their own experiences of, the impact that a strong individual or small group of individuals can have on the delivery of NHS-University partnerships. Leadership was seen as a key concept and one that was important to get right if the partnership was to succeed.

The fact that leadership emerged as a key category in my participant data contrasts with the experiences of Huxham & Vangen that 'practitioners seldom explicitly refer to leadership' (2000; p. 1172) basing their view on actions research data that they have gathered from a range of partnerships in the public sector.

My participants perceived there to be a great challenge in identifying the right leaders for their partnership, and this, aligned to the short term nature of leadership across both the Medical Schools and NHS Trusts, was cited as a key issue, as evidenced by the participant quote below,

> *'It's a real issue, getting the right leaders. And not those that pass through – this partnership needs some consistency now' (2:10).*

The importance of leadership as a practitioner based theme is a different outcome to that reported in the theory of collaborative advantage, where Huxham & Vangen have identified 'leadership' as a policy, rather than practitioner driven, concept. This is therefore an area in which my subject matter offers a complementary dimension to the theoretical framework. It suggests that there may be factors unique to the NHS-University setting that provide for a more practitioner focussed emphasis on the matter of leadership.

There is literature that attempts to bring some knowledge to the specific area of leadership within the NHS-University collaborative environments, including Currie Lockett, & El Enany (2013), who undertook a longitudinal study into the nine CLAHRCs that were established in 2008 by the NIHR.

Four of the nine CLAHRCs were selected by Currie et al. for in-depth analysis via '70 interviews' of NHS and University managers, academics, clinicians, and leaders. The authors concluded that the leadership of the CLAHRC tended to rest in one influential individual, and that this person's view of translational research would be highly directive of the future delivery over the proceeding five years. Currie et al. (2013) suggest that policy makers should be aware of this, and think carefully about the 'selection of the leaders' of such initiatives, suggesting that 'more emphasis might be placed on those that…have the capability to work across organizational and professional boundaries' (p.38).

This concurs with my participant data, which suggests the need for leadership that can span organisations. However, my participants offered a range of perspectives as regards the type of leadership model that would best suit their organisations, with reflections being offered on the strengths and weaknesses of both a joint and separate approach to leadership, as the two contrasting participant quotes demonstrate,

> *'I think having common leadership helps' (2:8)*

> *'The Director of R&D was also the medical lead for the Medical School…. My perception was that he worked for the Medical School and not for the Trust…. When he left, it was decided at Trust level that we needed someone who was a Trust employee' (2:6)'.*

The contrasting strengths and weakness of joint, joined, or separate, leadership across NHS-University partnership has also been debated in the literature. Here too there is a lack of consensus, and therefore in this sense my study data adds weight to the argument that there is not a simple solution to the challenge of leadership in the new NHS-University models.

Ovseiko, Davies, Buchan. (2010) noted that Imperial Health Partners was the only AHSC to engender a joint governance approach, having a University Dean who was also the CEO of clinical service, an academic chair who was also the chief of clinical enterprise, and a Chief Academic Officer that had overall executive authority. The merits of this model were revisited in a later paper (Ovseiko, Heitmueller, Allen, Davies, Wells, Ford, Darzi, & Buchan. 2014), in which the authors state that it was very successful in the first phase of the AHSC, during establishment and initial formation of academic clinical programmes. However, they argue that the partnership was not equipped to deal jointly with the subsequent financial challenges faced by the University and the Trust and in this respect a decision was taken on the resignation of the joint Dean/CEO, for Imperial to move towards the more common AHSC model of joint partnership, rather than joint leadership.

The authors believe that this demonstrates that different phases of the partnership development may require different forms of governance and leadership models – during formation joint leadership was key, but in the financial downturn, a different approach was required in order for each organisation to deal with its separate fiscal challenges.

In contrast, a study into the different clinical-academic partnerships in the United States (US) suggests that the 'authority of the Clinical Academic Officer' (p. 116) is a key element of the most successful partnerships, alongside an integrated clinical and academic enterprise (Weiner, Culbertson, Jones, Dickler. 2001).

Therefore, neither the literature nor my participants were able to reach a consensus views as to the most effective form of leadership. The theory of collaborative advantage does not require themes to have a consensus, rather that the themes be highlighted as key areas for the continued delivery of the collaboration, and I would suggest that leadership would fall into this category.

One of my participants referred to the notion of 'distributed leadership' (2:10) and whilst this was not referred to across the interviews, it is included here as it is an idea that finds some support in the academic literature. A US Study (Michener, Cook, Syed, Yonas, Ciyne-Beasley, Aguilar-Gaxiola. 2012), recommends the appointment of 'champions' as an example of a distributed form of leadership, which has a specific meaning in the NHS, of devolved authority being granted to people throughout the organisation, allowing decisions to be made at different levels of that organisation, rather than being passed up the hierarchy before action can be taken.

Currie & Lockett (2011) unpack the concept of 'distributed leadership' in English health and social care settings, and argue that it is increasingly being utilised for initiatives such as the new Clinical Research Fellows that are intended to 'provide clinical leadership to drive reforms' (p.293) and the new networks (CLAHRCs, AHSNs for example) (p.294) that are being created to distribute decision making in a different way.

Collective leadership is similar, but has a stronger cultural leaning towards all individuals within the organisation taking responsibility for decision making, within a cultural context that gives people the confidence to do so. West et al. (2014) 'make the case for collective leadership' in the NHS (p.2) and stress that there is 'a need for clinical leadership at every level' (p.18). They recommend that collective leadership involves a distribution of responsibility, authority, and accountability to every level of the organisation and must therefore be supported by 'all the systems within the organisation' (p.21) such as the HR processes for recruitment, training, and succession planning. However, McKinnon & Mannion (2015) and Kulkari (2014) suggest that the culture amongst clinical academics is individualistic rather than collective.

Sarah Massie (2015) draws on West et al. (2014), and provides advice to all public sector organisations that wish to develop successful leadership and undertake effective succession planning. Massie states that the 'ability to deal with complexity and ambiguity' is particularly important for leaders in healthcare (p.12) and points out that the average tenure for a Chief Executive in the NHS is only two and a half years (p.14) which creates a lack of consistency in leadership, that in turn impedes progress.

This could be seen in both of my case study partnerships; one of the NHS Trusts changed Chief Executives during the two years of the study and both of the Universities had seen a change of Dean within the previous two years. Huxham & Vangen see this constant transition as a problem, saying that 'role or job changes…often mean that the continuity required to maintain the loop is not present' (2000; p. 1171).

Massie also observed that the NHS is 'often described as having a high challenge, low support culture' (p.15) and my study data adds weight to this observation, with my participants suggesting that clinical academics were not nurtured by either the University of the NHS Trust, as illuminated by one participant as,

'Lots of problems with joint appointments – the usual stuff about both organisations wanting 100 percent and the poor person in the middle burning out' (2:5)

The notion of 'leadership' within NHS-University partnerships needs to be addressed at a national level. The continuing binary divide of universities and the NHS leadership at the level of Government, serves to reinforce this important issue, and therefore it needs to addressed at a national level. My study data suggests that the efforts by the NIHR to create more collaborative NHS-University is not having a strong impact on the style and culture of leadership at a local level.

Across my two case study partnerships, leadership emerged as something that the participants were looking to others for. Some of the participants spoke of themselves as leaders in their own organisation, but nobody referred to themselves as leaders of translational clinical research across the NHS and University organisations**.** I recommend that the NHS and University organisations dedicate time to reviewing local models of leadership,

> 'Spend some collective time to review what form of leadership model would work best for the partnership, at that time, including into this consideration some thought as to how behaviours at individual, collective, and organisational levels may need to change in order to support real and sustainable change.' (Recommendation 8).

5.2.6 Theme Two: Communication: Category (5) Communication

My participants expressed a frustration around the challenges that they faced in developing an effective joint vision for translational clinical research in the two case study environments, where language and expectations are different and in which the participants value outcomes in a different way to each other. However, there was

evidence, based upon the personal experiences of some of the participants, that developing a personal relationship can overcome any perceived or actual barriers, '*with the right relationships anything was possible'* felt participant *2:5*.

This confirms the observation of Boivin (2009) that,

> 'It is not uncommon for researchers and clinicians working in the same organisation to have limited conversations and dialogue. Yet when they come together solutions to challenging problems are often enabled by merging unique perspectives and the sharing of knowledge' (Boivin et al. 2009 cited by Davidson, Duffield, Campbell, & Ward (2011).

Kinge (2004) also argues that whilst senior buy-in is crucial, the partnership cannot succeed without the positive engagement of individual practitioners (p. 837) and Fish, Chantler et al. (2013) who argue that trust is more important that a formal partnership arrangement (p.6).

Professor Steve Smith in a piece for the Lancet in 2009 that was written when he was the joint NHS-University leader of Imperial Health Partners, suggested that difficulties of communication would be overcome by the establishment of the new Academic Health Science Centre (AHSC) governance structures. Smith believed that the establishment of an AHSC would transform communication across NHS and University organisations, by achieving a greater understanding of innovation, research, and clinical care, across the partnership,

> 'This integrated model for an Academic Health Science Centre has the potential to bring about transformational change in universities and hospitals**. The NHS will have higher regard for innovation and the contributions of research and development from the university, and in turn universities may come to view the delivery of high-quality care in such a centre as a legitimate academic goal and output**.' (Smith, 2009) p.1057) (emphasis added).

Neither of my case study partnerships operate within an accredited AHSC, and indeed, there is no certainty from the literature that the formation of such governance structures would necessarily aid communication (Ovseiko, Heitmueller, Allen, Davies, Wells, Ford, Darzi & Buchan 2014).

There was evidence within my case study partnerships that communication routes at a senior level had been sufficient to address some high level issues, as evidenced by the two quotes below,

> *'The Trust took our partnership with (NAME) extremely badly, that created a big wedge' (2:9)*

> *'The Director of R&D was also the lead for the Medical School…(but) he worked for the Medical School and for the Trust'. (2:6).*

However, there was a strong acceptance that more needed to be done, at all levels of the partnership,

> *…. At the moment there is a bit of the hospital that is the Medical School behind a locked door with a swipe card and the message is we are researchers and* ***we research behind closed doors. And … I can't get in because my card doesn't work'*** *(2:6) (emphasis added)*

This confirms the views of Martin et al. (2013), Nelson et al. (2013) and Kinge (2004) that effective communication routes, at every level of the collaboration, are required, whilst Malby et al. (2012), Buys & Bursnall (2007) and Macpherson (2012) all argue that early and open communication supported by pro-active leaderships are essential in the early phases of the partnerships with Herald et al. (2012) asserting that proactive communication ' is the lifeblood of an alliance' (p. 154).

Some practical ideas for improving communication were offered by my study participants, including physical co-location where possible. This is not always practical, so there needs to be other ways of bringing people together to talk, collaborate, and build bridges. Regular 'sand-pits' (informal groupings of individuals from across organisations) around themes of interest to clinical academics, and clear routes of communication within and across the partner organisations, could be useful additions to both NHS-University partnerships.

There is a constant need to provide forums and opportunities for communication between individuals from the two organisations, within a culture of mutual respect. This could help to develop a common understanding of the specific challenges faced by the individual organisations, explain some of the drivers behind individual behaviours, and provide an opportunity to establish areas of potential collaboration.

My two recommendations in the area of 'communication' are focussed on the need for NHS-University partnerships to recognise the importance of establishing effective routes for communication within and across partner organisations:

> 'Develop different forums for communication throughout your partnership. These should operate at practitioner level right up to senior management, and should provide the opportunity for open debate and information sharing.' Recommendation (9)
>
> 'Take time to develop a communications strategy and action plan. This needs to make sense to both internal and external stakeholders and should be honest about the need for prioritisation. It should be a dynamic document that is supported by regular workshops, briefing sessions, and other forms of communication'. (Recommendation 10).

5.2.7 Theme Three: Organisations: Categories (6): Building a joint research strategy and (8) Organisational cultures

My study data demonstrated strong links between the two categories relating to building a joint research strategy and the pressures of working within different organisational cultures and I have therefore presented the two together in this analysis section.

My study participants stated that the pressure of NHS workloads were a barrier to research being developed and delivered, within both case study partnerships,

> *'A number of our clinical academics are just run off their feet with clinical work' (1:3)*

> *'this whole thing about releasing people and making time for them to do research is very difficult.' (2:18).*

This confirms the conclusions of Williams, Perillo, & Brown (2014) whose review of 49 articles identified problems of workload as 'the most frequently identified barrier' to the NHS engaging in research and evidence based practice (p.36). A similar observation was made in a study of Primary Care staff in Sweden, who 'emphasised the difficulty finding time for R&D projects during working hours' (Morténius, Baigi, Palm, Fridlund, Björkelund, & Hedberg 2015 p.241). The same problem has been observed and cited within US literature on the subject; Pickering et al. (2015) concluding that clinical-physicians are under 'constant pressure to increase clinical time/revenue' (p. 814).

One of my participants suggested that one of the primary aims of the NHS-University partnership should be aimed at addressing these challenges,

> '*Our partnership should get involved in job planning for clinical academics to allow them protected time for research.' (1:3).*

In attempting to build joint strategies for clinical research, my case study partnerships reported a problem of attempting to integrate different clinical and research objectives, as the two quotes below highlight,

> *'We meet with the University. And it is so difficult because they don't speak the same language' (2:6) (NHS Participant referring to the University)*

> *'If you speak to some of our rheumatologists, the rheumatologists here that are doing research, they are talking about specific problems that patients experience and how you might overcome them; our researchers tend to be taking much more of a longer term aim' (1:3) (University Participant referring to communication problems)*

Therefore, my research confirms the assertion of Huxham & Vangen (2000) that 'differences in professional…language' is one of the key contributory elements that make up collaborative inertia and has the potential to de-rail, or at least significantly slow down, progress towards the overall aims of the partnership (2000; p. 773).

My participants also outlined a sense of frustration with regards to the time it takes to see a benefit from strategies to deliver translational research,

> *'We don't really get esoteric research. We are quite short termist really; all our planning is on an annual cycle, monthly reporting' (2:6)*,

> *'(the University) is not only ambitious it is also very impatient' (2:8)*

However the reality is that 'research rarely produces short-term gains' (Swales 2000 p.1637). In the same article for The Lancet, written as a retrospective opinion piece following three years as the NHS R&D Director, Swales says that the challenge of joined-up thinking is made more difficult by the binary divide between NHS and University performance indicators at Government level,

> '(Health) Ministers' priorities, reasonably enough, are such things as waiting lists for hospital admission and "trolley waits" (the length of time a patient has to wait on a trolley in accident and emergency corridors). Responsibility for the country's scientific strengths lies elsewhere in government' (p.1638)

My participants confirmed that this divide causes a problem at the local level, with one saying that,

> *'What we find is say a clinical academic funded by the Trust, if they actually leave, then the Trust really comes under tremendous pressure to change that into a full-time NHS consultant because they get much more bangs for the buck' (1:3)*

There was also evidence from the participant data that some University academics saw clinically led NHS projects as a threat to their resources, and not being of sufficient quality to merit too much investment,

> *'the expertise of the Clinical Trials Unit (should continue) to be appropriately focussed on large grants…as opposed to resource that becomes sucked into small projects led by clinicians'. (2:7).*

Buys & Bursnall (2007) recognised that a similar perception existed within the Australian higher education system, in the context of community-university partnerships, citing a 'perception that collaborative research may lack rigour' (p. 74). They also observed that, in the context of university-community research partnerships, there was likely to be a mismatch between the expectations of the university and the community organisation as regards the potential outcomes. Drawing on the in-depth data provided by seven academics with experience of developing such partnerships within the Australian higher education system, they recommended that partners spend some time at the outset talking through the goals of the project, so as to develop a joint understanding and agreement for these (p.83).

My participants referred to the difficulties of developing and embedding joint performance measures,

> *'We meet with the University and its so difficult because they don't speak the same language'*

There was evidence in my data that the new policy-led partnerships for translational clinical research have not in themselves managed to improve the issues of dual cultures, languages, and practices, these remaining a barriers to progress in both of my case study partnerships.

This problem, of embedding new working practices, has been researched in different settings. Zakaria (2015) for example, reviewed attempts to embed a set of performance measures and service delivery improvements into a private sector company. They observed that this was only possible via a process of 'cultural change' (p.934), that included a move towards a set of new principles being embedded within the day-to-day operation of the company, including 'face to face meetings' (p.938) between operational and senior managements, with senior managers having an open door policy and delivering against the same set of performance measures, and meetings across different teams and in different locations of the business so as to involve all of the stakeholder groups (p.939).

Although this example is drawn from a different context, my study data suggests that a more inclusive approach to target setting would be worthy of consideration in both of my Case study partnerships. This would require a move away from a hierarchal management model into a more inclusive and collective approach, and can be linked back to the comment by Participant 2.6 that '*people need to sit down and have a cup of tea together'.* It would take more time and collaborative effort in the development phase, but may be more likely to produce a set of metrics that mean something to all parties, and which have a chance of being delivered on the ground.

In terms of embedding different cultures, there have also been a number of studies delivered outside of NHS-University environment that offer useful insights into how strategies for delivery can be embedded within complex organisations. For example, Barker, Ingersoll & Teal (2014) looked at how Corporate Social Responsibility (CSR) could be embedded into wider organisational culture. Defining CSR as the 'expectation that organisations engage in socially and environmentally responsible practices' (p.25), Barker et al. found that local sub-cultures were highly influential and should be factored into any strategy to embed CSR into an organisation's standard delivery models (pp. 29-30). This links back to my previous section, and associated recommendations, around clinical academics which my data suggests are a powerful 'sub-culture' within NHS-University partnerships, with the ability to impede delivery if not properly engaged with.

The challenges of different NHS-University cultures have also been recognised by a 2015 study that reviewed the literature around Health Service-University partnerships in North American and England. It stated that,

> 'Although the role of organisational culture in post-merger integration and inter-organisational collaboration is widely recognised, little empirical evidence exists to help academic and clinical leaders identify differences in culture and resolve cultural issues early in post-merger integration' (Ovseiko et al. 2015; p. 4).

Ovseiko et al. present a series of observations around one partnership in particular, this being the merger of two NHS Trusts and one University, to create the Oxford University Hospitals Trust and these demonstrate the power of cultures and sub-cultures,

> 'A major issue for respondents was to reconcile different priorities in academic and clinical innovation and service delivery' (Ovseiko et al. p. 10).

Partnerships are at the best of times, 'organizations characterised intermittently by both conflict and collaboration' (Strier 2014; p.157), and my two sites demonstrated that cultural differences, the individualistic nature of clinical academics, and problems of miscommunication, do not make the drafting of a joint NHS-University research strategy simple or straight forward. However, participants within both case study partnerships agreed that achieving translational clinical research requires a joint strategic approach that has equal buy-in from both the University and the NHS Trust.

There was evidence within my data of a genuine desire to work across organisational boundaries, and an acceptance of the strengths that the NHS and University had to offer, take for example the participant quote below,

> *'because, you know, the NHS is a fantastic institution…for research purposes it provides a huge opportunity and unless we can embrace that…' (1:4).*

However my data confirms that at a local level, in my two case study partnerships, there is evidence of 'collaborative inertia', caused by a difficulty around defining a 'joint purpose' (Huxham & Vangen 2000; p. 773). Mu study data adds weight to Huxham & Vangen's contention that an inability to negotiate 'joint purpose' is a key factor that may lead to collaborative inertia. My data adds new knowledge to this concept with reference to the new NHS-University partnerships for translational clinical research, demonstrating how difficulties of culture and language are powerful enough to prevent progress being made in my two case study partnerships.

In light of my own data in this area, as well as the relevant literature, I suggest that every effort must be made to have at least a cohesive framework of mutually agreed key priorities within which translational clinical research can be progressed. I recommend that the two partnerships should,

> ‘Take a fresh approach to performance measures. Where this is an opportunity at a local level to define collaborative performance, take this. In cases where national metrics are non-negotiable for one or other organisation, ensure that this is understood across the partnership and embed this into your thinking.’ (Recommendation 11)
>
> ‘Accept that your partnership cannot excel in all areas of translational clinical research. Understand where you have clinical and research excellence and build your strategy around these. Extend this to your training and recruitment programme.’ (Recommendation 12).

My data supports Huxham & Vangen’s argument that there is ‘inherent difficulty’ in specifying collaborative goals (2003; p. 63). Subsequently, they attempt to characterise the complexity of different aims within a partnership by drawing attention to three stratifications that are at play within a partnership, these being collaborative, organisational, and individual aims. They argue that at different times in the partnerships, these aims will change, some shall be explicit and others hidden, and the more partners that are involved in a partnership, then the more ‘tangled the web’ (2009).

However, in the case of my study, the data suggest that there is a general consensus across the two organisations at individual and organisational levels as regards the common aim of the partnerships, with there being common agreement that the aim was to collaborate in order to compete successfully for investment into translational clinical research projects. However, my data indicate that understanding how to measure progress towards this point is a challenge for the participants, and Huxham & Vangen’s stratified approach is useful as a reflective tool in serving to remind collaborators that there are a number of different drivers to collaboration at play at any one time, even within seemingly straight forward and small partnerships. (2009; pp. 93-95).

There was a distinct contrast between my study data and the observations of Huxham & Vangen with regards to 'negotiating purpose' across collaborative partnerships. In this area of their conceptual framework, the authors draw upon their practical experiences of collaborating partners having a number of challenges to overcome in terms of 'hidden agendas' (2005; p. 109), 'disinterested organisations' (p. 111) and organisations that join simply to 'spy' on the progress being made (p. 113).

My data suggests that NHS-University partnerships operate in a different context to this, and therefore the 'negotiating aims' element of the Huxham & Vangen is less useful here than other areas of the framework. Within the two NHS-University partnerships in my study, despite the cultural differences that were evident, there was a general consensus across the organisations as regards the aims of the partnership, it was rather the method of measuring and understanding success that was a challenge.

I suggest that more directly relevant to NHS-University partnerships, is the concept of 'a goals paradox', that Huxham & Vangen introduce in a later (2012) paper. This highlights the complexities that persist when attempting to set goals across different organisational settings (p. 732). My study data confirms that this is a challenge, even when there is a large degree of convergence around the overall, long term aims of the partnership. My data therefore reveals that an acceptance of long term goals is not enough for NHS-University partnerships to collaborate effectively.

I suggest that there are some measures that cut across both Universities and NHS Trusts that could be applied to understand the pace of progress in terms of translational clinical research. These are presented in Table.5.2 below. They are not intended to be a definitive list, but are presented to provide a starting point from which NHS-University partners could commence a discussion regarding joint performance measures for the delivery of translational clinical research**:**

Proposed joint NHS-University performance measures
• Number of Fellowships attracted (early, mid-career, and senior) • NIHR funding attracted, split between the different Programmes; • Engagement, as either a lead or a partner, in a Biomedical Research Centre • Delivery of one or more accredited Clinical Trials Unit within the health eco-system, providing clinical trials services to local investigators • Narrative accounts of research and/or innovation leading to patient benefit, some of which will be worthy of inclusion in a future REF as a research impact case study • A centre of excellence focussed in an area of clinical strength and research expertise, thereby being a genuinely joint exercise • Industry engagement with clinical trials delivered within the health eco-system • Engagement across the spectrum of research such as this pertains to translational clinical research (chemistry, engineering, for example), with at least one joint research project with a non clinical medicine discipline • Development and delivery of a system of shared governance for the support of translational clinical research, comprising such functions as joint costing, contracting and sponsorship arrangements • Provision of regular opportunities for NHS and University staff to meet and discuss ideas – either by the provision of 'satellite offices' within the Hospital and/or via regular forums – to support the development of trusting relationships

Table 5.2: Proposed joint NHS-University performance measures

5.2.8 Theme Three: Organisations: Category (7): Governance and administration

There was a strong feeling amongst my participants that clinical research governance was a barrier to the successful delivery of translational clinical research, and this confirms the views of influential groups such as the Academy of Medicine Science (AMS), which said in 2011 that the 'process of obtaining NHS R&D permissions is the most significant barrier to health research in the UK' (p. 38).

In response to the perceived problems with administrative process, the two partnerships in my study had developed different structures and local policies within the overarching national framework. Case Study One for example had a formal system of committees within which decisions around governance were made, whereas in Case Study Two, the committees were much less powerful and relied more heavily on the local governance teams. Despite the different approaches, participants reported high levels of dissatisfaction about the systems, but seemed unable to improve the systems themselves.

> *'We have one where we had the first approach to ethics and then it was over a year before we could actually start' (1:3)*

The AMS recommended in its 2011 report that the NHS governance systems be centralised systems, to speed up clinical research administration. Government responded by establishing the Health Research Authority (HRA) in the same year, with a mandate to improve systems for clinical research governance.

Subsequently, in 2015, following a period of review and consultation across the NHS, the HRA announced the phased roll-out of a new centralised system for NHS Research & Development approval. At the time of writing, the new HRA system applied only to non-interventional projects, but interventional clinical trials will be brought into the new central system by 'the end of March 2016' (www.hra.nhs.uk accessed 10 October 2015). Hemminki (2015) reviewed and compared the clinical research regulations in four countries, England, USA, Canada and Finland and suggested that, if successful,

the developments promised by the HRA could be replicated by other health systems (p.9).

However, the impact of the new HRA system is as yet untested, and there are some academics in the current literature that strike a note of caution as to whether the potential benefits may have been overstated, such as Van der Laan and Boenink (2015) who argue that a pre-occupation with external factors incorrectly assumes that all of the challenges exist outside the underpinning science, when in reality this may not necessarily be capable of translating into clinical outcomes (pp. 46-49), and Kearney et al. (2014) conclude that the HRA changes should be approached with caution as they may not in themselves speed up the time it takes to recruit patients onto trials. They researched delays to a multi-centre, phase IV trial with over one hundred clinical sites, by logging each delay on a fortnightly basis.

The trial took place after Government policy drivers to include time to trials had been implemented (including the government target of '70 days' to first patient following Site Specific Information (SSI) applications and the NIHR CRN target that NHS Trusts should 'approve valid applications within 30 days' p.2) but concluded just before the HRA announcements of its new single sign off governance system.

Kearney et al.(2014) observed that whilst the external targets demonstrated a reduction in the time to R&D approval, 'from around 40-45 days to 16 days', delays had simply been pushed further down the system so for example NHS sites took a mean of 9.7 months from NHS ethics approval to open, and in some cases there was evidence that R&D Departments were delaying the submission of the SSI in order to meet their 70 day target, whilst not in practice speeding up time to site (p.6).

The three main reasons for delays were, the time taken to negotiate and clarify excess treatment costs with the NHS, the gathering of research team CVs for each site application, and the negotiation around site logistics with different NHS Trusts. It is not clear what impact if any the new HRA system would have in each of these areas, and

therefore it may be the case that the new national systems do not provide all of the solutions.

It is too early for my two case study partnerships to provide an insight into the impact of the new HRA systems, but I suggest that this would be a useful area for some research in the future, given the importance to delivering research that my participants placed upon it.

There is some relevant literature on the subject of merging governance structures and processes. Allen, Ripley, Coe & Clare (2013) found an example in the United States of an organisation that used the approach of 'Plan, Do, Study, Act' drawn from Deming (1986, 1993), to take forward the integration of translational clinical research support services. The case study within Allen et al's work was Virginia Commonwealth University, in the United States. The authors reviewed the approach that was taken by the University to merge the functions provided by two previously separate units of the General Clinical Research Centre and the Clinical Trials Office into a new combined service called the Clinical Research Service.

The University reviewed the services and infrastructures within the two units, and identified the limitations of the approach, including for example, a lack of effective budgeting on clinical trials. They moved towards a new combined unit that delivered '(1) co-ordination and nursing (2) laboratory services (3) research facilities (4) bioinformatics (5) budget development and negotiation' (p.499) under one overall Director. This sounds like a significant move, but Allen et al. do not explain how the decision was communicated taken forward, and received. They also do not document how (and if) services improved as a result of the merger.

In summary, there was a great deal of opinion offered by my participants about clinical research governance systems in their organisations, and this concurs with the views of the wider community, as demonstrated by the Academy for Medical Sciences (2011) report which has led to the development of new, centralised systems. However, there is academic literature in this area that suggests a cautious approach to the potential

benefits of such a system (Kearney et al. (2014) and in any event it is still the case that an element of decision making around clinical trials shall remain with local Trusts.

Given the embryonic nature of the new centralised systems of research governance, it would be a matter for a future research project to understand how and if these are assisting local partnerships to more effectively deliver translational clinical research in collaborative NHS and University settings.

5.3 Practitioner generated themes: Summary

Throughout this analysis I have offered practitioner recommendations, where these have arisen out of the data analysis. These recommendations are based upon my study data and relevant policy and academic literature, which together provide a supportive justification for each recommendation. The entirety of the recommendations are presented here together for ease of reference, and to reflect Huxham & Vangen's approach to the 'top tips' for collaboration:

i. Engage with the regional devolvement agenda in the locality of the NHS-University partnership. Understand what form any potential shared governance structure would take and work to ensure that health and research are considered as part of this.

ii. Create physical and virtual spaces for collaborative thinking across institutions and across scientific disciplines.

iii. Recognise the importance of the clinical academic, and place him/her at the centre of your thinking. Encourage a more collaborative approach to clinical research, commencing in your clinical training programmes.

iv. Challenge cultural understandings of the 'individual clinician' or the 'individual academic' and create incentives for collaboration. Allow people the space to make delegated decisions where it is appropriate to do so

v. Accept that your partnership cannot excel in all areas of translational clinical research. Understand where you have clinical and research excellence and build your strategy around these. Extend this to your training and recruitment programme.

vi. Support the development of a strong pipeline of clinical academics by the development of a matrix and collective approach to mentorship that spans both organisations'

vii. Observe and learn from initiatives such as the Francis Crick Institute, which is attempting to implement adopt and develop a full eco-system approach to translational clinical research. There may be ideas here that could be applied to your local NHS-University partnership.

viii. Spend some collective time to review what would form of leadership model would work best for the partnership, at that time, including into this consideration some thought as to how behaviours at individual, collective, and organisational levels may need to change in order to support real and sustainable change.'

ix. Develop different forums for communication throughout your partnership. These should operate at practitioner level right up to senior management, and should provide the opportunity for open debate and information sharing

x. Take time to develop a communications strategy and action plan. This needs to make sense to both internal and external stakeholders and should be honest about the need for prioritisation. It should be a dynamic document that is supported by regular workshops, briefing sessions, and other forms of communication.

xi. Take a fresh approach to performance measures. Where this is an opportunity at a local level to define collaborative performance, take this. In cases where national metrics are non-negotiable for one or other organisation, ensure that this is understood across the partnership and embed this into your thinking

5.4 Policy generated themes

There were two themes which emerged from the literature review that were either not referred to by my participants, or if referred to, were not seen as significant Staying true to the theory of collaborative advantage, these are presented in this section in light of the fact that policy has an impact on practice.

5.4.1 Definition of translational clinical research

Unlike the literature, which contains within it a level of controversy with regards to the definition of 'translational clinical research', I demonstrated in the preceding chapter that my participants were both relaxed and in broad agreement about it.

The definition that most closely aligns to those offered by the participants can be found in Kenneth & Pienta (2010),

> 'Translational research encompasses the effective movement of new knowledge and discoveries into new approaches for prevention, diagnosis, and treatment of disease' (p. 316)

However, whilst my study data did not reveal any controversy at the level of the local partnerships, the literature demonstrates that it is important for policy makers to actively define translational clinical research as separate to basic science and to continue to directly fund this stage of research.

5.4.2 The impact of 'Research Impact'

'Research impact', for the purposes of my study, is defined within the context of the Research Excellence Framework 2014 (REF). In the REF 2014 '383 impact case studies were submitted' within the Clinical Medicine Unit of Assessment, The outcomes recorded in these case studies included, 'increased life expectancy, (and) reduced morbidity ' (p.10), many of which had been developed out of joint NHS-University projects (REF 2014: Overview report by Main Panel A & Sub-Panels 1-6 p. 26).

Section 2.2 of Chapter 2 (Literature Review) discussed the literature that has developed with regards to research impact in the REF (Grant, Brutscher, Kirk, Butler, & Wooding 2010; Ovseiko, Oancea, & Buchan 2012; Wooding, Hanney, Pollitt, Grant, & Buxton 2014; Kings College London & Digital Science 2015), and the Dowling Review of business-university collaborations, published in 2015, stated that the inclusion of research impact in the REF had influenced a change in academic behaviour,

> 'the inclusion of impact in the REF has helped to stimulate a more positive attitude amongst academics towards collaboration with business' (Dowling Review 2015 p. 4).

I therefore anticipated that 'research impact' would emerge as a category or theme within the participant data. However, the term 'research impact' was not mentioned by any of the participants, despite the fact that both universities within the case study partnerships had recently emerged from submitting research impact case studies into the REF 2014. This appears to be a missed opportunity to collaborate around an area that shall continue to be of great importance to universities – the recent Government Green Paper (2015 p. 72-73) indicated that the percentage of the REF dedicated to research impact is set to increase, therefore having a direct effect on the funding for research received by universities in the future. However, it also raises questions as to the wide applicability of Dowling's view above that the REF 2014 has changed academic behaviours across the sector.

5.5 Research generated theme

The theory of collaborative advantage contains within it the research generated theme of identity (2005; p. 187). Huxham, writing with Beech in 2003, argues that the identity that individuals place on themselves, as well as the identity that others presume for them, influences actions and inter-actions and is therefore of relevance to the navigation of collaborative settings. Beech & Huxham also argue that organisations can also be given an identity, often one which is too broad to adequately define a member of a collaboration, but which is relevant because it has a meaning to the person using it, and also therefore impacts on the way that they interact with the partnership.

This complex picture is summed up by the authors as the 'identity formation melee', (p. 37) and it has some use in the context of my study data, in which a number of identities were revealed. I observed the following identities within my study data, the clinical academic (my participants had their own views on this identity, and views are also offered in policy and academic literature), the governance administrator (widely recognised in my study data and the literature as individuals that are working within a system that is impeding research), the NHS (applying this as an identity within the partnership is something that Beech and would term a 'phantom' concept if it were not adequately defined by the individual and therefore not used in a way that others totally grasp in terms of the meaning of it and the identity it construes; p. 47), and the University (another potential 'phantom' concept).

Huxham & Beech advise that having awareness within the partnership of these different perceptions of identity, helps partners to understand actions and interactions and thereby is an important part of learning to collaborate. My study data suggests that there is an understanding and acceptance across the NHS and University partners of the different goals of the two organisations, but some space in which they could consider their conceptualisation of identities would be a useful process.

5.6 Conclusion to chapter 5.

This chapter has drawn upon my study data outlined in Chapter Four, analysing these data alongside an examination of relevant policy and academic literature. This has supported a detailed investigation of the issues outlined by my participants in the areas of regional devolvement, physical proximity, government funding and policies, clinical academics, leadership, communication, joint research strategy, organisational cultures, and governance. In each of these areas I have offered recommendations for future practice, these being based upon the dual analysis of participant data and related literature.

I also analysed my data with respect to the policy generated themes of the definition of translational clinical research and non-academic research impact, highlighting the differences between my data and the literature in both areas, and finally, the research generated theme of identify is found to have a relevance to both my case study partnerships, that contain within them the identities of the clinical academic, the governance administrator, the NHS and the University.

In the next Chapter I apply what I have learnt to the central research question, as well as offering my reflective remarks, outlining the limitations of the study, and suggesting future potential research into the subject area.

Chapter 6. Conclusion and Reflections

6.1 Bringing New Knowledge to the Research Question:

My study brought new knowledge to the question,

> 'How can NHS-University Partnerships collaborate to deliver translational clinical research?'

It did so by analysing the local responses to the evolving policy environment, through the lens of two NHS-University partnerships, assessing practitioner, research, and policy generated data with reference to Huxham & Vangen's theory of collaborative advantage.

The environment within which the two case study partnerships operate comprises macro level national policies, meso level organisational challenges, and micro characteristics determined by key individual stakeholders, as demonstrated in Figure 5.1 below.

Figure 6: 1 Macro, Meso, and Micro elements of my two case study partnerships

My documentary analysis of the macro level policy environment demonstrated that Government's intention was to create an environment in which organisations and individuals could collaborate more effectively to deliver successful translational clinical research. However, my participant data demonstrated that there are a number of factors which impeding the ability of both partnerships to achieve this**.** These data are particularly relevant to NHS-University partnerships that operate outside the 'Golden Triangle' of highly successful collaborations that exist in London and the SouthEast.

There is a deal of literature that has developed around Academic Health Science Centres (Weiner et al. 2001; Ferris et al. 2004; Currie & Suhomlinova 2006; Grainger 2010; Michener et al. 2012; French et al. 2014), Collaborations for Leadership in Applied Health Research Centres (Currie et al. 2013; Davies et al. 2015;) and other educational and research based collaborations (Long et al. 2014; Schwartz et al. 2015; Rajasekhar et al. 2014). However, these are focussed either on international examples of health partnerships, or more formalised partnerships in the UK context.

My study brings new knowledge to this body of work by focussing specifically on two partnerships operating outside of the Golden Triangle, that are not formally constituted AHSCs or CLAHRCs. Both of the case study partnerships were formed in an attempt to increase the likelihood of securing funding for translational clinical research, and there shall be other such arrangements that are being created elsewhere in the country for the same reason.

Understanding the specific challenges faced by such partnerships is important, and my study brings new knowledge to the area by providing an increased understanding into the particular challenge that are faced, as perceived by the clinical academics that are operating within these new forms of partnership.

The data revealed a strong feeling amongst the participants that the national and international shortage of clinical academics (Cooksey 2006; Pickering et al. 2015) is a particular challenge for collaborations operating outside of the Golden Triangle. Whilst there was evidence that there are strategies to address this at a local level, I suggest

that this is an area in which national and local policy makers and leaders should come together to develop a longer term approach that is geared towards not simply increasing the numbers of clinical academics, but also at ensuring there are sufficient numbers of appropriately qualified people based in the localities that need them. This would require a move away from the present clustering of clinical academics in defined geographic areas.

A regionalised approach to addressing this problem was suggested by the participants, and this has support from the wider policy literature that exists around the broader concept of regional devolution in England (Summer Budget 2015). Linked to this notion of regionalism was evidence of what Huxham & Vangen would term 'collaborative inertia' (2003; p. 62), rooted in a frustration around the difficulties faced by local partnerships trying to work within a national policy system which, in terms of the funding data at least, appears to be best suited to the Golden Triangle partnerships (UK Clinical Research Collaboration 2015).

However, my results offer a different view to Huxham & Vangen's 'inertia', which is based around their concept of 'partnership fatigue' (2004; 195). In contrast, the inertia in my study was created by what I have termed 'initiative fatigue'. This data is specifically relevant to partnerships operating outside of the Golden Triangle in that it demonstrates the frustrations that were expressed around the need for the two local partnerships to comply with a plethora of national initiatives, some of which were deemed to be unnecessary and unhelpful.

My participants did not agree on the issue of physical proximity and whether this was necessary for the building of NHS-University research projects, a diversity of views that is not unusual within partnerships (Huxham & Vangen 2005), but presenting a more complex picture than is presented in the literature around co-location of researchers which is largely in agreement that this is a positive thing that support joined-up working (Dzau et al. 2013; Cremades et al. 2014; Long et al. 2014).

Leadership was a key factor raised by all of my participants, a result which is in stark contrast to the experiences of Huxham & Vangen who have remarked that 'practitioners seldom' refer to it (2000; p. 1172). Whilst leadership was raised as a key component in the success of my case partnerships, my study data demonstrated a lack of clarity as to what the best model might be, and this adds to the existing body of literature in which there is little agreement as regards the most suitable type of leadership for NHS-University partnerships (Ovseiko et al. 2010; Weiner et al. 2001; Michener et al. 2012).

Huxham & Vangen 2000; and Adams et al. 2015) argue that the difficulties faced in negotiating and agreeing joint performance measures can derail a partnership, and my study brought new, detailed knowledge to this in the specific area of NHS-University partnerships operating outside of London and the SouthEast. My participant data demonstrated how the different NHS and University cultures can be a significant barrier to progressing the overall aims of the partnership, and I therefore suggested a suite of performance measures that could be used by NHS and University partners in the future. This is an attempt to address what Huxham & Vangen term the 'goals paradox' (Huxham & Vangen 2012).

6.2 Potential future research

In the 'methodology' chapter, I outlined the Huxham & Vangen framework for collaborative advantage alongside the concept of absorptive capacity (Cohen & Levinthal 1989) and explained that I had selected the former due to its practitioner focussed approach to understanding collaboration in partnership settings. I also argued that there was a lack of clarity around the specific external factors that NHS-University partnerships need to absorb to deliver translational clinical research.

Subsequently my data suggested that these factors include regional devolvement, physical proximity, government funding and policies, clinical academics, leadership, communication, joint research strategy, organisational cultures, and governance. Future research could test the two partnerships' absorptive capacity with specific

reference to one or a combination of these factors, following the example in the literature around absorptive capacity which has recently been applied to the knowledge and higher education sector (Belderbos et al. 2016; Denicolia et al. 2016). For example, one of the findings of my study was the need to develop a new culture of joint working in order to attract higher levels of clinical academics to the partnerships. A future research project could investigate the absorptive capacity of my case study organisations with regards to their ability to assimilate new models of working, making recommendations, if possible, that could be transferred into practice.

Huxham & Vangen's theory of collaborative advantage would also be a suitable framework within which to bring further in-depth analysis to any one of the factors that emerged as important from my research data. The framework assisted me to understand the nuances between practitioner, research, and policy generated themes of collaboration within the context of NHS-University partnerships for translational clinical research. As I have outlined above, by viewing the two case studies through this theoretical lens, I was able to frame my research project such that the data revealed new knowledge, whilst also supporting a series of practitioner focussed recommendations for future actions.

My pre-research hypothesis was that the new national policy environment was not sufficient to support effective translational clinical research across the country, and my study has confirmed that whilst progress is being made, there is more to be done.

I anticipate that the new phenomena of NHS-University partnerships will be the subject of further academic research. My own study raises some theories that are worthy of future investigation. A number of future research projects naturally arise from my study data, including more investigation into possible regionalised approach to NHS-University management, leadership and delivery, and into the different cultures that are required, at both organisational and individual level, for partnerships to succeed in the new environment.

Currie et al. (2013) have suggested that a new form of leadership, one which can span organisational boundaries, is required to support NHS-University partnerships, but there remains a knowledge gap around the way in which individual clinical academics could participate to partnerships, as leaders and champions. My data revealed a lack of collaborative leadership at the level of senior clinical academics, and therefore further research to understand the factors, cultural, organisational, individual, that influence this, would be useful.

6.3 Study Limitations

My study refers to a small qualitative data set and is limited in that respect, although I believe that is does bring a new perspective that can be tested in other local constructs.

Sandelowski (1986) made the point that a small sample size can provide in depth data, as demonstrated in the example of Cremades et al. (2014) who interviewed eight participants in a successful Research Institute in Spain to explore issues of management culture with regards to the successful translation of research from 'medical research to clinical practice and to the productive sector' (p.380). They accepted that the single case study approach would not produce generalizable results but argued that their research added useful thinking to the area by virtue of being an 'in-depth study of a phenomena in a particular context' (p.382). My research builds on this approach; although the number of participants was small, the data that I collected was meaningful and provided new insights into the delivery of translational clinical research within the two case study partnerships, and moving on knowledge in this area of NHS-University collaboration more broadly, by presenting a series of common themes from the data set.

My own practitioner perspectives must also be recognised, and I have been clear about this throughout. My interpretive approach allowed me to embed my own subjectivity within the research method, though I was careful to reduce bias. Nonetheless, I am aware that there are elements of both case study partnerships that I

may not have been aware of as an outsider researcher and these also serve as a potentially limiting factor.

I was careful to minimise the risk that my interview questions were overly influenced by my pre-existing knowledge, and status as a practitioner-researcher, with some links to both case study sites. I was fortunate to have been able to enlist a community of critical friends, on which to trial my questions, an invaluable process that allowed me to refine the format before commencing the formal interviews. This also allowed me to spot any overly subjective questions. I was careful to select as participants those individuals that I had not worked closely with – the small sample size made this possible. On balance, the benefits of being a practitioner researcher outweighed the challenges, but it remains the case that my study must be viewed with the knowledge that I had a professional interest into the area.

6.4 Concluding remarks

I came to the end of my research enlightened both by the literature that I accessed, and the data that I collected and analysed. It is apparent from my qualitative study that the new phenomena of NHS-University partnerships, created as a result of a national policy framework, are not easy things to define, work within. Nor do they fit comfortably within wider, overarching structures, each being unique to their own local context.

One of my study participants encapsulated the challenge as one in which we are *'trying to find solutions to the problems we created over the last 20 years' (1:3)*.

My study demonstrates that this journey towards a new approach for the delivery of translational clinical research has begun. Where it leads us will be influenced by actions at a national, local, and organisational level. The interplay between these shall be crucial to the way in which policy intentions are translated into the delivery of clinical research by our hospitals and universities.

Appendix A: Ethical approval form

Dear Catherine

I am pleased to inform you that the Virtual Programme Research Ethics Committee (VPREC) has approved your application for ethical approval for your study. Details and conditions of the approval can be found below.

Sub-Committee:	EdD. Virtual Programme Research Ethics Committee (VPREC)
Review type:	Expedited
PI:	
School:	Lifelong Learning
Title:	
First Reviewer:	Dr. Peter Kahn
Second Reviewer:	Dr. Lucilla Crosta
Other members of the Committee	Dr. Baaska Anderson; Dr. Ewan Dow and Kathleen Kelm

Date of Approval: 18th December 2013

The application was APPROVED subject to the following conditions:

Conditions

1	Mandatory	M: All serious adverse events must be reported to the VPREC within 24 hours of their occurrence, via the EdD Thesis Primary Supervisor.

This approval applies for the duration of the research. If it is proposed to extend the duration of the study as specified in the application form, the Sub-Committee should be notified. If it is proposed to make an amendment to the research, you should notify the Sub-Committee by following the Notice of Amendment procedure outlined at http://www.liv.ac.uk/media/livacuk/researchethics/notice%20of%20amendment.doc.

Where your research includes elements that are not conducted in the UK, approval to proceed is further conditional upon a thorough risk assessment of the site and local permission to carry out the research, including, where such a body exists, local research ethics committee approval. No documentation of local permission is required (a) if the researcher will simply be asking organizations to distribute research invitations on the researcher's behalf, or (b) if the researcher is using only public means to identify/contact participants. When medical, educational, or business records are analysed or used to identify potential research participants, the site needs to explicitly approve access to data for research purposes (even if the researcher normally has access to that data to perform his or her job).

Please note that the approval to proceed depends also on research proposal approval.

Kind regards,

Morag Gray

Chair, EdD. VPREC

Appendix B: Participant information sheet

Research Study

How can NHS-University Partnerships collaborate to deliver translational clinical research? A comparative case study of local responses to the evolving external policy environment

You are being invited to participate in a research study; before you make a decision about this, it is important that you understand why the research is being done and what participation will involve. This information is presented in this Participant Information Sheet. Please read it carefully and let me know if you require further information.

I must stress that you do not have to accept this invitation, and should only agree to participate in the study if you wish to do so.

Thank you.

1. Purpose of the study

Since the establishment of the NIHR in 2006, there has been a succession of Policy and Funding initiatives that have aimed to improve the clinical research environment. But how have these translated in practice, within University-NHS partnerships operating in different local contexts?

This research study aims to bring new knowledge to that question, by exploring the opportunities and barriers that exist within two anonymized University-NHS partnerships, and the ways in which these might be addressed at national and local levels.

2. My Role

I am undertaking this Study as a Student on the University of Liverpool's EdD Programme.

3. Why you have been chosen to take part

The study involves the interviewing of twelve individuals, all of whom have experience of delivering and/or supporting NHS-University clinical trials.

You do not have to take part in the study; participation is entirely voluntary, and, even if you do agree to participate, you may withdraw at any time without explanation.

4. What happens if you do take part?

Participants in the study will be invited to attend an interview with me. This will take place in a suitable location of your choice and will take around thirty minutes. The interview will be semi-structured, with all interviewees being asked the same question. The session, with your permission, will be tape recorded and transcribed by me. A copy of the transcript will be provided to you after the interview and you will have the opportunity to make any corrections that you think are required. The digital recording will be stored, identified by interview number, in a secure password protected file area on the University server. Your identity will be removed from the transcript, and the table giving the link between your identity and the data file will be stored in a

separate secure file area on the University server. All subsequent analysis will be performed on the anonymized transcript. Following the completion of all twelve interviews, a thematic analysis of the responses will be undertaken.

5. Expenses / payments

Expenses or payments are not offered to participants in this study.

6. Are there any risks in taking part?

There are no risks associated with participation in the study.

7. Are there any benefits in taking part?

The research is applied in nature and will bring new knowledge to the local delivery of clinical trials, this being relevant to your own professional area.

8. Will my participation be kept confidential?

Your interview will be recorded and stored digitally on a password-protected secure file area within the University computer system. The local copy of the recording will be destroyed as soon as the interview is transcribed, but the copy on the University file server will be retained for a period of up to ten years. Your name will not appear on the recording, which will be identified only by interview number.

The anonymised transcript will be sent to you for annotation and editing, and stored in a separate central file on the University server. A thematic analysis of the interviews will be undertaken, using written notes and mind-mapping software. Notebooks will be stored in a secure locked cabinet during the duration of the research and destroyed thereafter.

9. Publication

The Study is undertaken as part of an own-funded EdD with the University of Liverpool. Subject to the Thesis meeting the required standards, it will be available through the British Library. Other publications will include articles for peer-reviewed journals, which will not contain any identifying features.

Results from the Study will also be shared with the Participants in separate briefings, unless people do not wish to do so.

10. What if I am unhappy or if there is a problem?

The University has a complaints procedure that is open to you should you be unhappy about any element of the Study. Should this be the case, please contact Professor Morag Gray morag.gray@online.liverpool.ac.uk who will try to assist you. Should you remain unhappy, please contact the Research participant advocate liverpoolethics@ohecampus.com providing the name or description of the study, the researcher(s) involved, and the details of the complaint you wish to make.

11. Contacts

Student: Catherine Anne Cochrane (catherine.cochrane@online.liverpool.ac.uk)
Principal Investigator: Professor Morag Gray (morag.gray@online.liverpool.ac.uk)

Appendix C: Interview Schedule

- What is the vision for translational clinical research in the University and the Trust?
- How well understood is this vision (with clinical academics with non-clinical academics)?
- Is it focused on particular groups or themes at the moment – why is that?
- What have the NHS and University done to engage with each other at senior and operational levels?
- What do you think are the main opportunities for the University/NHS Trust in terms of engagement with the local NHS trust(s)?
- How should the organisations manage these?
- What do you think are the main challenges for the University/NHS Trust in terms of engagement with the local NHS Trust(s) and how should the University manage these?

Word Count

Word count with appendices: 48,757

Word count without appendices: 47,502

References

Academy for Medical Sciences (2011). *Biomedical research-a platform for increasing the health and wealth in the UK*. Retreived from www.acmedsci.ac.uk.

Academy for Medical Sciences (2011). *A new pathway for the regulation and governance of research*. Retreived from www.acmedsci.ac.uk.

Adams, M., Caffrey, L., & McKevitt, C. (2015). Barriers and opportunities for enhancing patient recruitment and retention in clinical research: findings from an interview study in an NHS academic health science centre. *Health Research Policy & Systems*, *13*(8), 1-9.

Ahlin, B., Drnovsek, Hisrich, R.D. (2014). Exploring the moderating effects of absorptive capacity on the relationship between social networks and innovation. *Journal for East European Management Studies. 19*(2) 213-235.

Ahmed, F., Ahmed, N., Ellis, H., Parry, E., & Catto, C. (2015). NHS junior doctor contract proposal: risks and prejudicies. *The Lancet*, *386*(10003), e.20.

Alderwick, H., Robertson, R., Appleby, J., Dunn. P., & Maguire, D. (2015). *Better value in the NHS: The role of changes in clinical practice*. The Kings Fund. Retreived from www.kingsfund.org.uk

Allen, D., Ripley, E., Coe, A., & Clore, J. (2013). Reorganizing the General Clinical Research Center to Improve the Clinical and Translational Research Enterprise. *Evaluation & the Health Professions*, *36*(4), 429–504.

Anfara, V.A. Jnr, & Merts, N.T. (Eds) (2nd Edition). (2015). *Theoretical Frameworks in Qualitative Research.* Sage Publications.

Aribi, A., & Dupouet, O. (2015). The role of organizational and social capital in the firm's absorptive capacity. *Journal of Management 19*(5) 987-1006.

Aronson, J. K. (2011). How to attract retain and nuture young academic clincians. *Journal of the Royal Society of Medicine*, *104*, 6–11.

Auerbach, C.F., & Silverstein, L, B. (2003). *Qualitative Data: An introduction to coding and analysis*. New York University Press: NY, USA.

Backmann, J., Hoegl, M., & Cordery, J.L. (2015). Soaking it up: Absorptive capacity in interorganizational new product development teams. *Journal of the Product Innovagtion Management 32*(6) 861-877

Baker, S.E., & Edwards, R. (2012). How many qualitative interviews is enough? Expert voices and early career reflections on sampling and cases in qualitative research [review paper]. National Center for Research Methods. Retrieved from

http://eprints.ncrm.ac.uk/2273/4/how_many_interviews.pdf

Barker, B., Ingersoll, L., & Teal, G. (2014). Understanding CSR culture and subcultures: Consensual and conflicting narratives. *International Journal of Employment Studies*, *22*(2), 25–48.

Beech, N., & Huxham, C. (2003). Cycles of identity formation in interorganizational collaborations. *International Studies of Management and Organisation. 33*(3). 28-52.

Belderbos, r., Gilsing, V.A., & Suzuki, S. (2016). Direct and mediated ties to universities: 'Scientific' absorptive capacity and innovation performance of pharmaceutical firms. *Strategic Organization. 14*(1) 32-52.

Bell, J. (2007). *Inaugural presentation to the OSCHR*. Retrieved from www.acmedsci.ac.uk.

Bell, J. (2010). *Doing your research project* (Fifth ed). Open University Press.

Boardman, C., & Bozeman, B. (2007). Role Strain in University Research Centers. *The Journal of Higher Education*, *78*(4), 430–453.

Boaz, A., Despina, B. & McKevitt, C. (2014). Rethinking the relationship between science and society: Has there been a shift in attitudes to patient and public involvement and public engagement in science in the United Kingdom? *Health Expectations*, 1–10.

Briones, M. (2013). *Navigating the UCLA CTSI*. Retrieved from http://www.ctsi.ucla.edu/education/files/view/docs/CTSI_ResearchWkshop051013.pd

Bryman, A. (2012). *Social research methods* (4th ed). Oxford University Press Inc. New York.

Burns, R. B. (2000). *Introduction to Research Methods* (4th ed). London: Sage Publications.

Buys, N., & Bursnall, S. (2007). Establishing university–community partnerships: Processes and benefits. *Joirnal of Higher Education & Policy Management*, *29*(1), 73–86.

Byington, Keenan, Phillips, Childs, Wachs, Berzins, Clark, Torres, Abramson, L. & C. (2015). A Matrix Mentoring Model That Effectively Supports Clinical and Translational Scientists and Increases Inclusion in Biomedical Research: Lessons From the University of Utah. *Association of American Medical Colleges*. *91*(4), 497-502.

Carcary, M. (2011). Evidence analysis using CAQDAS: Insights from a Qualitative

Researcher. *Electronic Journal of Business Research Methods*, *9*(1), 10–24.

Carey, R.M., Wheby, M.S., & Reynolds. R.E. (1993). Evaluating faculty clinical excellence in the academic health sciences center. *Academic Medicine: Journal Of The Association Of American Medical Colleges*, *68*(11), 813–817.

Chief Scientist Office (n.d.) *OSCHR.* Retrieved from www.cso.scot.nhs.uk/funding-2/office-for-strategic-coordination-of-health-research-oschr/.

Centre for Cities (n.d.) TITLE Retrieved from

Cooksey, D. (2006). *A review of UK health research funding*. Retreived from www.gov.uk.

Cremades, E., Baulbastre-Benavent, F., & Dominguez, E. S. (2014). Managerial practices driving knowledge creation, learning and transfer in translational research: an exploratory case study. *R&D Management*, *45*(4), 361–385.

Creswell, J. W. (2009) *Research design: Qualitative, quantitative and mixed methods approaches*. Thousand Oaks, CA: Sage.

Currie, G., & L. A. (2011). Distributing leadership in health and social care: Concertive, conjoint or collective? *International Journal of Management Reviews*, *13*, 286–300.

Currie, G., & Suhomlinova, O. (2006). The impact of institutional forces upon knowledge sharing in the UK NHS: The triumph of professional power and the inconsistency of policy. *Public Administration*, *84*(1), 1–30.

D'Amour, D., Ferrada-Videla, M., Rodriguez, S, S, & Beaulieu, M-D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care. (1)* 116-131.

Daly, J. Davidson, P.M., Duffield, C., Campbell, T., & Ward, R. (2011). Interdisciplinary, cross- institutional collaborations: The Academic Health Sciences Centre as a key to addressing complex health problems and advancing research-based health care. *Collegian*, *18*(1), 1–2.

Darzi, A. (2008). *High quality care for all: NHS next stage review final report*. Department of Health. Retreived from www.gov.uk.

Davies, H.T.O., Powell A.E., Nutley, S.M. (2015). Mobilising knowledge to improve UK health care: learning from other countries and other sectors – a multimethod mapping study. In *Health Services & Delivery Research*, *3*(2). NIHR Journals Library.

Davies, S.M., & Bennet, A. (2008). Understanding the economic and social effects of academic clinical partnerships. *Academic Medicine*, *83*(6), 535–540.

Dean, A., Wykes, M.m & Stevens, H. (2013) *7 Essays on impact; DESCRIBE project report for JISC.* University of Exeter.

Delaney, B. (2010). Academic health science centres: An opportunity to improve services, teaching and research. *British Journal of General Practice*, *60*(579), pp. 719–720.

Dembe, A. E., Lynch, M.S., Gugiu, P.C., & Jackson, R. D. (2014). The translational research impact scale: Development, construct validity, and reliability testing. *Evaluation & the Health Professions*, *37*(1).

Denicolai, S., Ramirez, M., & Tidd J. (2016). Overcomng the false dichotomy between internal R&D and external knowledge acquisition: Absorptive capacity dynamics over time. *Technological Forecasting & Social Change. 104.* 57-65.

Department for Business Innovation & Skills. (2011). *Innovation and Research Strategy for Growth*. Retreived from www.gov.uk.

Department for Business Innovation & Skills. (2011). *Strategy for UK Life Sciences.* Retreived from www.gov.uk.

Department for Business Innovation & Skills. (2012). *The New UK Life Sciences Prospectus*. Retreived from www.gov.uk.

Department for Business Innovation & Skills (2012). *A Strategy for UK Life Sciences: One year on*. Retreived from www.gov.uk.

Department for Business Innovation & Skills. (2015). *Fulfilling our potential: Teaching excellence, social mobility & student choice.* Retreived from www.gov.uk.

Department of Health. (2005). *Research governance framework for health and social care.* (2nd ed). Author.

Department of Health (2006). *Best research for best health: A new national health research strategy.* Retrieved from www.gov.uk.

Department of Health. (2011). *Innovation health and wealth: Accelerating adoption and diffusion in the NHS*. Retreived from www.gov.uk/dh.

Department for Trade & Industry. (2003). *Improving national health: Improving national wealth.*

Dey, I. (2004). Grouded Theory. In Seale, C., Gobo, G., Gubrium F.F., Silverman, D. (Eds.)*, Qualitative research practice* (pp. 80–93). London: Sage Publications.

Dowling, A. (2015). *The Dowling Review of Business-University Research Collaborations*. Retrevied from www.gov.uk/bis.

Drolet, B.C., & Lorenzi, N. (2011). Translational research: understanding the continuum from bench to bedside. *Translational Research*, *157*(1), 5.

Duchek, S. (2015). Enhancing absorptive capacity for innovation and change: The role of structural determinants. *Journal of CHange Management 15*(2) 142-160.

Duchek, S. (2015). Designing absorptive capacity? An analysis of knowledge absorption practices in German high-tech firms. *International Journal of Innovation Management 19*(4) 1-22.

Dzau V.J., Yoediono Z., Ellaissi W.F., Choa, A. (2013). Fostering innovation in medicine and health care: what must academic health centers do? *Academic Medicine*, *88*(10), 1424–1429.

Dzau, V. J., Ackerly, D.C., Sutton-Wallace, P., Merson, M.H., Sanders Williams, R., Ranga Frishan, R., Taber, R. C., & Califf. R, M. (2010). The role of academic health science systems in the transformation of medicine. *The Lancet*, 375 *(9718),* 949–953.

Fernhaber, S.A, & Patel. P.C. (2012). How do young firms manage product portfolio complexity. The role of absorptive capacity and ambidexterity. *Strategic Management Journal. 33.* 1516-1539.

Ferris, L. E., Singer, P. A., & Naylor, C. D. (2004). Better governance in academic health sciences centres: moving beyond the Olivieri/Apotex Affair in Toronto. *Journal of Medical Ethics*, *30*(1), 25–29.

Fish D., Chantler C., Kakkar A.K., Trembath R., & Tooke J. (2013). Partnership model for academic health science systems to address the continuum from discovery to care, at scale. In Alving B., Dai K., Chan S.H.H. (Eds.), *Translational medicine – what, why and how: an international perspective. Volume 3.* (pp. 6–17).

Fletcher, I. P. (2009). *Power & politics in academy land: A case study of 2 NHS/HEI learning academies*. (Unpublished doctoral thesis). University of West England.

Flyvbjerg, B. (2006). FIve misunderstandings about case study research. *Qualitative Inquiry. 12* (2) 219-245.

French, C.E, Ferlie E., & Fulop, N, J. (2014). The international spread of Academic Health Science Centres: A scoping review and the case of policy transfer to England. *Health Policy*, *117*(13), 382–391.

Glaser, B.G. (2016). The groudned theory perspective: Its origins and growth. *Grounded Theory Review. 15(*

Glover, M., Buxton, M., Guthrie, S., Hanney, S., Pollitt, A., & Grant, J. (2014).

Estimating the returns to UK publicly funded cancer-related research in terms of the net value of health outcomes. *BMC Medicine*, *12*(99).

Grainger, A. (2010). Will working in an academic health science centre enhance nursing/midwifery research capacity and capability? *Journal of Research Nursing* , *15*(3), 229–241.

Grant J., Brutscher P-B., Kirk S.E., Butler L., & Wooding S. (2015). *Capturing Research Impacts: A Review of International Practice.* HEFCE.

Hancock, B., Ockleford, E., & Windridge, K. (2007). An introduction to qualitative research. *The NIHR Research Design Service.*

Hanney S.R., Castle-Clarke S., Grant J., Guthrie S., Henshall C., Mestre-Ferrandiz J., Pistollato M., Pollitt A., Sussex J., & Wooding S. (2015). How long does biomedical research take? Studying the time taken between biomedical and health research and its translation into products, policy, and practice. *Health Research Policy & Systems*, *13*(1). Retreived from www.health-policy-systems.biomedcentral.com/articles/10.1186/1478-4505-13-1.

Hanney, S., Mugford, M., Grant, J., & Buxton, M. (2004). Assessing the benefits of health research: lessons from research into the use of antenatal corticosteroids for the prevention of neonatal respiratory distress syndrome. *Social Science & Medicine*, *60*(5), 937–947.

Harvey, W.S. (2006). Strategies for conducting interviews elite interviews. *Qualitative Research, 11*(4). 431-441.

Health Research Authority (2011). *Annoucement of establishment.* Retrieved from www.hra.nhs.uk.

Hearld, L.R., Jeffrey, A.A., Beich, J., Mittler, J.N., & O'Hora, J. L. (2012). Barriers and strategies to align stakeholders in healthcare alliances. *The American Journal of Managed Care*, *18*(6), 148–155.

HEFCE (n.d.). *How we fund research.* Retrieved from www.hefce.ac.uk/rsrch/funding/mainstream

Hemminki, E. (2015). Actors involved in the regulation of clinical research: comparison of Finland to England, Canada, and the USA. *Health Research Policy & Systems*, *13*(20). 1-12.

HM Treasury. (2015) *Spending Review and Autumn Statement.* Retrieved from www.gov.uk.

Horton, R. (2015). Medical leadership: from inspection to inspiration. *The Lancet*, *386*(9989), 120.

Huxham, C., & Vangen S. (2000). Leadership in the shaping and implementation of

collaboration agendas: How things happen in a (not quite) joined-up world. *Academy of Management Journal, 43*(6), 1159-1175

Huxham, C., & Vangen S. (2003). Enacting leadership for collaborative advantage: Dilemmas of ideology and pragmatism in the activities of partnership managers. *British Journal of Management, (14),* 61-76*.*

Huxham, C., & Vangen S. (2004). Doing things collaboratively: Realizing the advantage or succumbing to inertia? *Organizational Dynamics; 33*(2). 190-121.

Huxham, C., & Vangen S. (2004). The tangled web: Unraveling the principle of common goals in collaboration. *Journal of Public Administration Research and Theory; 22*(4). 731-760.

Huxham, C., & Vangen S. (2005). Ambiguity, complexity and dynamics in the membership of collaboration. *Human RElations. 53*(6). 771-806.

Huxham, C., & Vangen S. (2005). *Managing to collaborate: The theory and practice of collaborative advantage.* Routledge: Oxon.

Huxham, C., & Vangen S. (2006). *Achieving collaborative advantage: Understanding the challenges and making it happen.*

Ingleby, E. (2012). [Review of the book *Research Methods in Education, 7th ed.* by Cohen, C., Manion, L., & Morrison, K.]. *Professional Development in Education 38*(3) 507-509.

Kinge, K. (2014). Testing times: the development and sustainability of partnership relationship. *International Journal of Human Resource Management*, *35*(6), 852–878.

King, N., & Horrocks, C. (2010). *Interviews in qualitative research.* Sage Publications Ltd.

Kearney, A., McKay, A., Hickey, H., Balabanova, S., Marson, A.G., Gamble, C., & Williamson, P. (2014). Opening research sites in multicentre clinical trials within the UK: a detailed analysis of delays. *British Medical Journal Open*, *4*(9).

Kenneth, J. & Pienta, M. D. (2010). Successfully accelerating translational research at an academic medical center: The University of Michigan-Coulter translational research partnership program. *Clinical & Translational Science*, *3*(6), 316–318.

Kings College London and Digital Science. (2015). *The nature, scale & beneficiaries of research impact: An analysis of the Research Excellence Framework (REF) 2014 impact case studies*. Author. Retrieved from www.hefce.ac.uk.

Kulkarni, K. (2014). NHS leaders note: organisational culture is key. *British Medical Journal*, *349,* 4814.

Ladkin, D. (2004). Action Research. In Seale, C., Gobo, G., Gubrium F.F., Silverman, D. (Eds.)*, Qualitative research practice* (pp. 80–93). London: Sage Publications.

Local Government Association (2015). *Annoucement of public health transfer from NHS to Local Authorities*. Retrieved from www.local.gov.uk.

Long, J., Cunningham, F.C., Carswell, P., & Braithwaite, J. (2013). Who are the key players in a new translational research network? *Biomed Central Health Services Research*, *13*(338), 1–11.

Long, J.C., Cunningham, F.C., Carswell, P., & Braithwaite, J. (2014). Patterns of collaboration in complex networks: the example of a translational research network. *BMC Health Services Research*, *14*(225).

McCutcheon, D.M., & Meredith, J.R. (1993). Conducting case study research in operational management. *Journal of Operations Management 11*(3) 239-256.

Macpherson, R. (2013). Evaluating three school-based integrated health centres established by a partnership in Cornwall to inform future provision and practice. *International Journal of Educational Management, 27*(5), 470–504.

Malby, B., Edwards, G., & McKenzie, D. . (2012). Shared leadership: Taking the first steps towards shared responsibility. *The Health Service Journal*, *122*.

Martin, G.P., McNicol,S., Chew, S. (2013). Towards a new paradigm in health research and practice? Collaborations for leadership in applied health research and care. *Journal of Health Organisation and Management, 27*(2), 193-208.

Martinkenaite, I., & Breunig, K. J., (2016). The emergence of absorptive capacity through micro-macro level interactions. *Journal of Business Research. 69* 700-708.

Massie, S. (2015). Talent management: Developing leadership not just leaders. *The Kings Fund.*

McKinn, J., & Mannion, H. (2015). Medical leadership-we need more good followers. *British Journal of Hospital Medicine*, *76*(5), 279–274.

Mendes, W., Gingros, J., Robinson, P., & Waddell, J. (2014). Community-University research partnerships: A role for university research centres? *Community Development*, *45*(2), 165–179.

Michener, L; Cook, J., Syed, M., Yonas, M.A., Ciyne-Beasley, T., Aguilar-Gaxiola, S. (2012). Aligning the goals of community-engaged research: Why and how Academic Health Centres can successfully engage with communities to

improve health. *Academic Medicine*, *87*(3), 285–291.

Miller & Glasser (2011). The 'Inside' and the 'Outside': Finding realities in interviews. In Silverman, D. *Qualitative Research (3rd ed).* London: Sage Publications.

Morgan, M., Barry, C. A., Donovan, J. L., Sandall, J., Wolfe, C. D. A., & Boaz, A. (2011). Implementing "translational" biomedical research: Convergence and divergence among clinical and basic scientists. *Social Science & Medicine*, *73*(7), 945–952.

Morténius, H., Baigi, A., Palm, L., Fridlund, B., Björkelund, C., & Hedberg, B. (2015). Impact of the organisational culture on primary care staff members' intention to engage in research and development. *Journal of Health Organization & Management*, *29*(2), 234–251.

Moses, J. & Knutsen, T. (2007). *Ways of knowing: Competing methodologies in social and political research.* Basingstoke, UK: Palgrave Macmillan.

Neal, S., & Mclaughlin (2009). Research up? Interviews, Emotionality and Policy Making Elites. *Journal of Socical Policy (38),* 689-707.

Nelson, I.A., London, R.A., & Strobel, K.R. (2015). Reninventing the role of the University researcher. *Educational Researcher*, *44*(1), 17–26.

NHS England (2013). *Draft Research & Development Strategy: Consultation.* Retrieved from www.england.nhs.uk/2013/12/development-strategy-consult/.

NHS England (2013). *Establishment of Academic Health Science Networks*. Retrieved from www.innovationagencynwc.nhs.uk/.

NHS England (2014). *Everyone Counts: Planning for Patients 2014/15 to 2018/19*. Retreived from www.nhsengland.nhs.uk.

NIHR (2008). *CLAHRC partnership programme.* Retrieved from www.clahrcpp.co.uk.

NIHR. (2014). *Briefing Document 4.1 Translational Research Partnerships*. Retrieved from www.nihr.ac.uk/documents/about-NIHR/Briefing-Documents/4.10-Translational-Research-Partnerships.pdf.

NIHR (n.d.) *Academic Clinical Fellows Management and Funding Information.* (n.d.). Retrieved www.nihr.ac.uk/funding/acf-management-and-funding-information.htm.

NIHR (2015). *Biomedical Research Centres*. Retrieved from www.nihr.ac.uk/documents/about-NIHR/Briefing-Documents/2016/4.02-Biomedical-Research-Centres.pdf.

Nurse, P. (2015). *Nurse review of research councils: Call for evidence.* Retrieved from www.gov.uk.

Office for the Scientific Coordination of Research (2009). *Memorandum from the Office for the Scientific Coordination of Researc*h. Retreived from www.publications.parliament.uk/pa/ld200910/ldselect/ldsctech/104/10011203.htm.

Ovseiko, P. V, Davies, S. M., & Buchan, A. M. (2010). Organizational models of emerging academic health science centers in England. *Academic Medicine : Journal of the Association of American Medical Colleges*, *85*(8), 1282–1289.

Ovseiko, P.V., Melham, K., Foelwer, J., & Buchan, A. M. (2015). Organisational culture and post-merger integration in an academic health centre: a mixed methods study. *Biomed Central Health Services Research*, *15*(1) 1-14.

Ovseiko, P.V., Oancea, A., & Buchan, A, M. (2012). Assessing research impact in academic clinical medicine: a study using Research Excellence Framework pilot impact indicators. *Biomed Central Health Services Research*, *12*(478) 1-23.

Ovseiko, P.V., Heitmueller, A., Allen, P., Davies, S.M, Wells. G, Ford, G.A, Darzi A, Buchan, A. M. (2014). Improving accountability through alignment: the role of academic health science centres and networks in England. *Biomed Central Health Services Research*, *14* (24) 1-14.

Pardes, H., Pincus, H. A. (2010). Models of academic-clinical partnerships: Good, better, best. *Academic Medicine*, *85*(8), 1264–1265.

Pawson, R. & Tilley, N. (1997). *Realistic Evaluation*. Sage.

Pawson, R. & Tilley, N. (2004). Realist Evaluation. *British Cabinet Office*.

Pharma Boardroom (n.d.). *Establishment of OSCHR.* Retrieved from www. pharmaboardroom.com/companies/office-for-the-strategic-coordination-of-health-research-oschr/.

Pickering, C.R., Bast, R.C., & Keyomarsi, K. (2015). How will we recruit, train, and retain physicians and scientists to conduct translational cancer research? *Cancer*, *121*(6), 806–816.

Radnor, H. (2001). *Researching your professional practice.* Open University Press.

Raftery, J., Hanney, S., Green, C., & Buston, M. (2009). Assessing the impact of England's National Health Service R&D Health Technology Assessment program using the "payback" method. *International Journal of Technology Assessment in Health Care*, *25*(1) 1-5.

HM Government, Office for Life Sciences (2009). *The Life Sciences Blueprint*.

Retrieved from www.biocity.co.uk/file-manager/Group/reports2009/2009-07-ols-life-science-blueprint.pdf.

Rajasekhar, P., Rees, C., Rutter, M. & Hungin, P. (2014). Developing a clinical research network: The Northern Region Endoscopy Group experience, *Clinical Medicine, 14*(2) 107-112.

Sapsford, R., & Jupp, V. (1996) *Data collection and analysis.* Sage. London.

Scott, D. M. (2005). *Key ideas in educational research.* London, Continuum.

Schwartz, A., Young, R., Hicks, P.J. (2016) Medical education practice-based research networks: Facilitating collaborative research. *Medical Teacher 38,* 64-74

Sikes, P., & Potts, A. (2008). What are we talking about and why? In Sikes, P. & Potts, A. (Eds.)*, Researching Education from the Inside: Investigations from Within*. Routledge.

Silverman, D. (2011). *Qualitative Research* (3rd ed). London: Sage Publications.

Smith, S. (2009). The value of Academic Health Science Centres for UK medicine. *Lancet*, *373*(9669), 1056–1058.

Smyes S.W., & Wynick, D. (2007). The future of health research in the UK. *Clinical Medicine*, *7*(6), 542-543.

Strauss, A.L. (1987). *Qualitative analysis for social scientists.* Cambridge University Press.

Strier, R. (2014). Fields of paradox: university-community partnerships. *Higher Education*, *68*(2), 155–165.

Sung, N.S., Crowley, W.F. Jr., & Genel, M. (2003). Central challenges facing the national clinical research enterprise. *Journal of the American Medical Association*, *289*(10), 1278–1286.

Swales, J. D. (2000). Science & healthcare: An uneasy partnership. *The Lancet*, *355*(9215),1637-1649.

Sydow, J. (2006) Book review: Managing to collaborate: The theory and practice of collaborative advantage. *Organization Studies 27*(4) 605-608.

Tavani, S.N., Sharifi, H., Soleimanof, S. & Najmi, Manoochelr. (2013). An emperical study of a firm's absorptive capacity dimensions, supplier involvement and new product development performance. *International Journal of Product Research. 51*(11). 3385-3403.

The Academy of Medical Sciences (2003). Strengthening Clinical Research. Retreived from www.acmedsci.ac.uk

The Francis Crick Institute. (2011). *Notes from the meeting of the executive.* Retreived from www.crick.ac.uk.

The Francis Crick Institute. (2013). *Discovery without boundaries*: *Strategy 2013.* Retreived from www.crick.ac.uk

The Lancet (2008). The hub of innovation: Academic Health Science Centres. *The Lancet*, *372*(9638), 508.

Tight, M. (2003). *Researching higher education.* Maidenhead, UK: Open University Press.

Topping, A. (2014). *Manchester to get devolved mayor*. Retrieved from www.theguardian.com/uk-news/2014/nov/o3/manchester-directly-elected-mayor.

Tortoriello, M. (2015). The social underpinnings of absorptive capacity: The moderating effects of structural holes on innovation generation based on external knowledge. *Strategic Management Journal. 36.* 586-597.

UK Clinical Research Collaboration and NHS Modernising Medical Careers (2005). *Medically & dentally qualified academic staff: Recommendations for training the researchers and educators of the future.* Retrieved from www.ukcrc.org.

UK Government (2015). Innovative medicines and medical technology review. Retrieved from www.gov.uk/government/news/review-into-medical-innovation-and-technology-further-details.

Van der Laan, A., & Boenink, M. (2015). Beyond bench and bedside: Disentangling the concept of translational research. *Health Care Analysis* (*23)*, 32–49.

Weiner, B.B., Culbertson, R., Jones, R.F., Dickler, R. (2001). Organizational models for medical school-clinical enterprise relationships. *Academic Medicine*, *76*(2), pp. 113–124.

West, M. (2014). *Developing collective leadership for health care*. The Kings Fund.

Williams, B., Perillo, S., & Brown, T. (2014). What are the factors of organisational culture in health care settings that act as barriers to the implementation of evidence-based practice? A scoping review. *Nurse Education Today*, *35*(2), 34–41.

Wilson, T. (2012). *A Review of Business – University Collaboration*. Retrieved from www.gov.uk.

Witty, A. (2013). *Final report and recommendations: Encouraging a British Invention Revolution*. Retrieved from www.gov.uk.

Wolgemuth, J. R., Erdil-Moody, Z., Opsal, T., Cross, J. E., Kaanta, T., Dickmann, E. M.,

& Colomer, S. (2014). Participants' experiences of the qualitative interview: considering the importance of research paradigms. *Qualitative Research*, *15*(3) 351-372.

Wooding, S., Hanney, S.R., Pollitt, A., Grant, J., Buxton, M. J. (2014). Understanding the factors associated with the translation of cardiovascular research: a multinational case study approach. *Implementation Science*, *9*(47).

Woolf, S. . (2008). The meaning of translational research and why it matter. *The Journal of the Americal Medical Association*, *299*(2), 211–213.

Yin, R.K. (2009). (4th ed). *Case study research: Design and Methods*. Newbury Park California: Sage Publications.

Yin, R. K. (2012). *Applications of case study research.* Sage Publications.

Zakaria, Z. (2015). A cultural approach to embedding KPIs into organisational practices. *International Journal of Productivity & Performance Management*, *64*(7), 932-946.