



The Case to Innovate: understanding organisational innovativeness in one NHS Trust

Submitted for the Degree of Doctor of Professional Practice
At the University of Northampton

Year 2020

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Abstract

Innovation in United Kingdom (UK) healthcare has in the last decade been driven forward through national policy and the development of a national innovation infrastructure, underpinned by an imperative to change. An increasing number of National Health Service (NHS) provider units, NHS trusts, are making 'innovation' part of their strategies; however, a paucity of published theory, guidance, or information within the sector means how and why a trust should invest in, and develop their innovation strategies is not well understood.

In these highly complex, dynamic organisations providing 24-hour healthcare delivery, assimilation of innovation into core NHS business and realisation of the desired impact appears dangerously slow for the needs of the sector. Indeed, acceptability by individual healthcare staff within these systems of innovation as part of their role, at best appears ad hoc. This presents significant challenges for those who lead these organisations and those who work within them with specific responsibilities for innovation. This case study research explores this holistically and in-depth to gain a deep understanding of how innovation is understood and presents a theoretical model of how NHS trusts might function as innovative organisations.

The case is an NHS Trust, the unit of healthcare delivery within the English National Health Service (NHS), contextualised with its organisational boundaries as a 'mesosystem', with individual 'actors' embedded within, identified as working within 'microsystems'. In many ways the case can be seen as typical, yet as a case, also unique, both in terms of the temporal component explored and the emic perspective taken. The researcher in this study is a senior leader within the NHS Trust with a responsibility to lead the innovation strategy, she and her colleagues in other NHS trusts struggle with these issues on a daily basis.

Theory from outside the UK healthcare context was used to explore the antecedents to an innovative organisation, including the need for strategy, the role of leadership, the creation of a supportive innovation environment, and the value proposition innovation might bring to this complex mesosystem. Data from multiple sources was collected using a validated tool for the exploration and measurement of the Culture for Innovation (CfI) (Maher, *et al.* 2010) over a one year period, six months after the implementation of an organisation innovation strategy within the NHS Trust. A critical realist perspective informed the data analysis and triangulation process, to give a rich description of the case, prior to using an abduction process to build on the current theory. A model that seeks to explain how a healthcare organisation might function as an innovative organisation was created. This will be of direct use to the case, as it continues to develop its innovation strategy and will be disseminated to a wider audience to support the development of NHS innovation theory. Thus will provide a useful resource to support other NHS trusts develop as innovative organisations.

Acknowledgements

I am truly indebted to my supervisors Jackie Parkes and Richard Hazenberg for taking this research journey with me. Their constant encouragement, not to mention intellectual critique and academic challenge has not only made the seemingly impossible, possible, but also allowed me to grow as a researcher. I would also like to extend thanks to the many other individuals from the University of Northampton who have supported me in this process, although too many to name individually, include other academic staff who taught the Professional Doctorate programme, administrative and library staff and my fellow students. All of whom have had a part to play.

I am also extremely grateful to my employer, the Trust, which as an organisation gave permission for and supported this research, and has patiently awaited the findings. My managers, who have continually supported me in this enterprise and allowed me the time and space to undertake this research. Most importantly I am indebted to the Trust staff, senior managers and frontline staff, who willingly sacrificed precious time to participate in this study, act as key informants and critical friends. I know that without the support of the organisation and the individuals within, this research would never have happened.

Lastly, I would like to thank my family and friends for their unwavering support. In particular, my husband Greg, who has sacrificed much quality time afloat to support me in this endeavour. His belief that I could and would achieve this has been unfailing, he has been my rock.

Thank you.

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Glossary of terms

AHSN	Academic Health Science Network
CCG	Clinical Commissioning Group
CCM	Constant Comparison Method
CEW	Collaborative Enquiry Workshop
CEWg	Collaborative Enquiry Workshop groups
CEWi	Collaborative Enquiry Workshop individuals
CfI	Culture for Innovation
CQC	Care Quality Commission
CQUIN	Commissioning for Quality & Innovation
CRN	Clinical Research Networks
DH	Department of Health
DHSC	Department of Health and Social Care
DProf.Prac	Doctorate of Professional Practice
DoE	Database of Evidence
DSA	Design Science Approach
EBM	Evidence Based Medicine
FLS	Frontline staff, staff working clinically giving care to patients
GIS	Global Innovation System
HRA	Health Research Authority
IQ	Interview Questions
IS	Innovation System
mDS	Mean Dimension Score
M TS SQ	Mean Trust Survey Question Score
mCfIs	Mean Culture for Innovation Score
NICE	National Institute for Health and Care Excellence
NIHR	National Institute of Health Research
NIS	National Innovation System
NHS	National Health Service
NHS E	National Health Service England
NHS trusts	Unit of healthcare delivery within the NHS in the UK
NAO	National Audit Office
ORC	Organisational Readiness for Change
PO	Participant Observation
RCT	Randomised Controlled Trial
RIS	Regional Innovation Systems
RQ	Research Questions
SI	Staff Interviews
SQ	Survey Questions
SLT	Senior Leadership Team (Non-executive/directors & senior managers)
STP	Sustainability and Transformation Plan
SSM	Soft System Method
The Trust	the case being studied

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TS	Trust Survey
TD	Trust Documents
UK	United Kingdom

Chapter 1. Introduction

This chapter outlines the author's interest in the topic of enquiry and the need for the research, before presenting the research aims and objectives. The chapter explains the thesis structure and gives a summary of the contribution this research makes, both to theoretical knowledge and practical application. It then clearly and transparently places the researcher within the context of the research itself. This placement of the researcher is considered fundamental to the design, conduct, and analysis of the study from the critical realist perspective and therefore is included in the introduction of the thesis, as well as addressed in more detail in other relevant sections (Thomas, 2016).

1.1 The need for the research

There is general recognition that innovation is important for ensuring that patients across the UK benefit from outstanding modern healthcare (NHS, 2019). Yet although an ever increasing number of innovations are available to healthcare providers, uncertainty remains regarding how to either access or implement them (AHSN, 2019). In the UK healthcare system, the National Health Service (NHS), barriers to innovation adoption and spread are increasingly well documented (Wellcome Trust, 2016; Collins, 2018), with some suggesting the pace of change is glacial and that the pathway for innovation is fragmented (Youth Health Parliament, 2016). There are calls for changes to the national structure and its regional bodies that support innovation in the NHS, the Academic Health Science Network (AHSN). The need to ensure that individual clinicians are engaged in the innovation process to ensure adoption of useful innovation has also been highlighted (Wellcome Trust, 2016). Others postulate that these changes alone will not address the root cause of the problem, suggesting that embedded organisational behaviours and cultures within NHS organisations, coupled with silo working are a major barrier (Castle-Clarke, *et al.* 2017).

How to address this issue is the challenge facing those working within the NHS tasked with the remit to promote innovation at organisation level. How should NHS organisations work with the AHSN, engage their staff, or strategically develop their behaviours and cultures to participate in innovation in order that it can be adopted, adapted, or assimilated for the benefit of their patients? Given that there are over 200 NHS provider units, 'trusts', in England alone, (NHS confederation, 2017), with most NHS staff employed by these units, developing the evidence-base to support these organisations in delivering their innovation strategies would seem fundamental. There is however, little organisational literature to support managers in this endeavour (Williams, 2011). This is the issue faced every day by the researcher and her colleagues who lead innovation strategies in other NHS trusts. It is this evidence gap that this research aims to address.

1.2 Research aims and objectives

Research is conducted for two purposes, the development of theoretical knowledge and to solve problems (Thomas, 2016). The purpose of this research is to address both of these criteria, articulated through the following research aims and objectives.

This research had two aims:

1. To develop conceptual clarity and theoretical knowledge on how NHS trusts function as innovative organisations
2. To provide a solution to the problems faced within NHS trusts regarding how and why innovation should be developed and supported

The objectives are to analyse empirically within an NHS Trust

1. How is innovation conceptualised?
2. How are the antecedents of innovativeness understood?
3. How can organisational innovativeness be developed?

As a single case study it is not intended that this research will produce statistically generalisable results, as such it will not be possible for direct inferences to be made from this research to other NHS trusts. In developing the underlying theoretical propositions of how NHS trusts function as innovative organisations and how innovation strategies could be developed, however, it might be possible for analytical inferences to be made from this case that are relevant to other similar organisations (Yin, 2014). In this way the research will be useful beyond the specific case involved.

1.3 Summary of thesis structure

Chapter one provides an introduction and summary of the thesis, why it was undertaken, and the knowledge gap it addressed. It describes how the thesis is structured, with the positionality of the researcher clearly presented. Chapter two follows to present a systematic review and critical analysis of the literature. Through this process the context for the research, the healthcare ecosystem, is defined along with what is currently known of the requirement to innovate within this setting. This chapter, then explores the conceptualisation of innovation from within the business community (Baregheh, *et al.* 2009) and then presents a framework to support measurement and the development of a Culture for Innovation validated within NHS trusts (Maher, *et al.* 2010). Through its product, the literature review presents theoretical concepts or propositions

The Case to Innovate: understanding organisational innovativeness in one NHS Trust from innovation theory which are synthesised to form the focus of this research enquiry.

Chapter three lays out the rationale for using a case study approach to explore these theoretical propositions within one NHS Trust and the ontological lens through which the research was conducted. This chapter outlines the specific methods utilised within the research for data collection, and gives a full explanation of how the research was conducted and the findings analysed. The main findings from the research are presented in three parts in Chapters four, five, and six. Each of these chapters explores through rich description the case, as an entity, but also sequentially addresses the three identified research objectives by conceptualising innovation, describing the receptive context, and reflecting on the organisational readiness for change within the case.

In the final section, Chapter seven, the research undertaken is reflected upon and the findings synthesised through a process of creative retroduction to present as a conclusion a theoretical model of the how NHS trusts might be presented as innovative organisations. This chapter outlines how this model might be useful to practice and further developed through research. In doing so the chapter identified how the aims of this research were addressed, bringing the research together as a conclusive whole.

1.4 Original contribution to knowledge

Innovation has been identified as critically important to the future of the NHS, (NHS 2019), there is evidence that at the national level (macrosystem), strategic development of the systems and structures to support innovation are being developed. This extends to a regional network of organisations (exosystem) that support innovation within healthcare and NHS trusts (mesosystems), who are responding to this by

assimilating innovation into their strategic plans. Yet, how innovation is conceptualised, understood or should be developed within NHS trusts is poorly evidenced (Williams, 2011). It has been suggested that NHS trusts (mesosystem) are considered a context for innovation, rather than partners in innovation (Thune, *et al.* 2016). Most importantly it is postulated that this lack of understanding might be one cause of the identified barriers of adoption and spread (Collins, 2018; Greenhalgh, *et al.* 2005).

This research addresses this evidence gap by first undertaking a critical and wide-ranging exploration of the literature, drawing not only from healthcare and public sector theory, but also from organisational, and private sector innovation theory, to identify what is currently known of organisational innovativeness. The literature review provides several theoretical frameworks that might usefully support the conceptualisation of innovation within an NHS trust, including a definition for innovation (Baregheh, *et al.* 2009) and a valid model for exploration of the Culture for Innovation (Maher, *et al.* 2010). The CfI model was published in 2010, however, no published evidence of its use has to date been identified, this research explores the ease and usefulness of using this model tool within the setting.

The findings of the research were then used to provide a unique rich description of innovation and innovativeness within an NHS Trust. The current research then builds on this descriptor to present both a novel theoretical model of the '*essence of organisational innovativeness*' that has the potential to be useful to the case and describes a plan of action for organisational development within NHS trusts. No other examples of published reports of this type have been identified, it is therefore suggested that this might also be of use to other innovation leads working within NHS organisations, within the healthcare mesosystem.

1.5 Positionality of researcher

Reflective Journal 15 December 2018

'Having written my proposal and gained permission, I launched into the field with desperate gusto, determined to progress at pace. I have analytical skills, so felt confident that I could manage the analytical stage, when I had the data. However, having collected data, done some analysis, here I stop. I have some interesting concepts, yet I realised now that I am working the data in parallel, there is no 'convergence of evidence'. I have no idea how to proceed! Yin states that the analytical strategy should be written in the protocol, I re-read my protocol, I refer to his 'five general strategies', so this doesn't help.'

This paucity of detail in my original analytical framework led not only to a revisit of the methodological literature, but also to deeper reflection on the concept of 'self' as an instrument of this research and the impact of this on my thesis. To undertake a competent analysis and therefore write a defensible thesis, two things were required; first, transparency as to the positionality of the researcher; and second, a clearly identified lens through which the research was being conducted and subsequently analysed (Thomas, 2016). Thomas (2016) further suggests that these should be stated from the outset from the personal perspective of the researcher; this section is therefore written in the first person.

I am by profession a nurse, and have worked in the NHS my entire 34 year career, spending the last 22 years in innovation and research. In the time I have worked in innovation and research, I have been in a number of roles, worked across all healthcare settings, held positions on an NHS Research Ethics Committee, and supported the research governance process. I have undertaken, been involved in, or supported an eclectic mix

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of research projects from randomised controlled trials (RCT) to qualitative phenomenological research. I do not value one type of research over another; I believe that the right methodology should be used to answer the research question posed in order to produce useful outcomes for patients, staff, and the NHS. I am currently employed as a senior manager within 'the NHS Trust', the case, with responsibility for leading the Trust's key strategic theme, 'To Innovate' and grappling with the real life challenges this presents. This research is the thesis module of a Doctorate of Professional Practice (D. Prof. Prac) undertaken part time around this full time position. This brief description affords several assumptions to be made, which for clarity are summarised here.

My personal aim is to produce a defensible thesis; however, professionally I believe I also have an ethical responsibility to produce an outcome useful not only to my employer, who has supported my studies, but also to individual staff members who committed their time to my studies. In addition, I feel a commitment to the wider NHS and also believe this will ultimately benefit our patients. This is commensurate with my rationale in undertaking a D. Prof. Prac. rather than a traditional PhD. Secondly, as a researcher, my time and resources are limited; pragmatic choices had to be made including the choice of a single case, my own Trust, which not only satisfied ease of access to the field, but also my desire for impact.

Lastly, the case study, has been used across many disciplines, including healthcare, underpinned with a variety of theoretical stances, from post-positivism (Yin, 2014) to more interpretative approaches (Stake, 1995). I openly embrace my emic perspective, working with the case using both my expert knowledge within the field of study and the tacit knowledge gained over many years. I am actively involved in this research; I acknowledge the subjectivity of myself in this respect. I identify my ontological beliefs as being based within critical realism (appendix 5). I acknowledge both the opportunity and challenge this presents, and have

utilised reflexivity to both support the process and production of knowledge, and to manage the ethical dimensions of this research. This then is the personal lens through which I have undertaken this research; it forms a connective thread from the initial concept, through to the final report writing.

I acknowledge from the outset the specific ethical issues of this approach and the particular challenge this presents. Every effort has been made to conduct this research to the highest possible ethical standard and in particular to protect the anonymity of individual participants. To achieve this, the name of the Trust is not directly referenced within this thesis, however, I acknowledge that for the inquisitive it would be possible to identify the case as an NHS trust from some unique information contained within the data. This has been discussed in depth; as it was felt that the removal of this data would compromise the richness of the case descriptor, so specific permission has been sought from the Trust accepting this compromise in anonymity within this thesis (Appendix 2.III).

1.6 Chapter summary

This research has been undertaken by the researcher for the thesis model for D. Prof. Prac. The research has been approved and supported by the University of Northampton and a supervisory team. The intended audience for this research is primarily academic and as such this research is presented in a linear-analytical structure suitable for this academic purpose (Yin, 2014). The researcher is also employed within the NHS organisation that is the subject of the case study, there is a moral and ethical argument that the research must be conducted to a high standard not only to fulfil its academic purpose, but also in order that the findings can be shared with and be useful to the host, the NHS Trust where the research took place. To achieve this, the research needs to build on what

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Chapter 2. Literature review

This chapter presents the literature review; an essential element of the research process which serves two functions. The first, to illuminate the broad context of the enquiry and identify what is currently known within the subject area (the process). The second is the analytical contribution to the thesis argument itself (the product) (Murray, 2002). This chapter presents the range of options that could be explored, which by necessity have been refined to achieve the focus of interest and specific questions that are both possible to investigate and important to answer.

This literature review was developed in several stages; a first-stage literature search was undertaken for the protocol development, this explicitly used the search terms: 'NHS', 'innovation' and 'organisational culture' (Appendix 2.I). After data collection and transformation, a second-stage literature review was undertaken to inform further analytical stages. This included a formal protocol driven database search of four databases, BNI, CINAHL; EMBASE and MedLine, using the search terms 'innovation', 'NHS' and 'purpose, value, reason' this was supported by a specialist (Appendix 4.I). As this yielded only a small number of relevant publications this was augmented by a third-stage of purposive searching using strategies such as '*snowballing*' and '*personal knowledge*' of the subject matter (Greenhalgh, *et al.* 2005a). New theory and publications are constantly emerging, not everything could be captured within this review; the literature reviewed hereon-in reflects back over several decades, up to the present.

Understanding 'innovation' and 'innovativeness' is problematic; the concept is broad and has been assigned multiple meanings, definitions, or conceptualised as a multi-stage process (Rye, *et al.* 2007). In addition to this lack of concrete definition, innovation literature is highly heterogeneous, drawing from a variety of disciplines, taking a variety of

forms and although contributions stretch back many decades, one piece of evidence does not necessarily replace another (De Vries, *et al.* 2016; Robert, *et al.* 2009; Ling, 2002; Greenhalgh, *et al.* 2005). Undertaking a comprehensive literature review of such a nebulous concept presents the researcher with an exceptional challenge (Robert, *et al.* 2009, Ling, 2002). Through iterative cycles of critical analysis, key themes were identified from the literature and drawn together into a body of knowledge that forms a theoretical framework for this research. This review is structured into three sections, the first two, the healthcare ecosystem and the policy imperative for healthcare innovation, together address the process of the literature review. The third section addresses the product, the conceptualisation of innovation, and an exploration of the antecedents to organisational innovativeness.

2.1 The healthcare ecosystem

Bronfenbrenner (1979) presented childhood development theory within complex interrelated environments, which he categorised as an '*ecosystem*'. The ecosystem has a series of levels, which can be arranged in hierarchical order, with level 4 the '*macrosystem*', the highest order, defining the belief system where the culture, ethics and law provides structure for all other systems. Level 3 the '*exosystem*' is a level in which individuals are not perceived as active participants; level 2 provides the '*mesosystem*' where individuals actively participate; whilst level 1, the '*microsystem*', is where individual '*actors*' directly engage (Onwuegbuzie, *et al.* 2013). It has been suggested that ecological systems theory provides a useful conceptual model for research (Onwuegbuzie, *et al.* 2013), and is an approach utilised within healthcare literature (Waring, *et al.* 2014), social entrepreneurship (Hazenberg, *et al.* 2016) and the case study (Pope, *et al.* 2006; Caldwell, *et al.* 2012). This conceptual framework of the ecosystem is therefore used to describe the UK

The Case to Innovate: understanding organisational innovativeness in one NHS Trust healthcare system and to place the subject of this study, an NHS trust, within its context.

2.1.1 The national system

The National Health Service (NHS) was established in 1948 and is funded from general taxation raised by the government; political oversight, top-level distribution of funds and national priority setting is managed through the Department of Health and Social Care (DHSC). This inevitably means a political nuance to healthcare, with funding interdependent with a well-performing UK economy (Farchi, *et al.* 2017). The DHSC is however, not responsible for the delivery of healthcare, this is delegated to the NHS. The NHS has as a core founding principal that the provision of healthcare is free at the point of need (Rivett, 2018). The NHS has grown to be one of the largest healthcare providers in the world (Grosios, *et al.* 2010) and is often referred to as a '*national treasure*'¹ (The Guardian, 2013). In the context of this study, these two national components of the system are considered the '*macrosystem*'.

The NHS, however, is not a single entity, but a brand (NHS England, 2019), a diverse and complex collection of interlocking agencies and public bodies (NAO, 2017). This plethora of organisations, work in a crowded space, collectively setting the national strategy, delivering healthcare provision and monitoring performance against the tightly

¹ The NHS is popularly seen as a 'National Treasure' however, this emotive language means that the public and staff see it as a constant, any proposed changes are fiercely fought out in the press with the potential to hamper innovation

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controlled central budget, often with overlapping responsibilities, which can lead to a lack of coherent messaging (Kings Fund, 2019). This is the '*exosystem*' of this research, and is subject to almost constant change. The last major reorganisation (DH, 2012) saw the establishment of NHS England (NHSE), an independent body mandated by the DHSC, but subject to ministerial direction like other NHS bodies (NOA, 2017) tasked with setting the priorities and direction of the NHS in England and the largest recipient of DHSC funding. NHSE through a complex layered commission system is responsible for service provision (NAO, 2017). In each county of England, NHSE contracts with local Clinical Commissioning Groups (CCGs), who are then tasked with commissioning the locality based services and the drive towards whole-system integration (McKenna, *et al.* 2016).

2.1.2 Healthcare providers

The main operational units of local healthcare delivery is the NHS provider trust, legal entities approved by order of the Secretary of State to deliver healthcare, contextualised here as the '*mesosystem*'. NHS trusts as individual organisations are highly heterogeneous, varying contractually in size and service provision; however, their primary function is to deliver specific, high-quality healthcare services, to a geographical population, within their fiscal envelope (NHS Dictionary, 2019). NHS trusts are bound by the policies set within the macrosystem, for which they are accountable directly to DHSC, but also by tight contractual arrangements to their commissioners within the exosystem, NHSE and the CCGs, where key performance indicators are reported. Additionally, trusts are subject to annual quality reviews by a regulatory body, the Care Quality Commission (CQC), with resulting quality ratings published. This complex reporting web has led to the accusation of a poorly understood, increasingly impenetrable system of bureaucracy (Oliver, 2017).

Healthcare provision within the mesosystem is dynamic and constantly changing, increasingly documented as an interconnected network of activity (Greenhalgh, *et al.* 2016; Waring, *et al.* 2014). Here, the focus is on continuous delivery of high quality, value for money, patient care, often in very challenging circumstances (Shaw, *et al.* 2011). In the mesosystem a constant stream of competing priorities jostle for position, compounded by increasing public expectation, raising demand, financial pressures (Robertson, *et al.* 2017) and staff shortages (Addicott, *et al.* 2015), contributing to a high pressured environment. Add local history and transformational change to the mix and individual, unexpected, unique microsystems develop, often at odds with national policy (Waring, *et al.* 2014; Bienkowska-Gibbs, *et al.* 2016). This has led to criticism that the NHS as an ecosystem has a dysfunctional culture (Pope, 2019).

2.1.3 The NHS workforce

These mesosystems employ the NHS workforce, an estimated 1.4 million individuals: doctors, nurses, allied healthcare professionals, managers and others, delivering healthcare on the frontline (Addicott, *et al.* 2015). These individuals commonly work within small teams, representing the '*microsystem*' for this research. Here, staff deliver increasingly complex clinical care, in tightly managed services with limited resources (Robertson, *et al.* 2017). Each individual is bound by their contract of employment to the trust, however, as healthcare professionals many also have allegiances and obligations to national professional bodies. Add to this the directive from quality monitoring bodies that high performing organisations must have correspondingly high levels of appraisal, supervision, and mandatory training; then it is clear that the workload pressures within the microsystem are immense. Increased levels of workplace stress are leading to staff burn-out and significant sickness rates (4.48% in 2015) within the NHS are now recognised (Paton, 2015;

Wilkinson, 2015; George, 2016). There is a demand for immediate action by NHS employers (NHSE, 2017).

The science of workforce management has developed over the last decade (Hurst, 2003; The Shelford Group, 2013) and as more NHS trusts buy in commercially available software packages, 'big data'² analysis has allowed sophisticated calculation of overall staff unavailability within a trust's budget known as 'headroom' (Allocate, 2017). Increasingly, this is being used by trusts to model, refine, and manage safe, cost-effective staffing of services at point of delivery (Allocate, 2017). Organisational management tools however, have limitations; social systems do not function in predictable ways, this, and the changing demographic of healthcare professionals, presents an acknowledged challenge around the long-term sustainability of the NHS workforce. Indeed, recruitment and retention of staff is now high on all NHS trust agendas (Addicott, *et al.* 2015).

2.1.4 Dynamic and complex interactions

The UK healthcare system has been described here within four hierarchical levels: the macrosystem, where national policy and strategy are developed; the exosystem, where multiple organisations provide the systems and structures to deliver these policies and commission care delivery; the mesosystem, where the healthcare providers, the NHS trusts, organise the delivery of health services; and microsystems, where

² Big data is a term used to describe enormous data sets gathered across multiple sites, analysed to reveal trends and associations.

teams of individuals working on the frontline deliver healthcare. Each level has its own specific purpose, function, and structure, thus its own place in the ecosystem. They are also tightly bound by a common brand with a shared founding principal, providing free healthcare at the point of need and by policy, funding, and structure. As such, one part cannot exist without the other, so all must function together as a highly complex, dynamic and interrelated, if dysfunctional ecosystem.

2.2 The imperative to innovate

In 2008, the UK, in common with much of the world, went into the deepest recession since data collection commenced (Allen, 2010). As a tax-funded system, the impact of this, coupled with increasing demand, placed the NHS under extreme pressure (Bienkowska-Gibbs, *et al.* 2016). It is considered no longer possible to continue to provide high-quality care through existing mechanisms and fiscal envelope; change must happen (NHS England, 2014; Sood, *et al.* 2014). At times of economic crisis, seeking novel solutions and problem solving approaches to facilitate economic growth and improved performance are common (Hogan, *et al.* 2014; Efrat, 2013; Martins, *et al.* 2003). This imperative to change and transform is widely cited within NHS policy, often associated with the buzz word 'innovation' (Osborne, *et al.* 2011).

2.2.1 The policy context

The most recent national strategy, The NHS Long Term Plan (NHS, 2019) confirms this ambition to reform the NHS over the next 10 years; innovation is a key word in this document, cited 41 times, in association with product, technology, research, and transformation change. Such clear messaging highlights innovation's essential role to the future of the NHS (Farchi, *et al.* 2017). The prevalence of a concept, however, does not necessarily infer a shared understanding (Osborne, *et al.* 2011). 'Innovation, Health and Wealth' (DH, 2011 p9) defines an innovation as:

'An idea, service, or product new to the NHS or applied in a way that is new to the NHS which significantly improves the quality of health and care when it is applied'

This definition is not universally applied within national healthcare policy documents, indeed in a review of public sector literature the lack of innovation definition was identified as the most noticeable feature (De Vries, *et al.* 2016). Indeed, generally there appears to be multiple ways of describing an innovation within the literature, with no unifying definition (Rowley, *et al.* 2011). As innovation is so widely quoted within UK healthcare literature, this merits exploration of how the word is being used within the policy context.

Farchi, *et al.* (2017) explores the conceptual scope of 'innovation' within DHSC policies and identified that the use of the word innovation has changed over time. They describe three distinct phases of interpretation: phase-one (pre 2001), an early narrow focused meaning linked directly to clinical research; phase-two (2001-2006), an interim phase embracing innovation as a collective endeavour of researchers and NHS staff and hence closely associated; phase-three, (2006-present), where the meaning has changed to become axiomatic and accepted as everybody's responsibility. It is in phase-three that the links are made to the economic climate, with the focus on benefit realisation, quality improvement, and efficiencies. One phase however does not replace another, the meanings of successive phases are additive, with additional new inferences incorporating the previous meaning. Thus, the current inference from 'innovation' within the policy context is a high-level concept, removed from the scientific community (Farchi, *et al.* 2017), with little critical analysis of the operational meaning (Osborne, *et al.* 2011).

2.2.2 National Innovation System (NIS)

Innovation as conceptualised within the first two phases has had a clear pathway of support through successive national research strategies, most recently 'Best research for best health' (DH, 2006). This was driven forward through strong clinical leadership from the Chief Medical Officer within the DHSC and supported by the establishment of the National Institute of Health Research (NIHR). The expressed ambition of the strategy was to '*improve the health and wealth of the nation through research*' (NIHR 2019). This was augmented by the NHS Constitution, which ensured that patients have a constitutional right to know about and participate in research from which they might benefit (DHSC, 2015) and by every NHS provider contracted to deliver this obligation. The NIHR has continued to grow and develop over the last decade, delivering a focused national research agenda. It has developed a systematic process from prioritisation of need, to the rapid set up and delivery of research and to the adoption of results through the National Institute of Health and Care Excellence (NICE). The NIHR has built an evidence-base around the positive impact research has for patients, staff and the NHS (Boaz, *et al.* 2015; Jonker, *et al.* 2018) and in doing so it has sustained political support and funding.

Innovation, however, has had a more fluid existence. In 2005, a newly created Special Health Authority, the NHS Institute for Innovation and Improvement was created. Although the publication of the national strategy 'Innovation Health and Wealth' (DH, 2011), supported by the NHS Chief Executive highlighted innovation as a priority, the institute was disbanded in 2013, with its responsibilities divided between NHS Improvements (NHSI) and the Academic Health Science Network (AHSN). The aim of the AHSN was explicitly to spread innovation at pace and scale within the NHS (AHSN, 2019). The AHSN is only one of a large number of confusing opportunities that support innovation in the NHS (Kelly &

Young, 2017). In addition, how research and innovation and all these mechanisms work together within the macrosystem is poorly articulated (Cresswell, *et al.* 2016).

It is perhaps no coincidence that the NIHR and the AHSN have been established (Young Foundation 2011). In April 2017, NHSE merged its internal research and innovation teams and presented its new research plan. This articulates how NHSE will work as a system leader in partnership with other bodies in the macro and exosystems, such as the DHSC, NIHR, and AHSNs to ensure that not only does the NHS

'supports and harnesses the best research and innovations to improve patient outcomes, transform services and ensure value for money'

but also, that this will form NHSE's

'strategic approach to research including the research and innovation architecture and how this links with work ongoing across Government, such as the Industrial Strategy' (NHS England, 2017 p4).

The NHS has a long history of world-leading innovation, yet retaining this position is increasingly challenging (Kelly & Young, 2017); perhaps this signals the development of a new fourth phase, the development of the healthcare '*Innovation Systems*' (IS). The conceptual models of IS has been around for over three decades within the technology sector (Watkins, *et al.* 2014); networks of public bodies, academic institutions and commercial enterprises working together to provide funding for research, and develop outputs into innovations ready for market adoption (Efrat, 2013). IS work at multiple co-existing levels (Meuer, *et al.* 2015), as the world market place becomes increasingly accessible, dynamic

sectors, such as the technology industry, are recognising the value of understanding their position within the Global Innovation System (GIS). This understanding then allows policy-makers to identify leverage points for enhancing innovative performance and improve competitiveness (OECD, 1997) and then to configure their National Innovation Systems (NIS) to yield maximum competitive advantage (Binz, *et al.* 2017).

It appears that within the macrosystem a fourth stage of innovation is developing, with increasing recognition of the potential to develop the UK healthcare as a recognised GIS (Bienkowska-Gibbs, *et al.* 2016). To achieve this, a NIS is being developed within the exosystem, with NHSE linking its innovation and research units and closer working between the NIHR and AHSNs. Then through regional support hubs and local centres of research excellence, Regional Innovation Systems (RIS), provide direct support to the mesosystem. This then would place the UK in a good position for any global opportunity (Meuer, *et al.* 2015). National policy focus is significant; it has real and far reaching impact across all other parts of an ecosystem (Farchi, *et al.* 2017), including the mesosystem, however, how it translates must be explored.

2.2.3 Mesosystem delivery

Clinical research has a long history in NHS trusts (Bhatt, 2010), with Evidenced Based Medicine (EBM) established conceptually since the 1980's (Wieringa, *et al.* 2017). Since 2014 all NHS trusts have been contractually required to support patients in their right to access research (NHS England, 2019), so must have a relationship with the regional delivery arms of the NIHR, the local Clinical Research Networks (CRN). Research is considered to have high associated clinical risk; it is therefore clearly defined and managed through strict national governance processes (HRA, 2017), with responsibility usually allocated to the Medical Director. In addition, the requirement to report research activity both regionally and

nationally via a central platform is well established, with payment following activity managed by the regional CRN. This means the majority of NHS trusts now have clear research leadership, process and support structures. The interplay between the ecosystem is clearly demonstrated (Thune, *et al.* 2016).

Innovation appeared as a separate and independent concept in the mesosystem, introduced through the Commissioning for Quality and Innovation (CQUIN) payment framework (DH, 2008) and the NHS Quality, Innovation, Productivity and Prevention (QIPP) Challenge (DH, 2010). In these documents, innovation is less clearly defined, has no specific governance framework presented and is linked directly to quality improvement and efficiency savings (DH, 2011a; Young Foundation, 2011). CQUIN and QIPP in many trusts are the responsibility of the Directors of Nursing who lead on the quality improvement agenda and Director of Finance, who lead on efficiencies and cost improvement programmes. CQUIN and QIPP are agreed between NHS trusts and their local commissioners (CCGs), targets and outcomes are set, and these must be achieved for any associated payments to be awarded. The interface of innovation is primarily within the mesosystem following a more localised route (Thune, *et al.* 2016).

It would appear that systems and processes that support innovation within the mesosystem directly replicates the policy phases of the macrosystem; the early phase concepts of innovation closely aligned with well-established clinical research, with a subsequent more axiomatic conceptualisation developing more generally in recent years. Indeed, the national shift that brought innovation and research together under one directorate in NHSE (NHS England, 2017), is now being echoed amongst other organisational elites, such as university teaching hospitals, who were the first to change their Research and Development departments to Research and Innovation teams. In addition, NHS organisations in line

with national policy are increasingly identifying innovation as a priority within their strategy plans (Maher, *et al.* 2010), this is especially important as all NHS trusts are now required to articulate their contribution to the innovation agenda through annual monitoring systems (CQC, 2014), perhaps reflecting the fourth national phase of innovation and seeking to develop Organisational Innovation Systems (Meuer, *et al.* 2015).

This however, assumes a linear translation of high-level policy concepts across the ecosystem, and is perhaps not a reflection of the messy process of assimilation that actually happens (Foster, *et al.* 2016). Although there is a huge amount of healthcare literature that pertains to innovation, the vast majority is focused on an innovation, or implementation and adoption of technologies, with limited representation in the literature of the NHS trust, as an organisational innovation system (Thune, *et al.* 2016). Given this lack of understanding, it is perhaps not surprising that evidence is emerging of the barriers to innovation adoption and spread (Collins, 2018), significant delays in the adoption of change (Castle-Clarke, *et al.* 2017), leading to a systematic failure of benefit realisation (Wellcome Trust, 2016).

2.2.4 Organisational identify

Organisational theory makes the distinction between the organisation's '*image*', how organisational elites would like their organisation to be seen, and its '*identity*', how the members understand their organisation (Caldwell, *et al.* 2012). Although the mesosystem can be seen to mirror the national policy directive, addressing the image, it is suggested that the wider engagement of frontline staff in delivery of an innovative environment, the identity, has been neglected (Creswell, *et al.* 2016). This interconnection between different levels of understanding within the complex ecosystem needs to be properly explored, including the

perceptions of its members working with the microsystems, if an understanding of why pace, direction and impact of innovation and change within NHS trusts remains slow is to be gained (Pope, *et al.* 2006).

Empirical evidence of the understanding of innovation at healthcare practitioner level is scarce, however, in June 2018 'The Evidence Centre', an independent organisation, was commissioned by the Kings Fund to survey a random stratified sample of NHS frontline staff and managers (n=1,002) regarding how well equipped they felt to adopt innovation (De Silva, 2018). The findings were presented at a national conference of experts and received no challenge (Kings Fund, 2019). The survey found that 79% of frontline staff said they did not feel confident about what 'innovation' meant, confirming the proposition that within NHS trusts confusion exists about the very term 'innovation' (Page, 2014; De Vries, *et al.* 2016; Youth Health Parliament, 2016). In addition, 99% of respondents said they did not feel well equipped to adopt innovation, citing multiple barriers including risk-adverse management, time, and space to think, lack of role models, lack of partnership between patients and financial pressures amongst others. This is corroborated by two other publications; Maher, *et al.* (2010) survey of NHS staff which found two-thirds of respondents were not supported in undertaking innovation and Page (2014), who found that senior managers questioned did not know the processes for implementing innovations.

Innovation in the private sector is acknowledged to be hard, taking both focus and energy (Pisano, 2019). Modern healthcare is an increasingly complex and challenging environment, particularly on the front-line where individual healthcare practitioners operate (Waring, *et al.* 2014), here the focus is on continuous delivery of high quality, value for money, patient care, with the environment described as a '*culture of busyness*' (Nevalainen, *et al.* 2018 p27) and often very challenging (Shaw, *et al.* 2011). These microsystems are also environments of constant change,

where innovation is not seen as part of the day job (Sheard, *et al.* 2017). In such environments, it can be postulated that innovation is not only the first element to go (Kelly, *et al.* 2017), but that organisation instability often causes staff to take a defensive position that is resistive to change (Mueller, *et al.* 2012; Williams, 2011).

Yet despite this, many staff surveyed commented there was much potential within the NHS, they wanted to engage, and gave examples of good practice. This is something again echoed within the literature which highlights that not only do staff have ideas that could improve healthcare (Kelly, *et al.* 2017), but positive deviant cases can achieve change (Sheard, *et al.* 2017). That said, almost all respondents stated they did not think their organisations or their local health and care economy was well equipped to support innovation. They highlighted the lack of conceptual understanding around innovation, and more generally the NHS culture, leadership, and paucity of systems and structures in place as barriers to innovation. This corroborates others understanding of the barriers and enablers to innovation adoption and spread now emerging (Greenhalgh, *et al.* 2004; Dixon-Woods, *et al.* 2013; Moullins, *et al.* 2015; Collins, 2018). It is perhaps not surprising that evidence is emerging that the UK is now falling behind other high-income countries in relation to innovation (Wellcome Trust, 2016), with the pace and scale of change is dangerously slow with serious repercussions for NHS reforms (Bienkowska-Gibbs, *et al.* 2016). Indeed, it appears something is being lost in translation (Youth Health Parliament, 2016).

2.2.5 Lost in translation

It could be hypothesised that at the macrosystem level policy-makers recognise the importance of positioning the UK within the GIS and are actively supporting the development of the NIS to maximise the advantage this confers (Wellcome Trust, 2016). Innovation Health and

Wealth (DH, 2011) articulates the ambitious high-level plan to embed this in the NHS, although evidence of progress is still weak (Bienkowska-Gibbs, *et al.* 2016). In the exosystem, NHSE and AHSNs are committed to developing new pathways to market; ensuring patients and healthcare practitioners have seamless access to the latest innovations that can impact patient care (Wellcome Trust, 2016; Marjanovic, *et al.* 2018). Although individual clinicians are without doubt, important as end-users of innovation, most work within the microsystem, with limited influence beyond their immediate spheres (Moser, 2018). There is developing recognition that macrosystem strategy ignores the role of NHS trusts, where most innovations are utilised (Williams, 2011). Indeed, even the approach is struggling to engage supply-driven, budget focused NHS trusts, (Castle-Clarke, *et al.* 2017). Thune, *et al.* (2016) suggests that NHS trusts are '*hidden innovation systems*', seen as a context for innovation, rather than partners in delivering healthcare reforms.

Innovation diffusion literature suggests that if the barriers to innovation adoption and spread are to be addressed, focus needs to shift away from individual clinicians, to the organisations themselves (Greenhalgh, *et al.* 2005). This concurs with implementation theory, which suggests that where individuals work collectively at the organisational level, the impact can be greater than the efforts of individuals alone (Weiner, 2009). If the role of the mesosystem is identified as crucial to innovation within healthcare, it is essential that those tasked with leading innovation within healthcare organisations have a conceptual understanding of what innovation is within the organisational context, and how innovation-friendly environments might be created (Marjanovic, *et al.* 2018). These two concepts are explored in the next sections.

2.3 Conceptualising innovation

The definition of innovation has already been identified as a conundrum, variously described and defined in healthcare policy as both a specific product (DH, 2011), or as an axiomatic concept underpinning policy (Farchi, *et al.* 2016). Exploring dictionary definitions exemplifies the problem, where the stem 'innovat*' can be used as a noun, verb and adjective amongst others (Table 2.1).

Table 2.1 Definition and meaning of innovation

Innovation	noun	('The use of') a new idea or method
Innovate	verb	To introduce changes and new ideas
Innovative	adjective	Using new methods or ideas
Innovativeness	noun	The quality of being innovative

(Collins English Dictionary, 2019)

Maher, *et al.* (2010), suggest that there is little to be gained from debating definitions and identify a broad axiomatic definition of innovation.

'Doing things differently and doing different things, to create a step change in performance.'

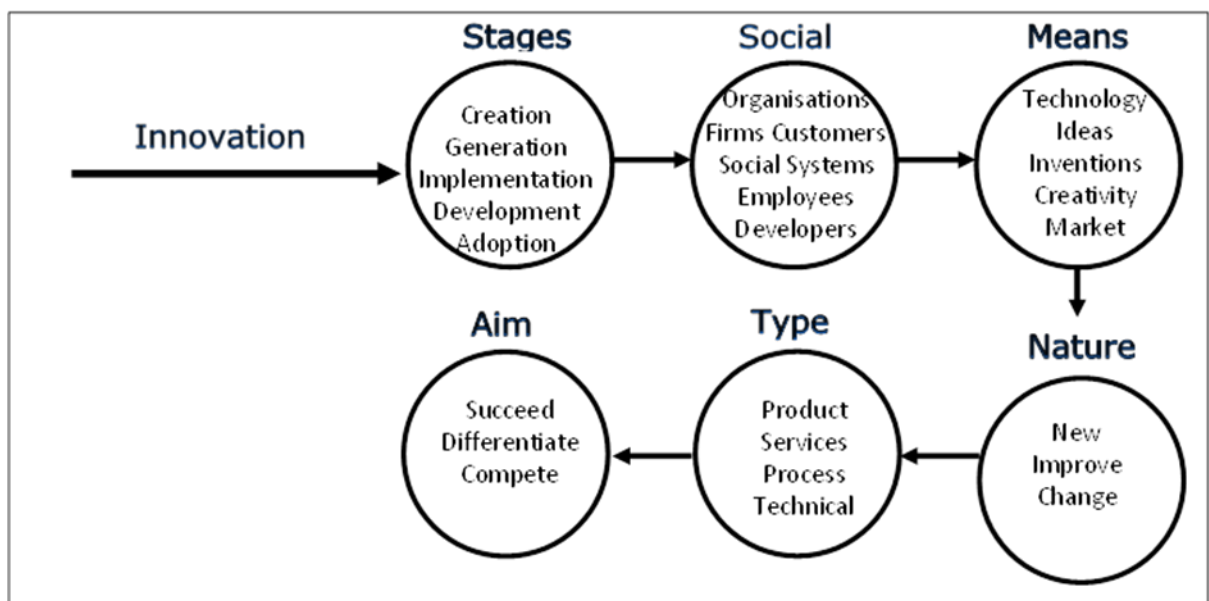
(Maher, *et al.* 2010 p6)

Pragmatically, this simple definition is useful, particularly within an NHS trust environment, where in-depth level of conceptual understanding is irrelevant. In the research context, however, this lack of specificity is problematic, different interpretations of meaning are often associated with different underlying methodological assumptions, making any generalisations drawn from research unreliable (Rye, *et al.* 2007; Robert, *et al.* 2009). If the results of research are to be useful, a conceptualisation

The Case to Innovate: understanding organisational innovativeness in one NHS Trust of 'innovation' within the context of the study must be identified (Walker, 2014).

This poses a challenge, as there is an acknowledged lack of robust innovation definition within the public sector literature (De Vries, *et al.* 2016), but the healthcare sector is not alone in facing this conundrum. Although it is widely agreed that 'innovation' is important and necessary, its meaning is subject to much academic debate (Skillicorn, 2016), with even the use of the word criticised (Berkun, 2013). The business community has a vested interest in this area, believing that ambiguity over consensual definition for innovation creates confusion for managers and researchers, and ultimately impacts on business itself (Baregheh, *et al.* 2009). In a literature review on definitions of innovation, Baregheh, *et al.* (2009) present a multidisciplinary definition of the 'essence of innovation', a multi-faceted, non-linear, and non-hierarchical process that incorporated six key attributes (Figure 2.1).

Figure 2.1 The process of innovation



(Baregheh, *et al.* 2009 p1334)

This is augmented by a textual definition

'Innovation is the multi-stage process whereby organisations transfer ideas into new/improved products, services, or processes, in order to advance, compete, and differentiate themselves successfully into their market place.'

(Baregheh, et al. 2009 p1334)

Even when a definition is agreed, debate exists as to whether it may be transferable between disciplines (Baregheh, et al. 2009). Although this integrative textual definition is designed to provide a definition that can support transfer of knowledge across disciplinary boundaries, the authors caveat this with the notion that their model is conceptual, developed from within the business literature, thus further context specific refinement may be required if used outside this sector. To support this, they suggest exploration of the six key attributes and their descriptors (Table 2.2).

Table 2.2 The six key attributes of the innovation process

Stages of innovation	all the steps taken during an innovation process which usually starts from idea generation and ends with commercialisation
Social context	any social entity, system or group of people involved in the innovation process or environmental factors affecting it
Means of innovation	the necessary resources e.g. technical, creative, financial) that need to be in place for innovation
Nature of innovation	the form of innovation being something new or improved
Type of innovation	the kind of innovation as in the type of output or the result of the innovation (e.g. product or service)
Aim of innovation	the overall result that organisations want to achieve through innovation

(Baregheh, *et al.* 2009 p331-1332)

Although less succinct, this resonates within high-level healthcare policy where there is recognition that innovation is a '*process*' (textual definition), that it might be '*an idea, services or products*' (type), '*new to*' or '*applied in a new way that is new*' (nature), with '*three important stages*' (stages) important for improving patient outcomes, quality and productivity and economic growth (market place) (DH, 2011 p9). The conceptual definition and the six key attributes therefore appear to be useful for exploring innovation within the context of healthcare literature.

2.3.1 The creativity process: nature, type and stage

The three attributes, nature, type and stage can be link together directly through the creativity process (Martins, *et al.* 2003), where idea

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generation, development and implementation can be described through a simple linear model (Efrat, 2013) (Table 2.3).

Table 2.3 The creativity process

1	Ideation	Invention, idea generation, tested within research and development, which may or may not proceed.
2	Innovation	Development of proven inventions for commercialisation, either internal or external to research and development.
3	Adoption	Taking a novel innovation out to the market, which to be successful requires support from a wider network, NIS

(Efrat, 2013)

In the NHS context there does not seem to be any shortage of ideas, with recognition that there are ‘brilliant *people with brilliant ideas*’ working amongst its ranks (DH, 2011). There are barriers to ideation, however, with recognition that ideas require time, capacity, and energy (Maher, *et al.* 2010a), creating a workforce capability to support innovation is essential (DH, 2011). Yet, identifying problems and creating solutions is rarely built into clinicians roles (Castle-Clarke, *et al.* 2017), and given the ‘*busyness*’ culture, this subsequently impacts on the innovation pipeline (NHS, 2019). But, if innovation is seen as a process, ideation refers to the invention stage and represents newness (Robert, *et al.* 2009). The nature of innovation is therefore considered as a new idea, new to or applied in a new way to the NHS (DH, 2011).

If nature can be understood, innovation type is more problematic. Thune, *et al.* (2016) states that some view innovation as medical objects, others as medical practices, and others again as medical problems. Other authors note that national policies use terms such as ‘*incremental, radical, and transformative*’ to distinguish innovation typologies (Osborne, *et al.* 2011 p1339). De Vries, *et al.* (2016 p153) categorises public sector innovation

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into four themes: *Process (sub-divided into administrative and technological); product or service innovation; governance innovation and conceptual*. This does not though cover all innovation types; a fifth category 'other' was required to include such innovation types as behavioural components (De Vries, *et al.* 2016).

It could be postulated that incremental innovation could be included within this 'other' category. Small-scale, often unrecognised micro-innovations take place every day within the workplace, recognised within business literature as capable of generating huge economic worth (Pisano, 2019). As continuous incremental innovation is understood within the ethos of the healthcare system (Maher, *et al.* 2010), this perhaps explains the policy focus on this area of innovation with some hypothesising that managing the two concepts of innovation and quality improvement together might be a way to optimise impact (Marjanovic, *et al.* 2018). Indeed, some might wonder if there is a difference when published definitions of quality improvement include a '*systematic approach*' though '*iterative change, continuous testing, and measurement*' (Jabbal, 2017).

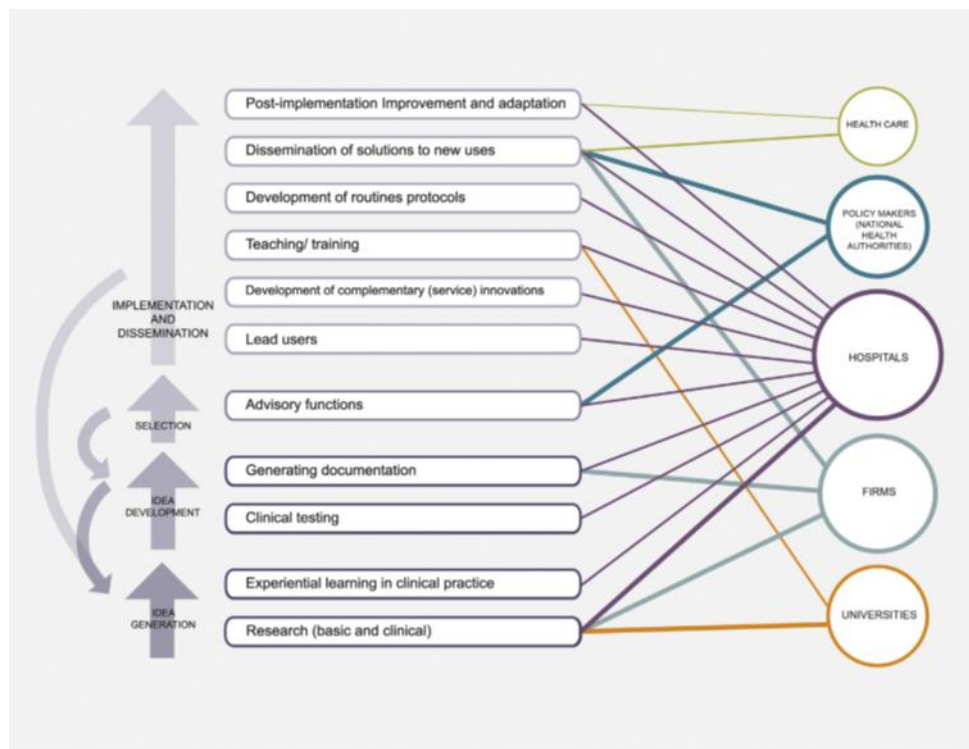
This is not without controversy though, although healthcare policy and literature might conflate incremental innovation and incremental improvement, to convey a general meaning of positive progression (Osborne, *et al.* 2011) there are important differences. Quality is defined through three concepts; safety, effective care, and patient experience (Taylor, *et al.* 2017). If care is known to be safe and effective, logically there must be an underpinning evidence-base, one that can be benchmarked and audited against. Osborne, *et al.* (2011) stress that innovation is about newness, and as such is inherently risky; if an innovation is tried and found to be unsuccessful, it must cease; conversely if successful, discontinuation of current practice would be required. This fundamentally makes the management of an incremental innovation a

different proposition from the management of a quality improvement, thus conflation of these concepts is conceptually flawed (Osborne, *et al.* 2011).

It appears there is no one 'type' of innovation within healthcare, with conceptual definitions differing or even intertwined to create 'hybrid' forms (De Vries, *et al.* 2016). This is not necessarily detrimental and there may be market advantages to engaging in innovation in this wide-ranging way (Rowley, *et al.* 2011). In this thesis, 'type', will be considered within the common categories identified within public sector literature: process (administrative and technological); product or service innovation; governance innovation and conceptual, with recognition of 'other', which includes continuous or incremental innovation.

In a similar vein, innovation stage is problematic, with criticism levelled at public sector policy for utilising a simple linear model adopted from the manufacturing sector (Osborne, *et al.* 2011). Even if the first and second stages of process are considered to be clearly defined and supported by the NIS, there is recognition that existing health research paradigms remove innovation from the real-world NHS context, delivering evidence that both fails to translate across into practice or deliver in a timely fashion (Castle-Clarke, *et al.* 2017). This concept is corroborated by the growing body of empirical evidence around the barriers to adoption and spread (Collins, 2018; Horton, *et al.* 2018). This second translation gap is a long-established concept (Cooksey, 2006), and a whole work stream of the NIHR has been dedicated to implementation research, with a varied degree of success (Caldwell, *et al.* 2012). Thune, *et al.* (2016 p1546) describe how hospitals act as '*central nodes*' in the process, undertaking key roles and engage at all stages of the innovation, but highlight the iterative cyclical nature of this process, with multiple feedback loops and redevelopment (Figure 2.2). This notion of complex process is supported by other authors (Greenhalgh, *et al.* 2016; Robert, *et al.* 2009) and so is adopted for this research.

Figure 2.2 Hospitals as central nodes for innovation



(Thune, *et al.* 2016 p1546)

The healthcare literature regarding the nature, type, or stage of innovation is highly heterogeneous; there appears to be no uniformly agreed definitions (Greenhalgh, *et al.* 2005). They have been conceptualised here for this research and are now acknowledged as important for a number of reasons. Not only are these concepts often used in lieu of a formal definition of innovation (De Vries, *et al.* 2016), but conceptualising innovation is essential for identifying the risk involved and the management support required (Osborne, *et al.* 2011).

It could be hypothesised that having a conceptual understanding of innovation as this creative process, and knowledge of how an innovation is conceived and might be described is fundamentally essential to developing an understanding of organisational innovativeness and thus a key objective of this this research. In addition, all innovation requires resources, conceptualisation of nature, type and stage is essential to

understanding the organisational resource required to develop an innovation (Pisano, 2019). Baregheh, *et al.* (2009) explore this in more depth via the key attribute of means, discussed next.

2.4 Means

The 'means of innovation' describes the resources required for innovation, technical, creative, and financial (Baregheh, *et al.* 2009). Robert, *et al.* (2009) however, describe the means as an organisation's physical structure, the hard antecedents that support innovation, such as organisational size, and complexity, this is explored in more detail.

Historically an unwritten law that large organisations cannot be innovative is recognised, possibly because as organisations grow in size and maturity, they become more structured, less spontaneous and more risk-averse; as a result their culture changes, with a profound effect on innovation (Pisano, 2019). Size is typically measured using number of employees as a proxy (Walker, 2014); NHS trusts, employing thousands of staff, are by definition large organisations, a factor that might then explain the healthcare barriers to innovation. There is however growing recognition from the private sector that this rule does not apply in the modern world, (Pisano, 2019), coupled with evidence within healthcare literature of a small, but positive correlation between organisational size and innovativeness (Robert, *et al.* 2009).

One proposition that accounts for this phenomenon is the notion that larger organisations have more '*organisational slack*', the opportunity to flex budget surplus, engage larger numbers of talented employees and to spread new ideas (Walker, 2014 p32). This is coupled with a positive association to organisational complexity, defined by numbers of specialisms and units (Greenhalgh, *et al.* 2005), thought to support opportunities for the cross-fertilisation of ideas (De Vries, *et al.* 2016).

Organisational slack has also been positively associated with administrative capacity, the processes, and systems required for the adoption of innovation (Walker, 2014). This has to be considered cautiously; it has also been identified that organisations with a large number of homogenous employees may not always have an advantage in innovation and indeed professionalism has been negatively associated with the adoption of innovation technology in a healthcare setting (Robert, *et al.* 2009). Castle-Clarke, *et al.* (2017) linked this to several factors including a perceived threat of autonomy, professional judgement or the lack of an entrepreneurial culture.

There are two other important points to note; the first is the criticism of the methodological rigour of the research in this area, which limits generalizability; second, that the structural determinants of innovation are largely explored as independent variables, meaning any joint effects or non-linear effects are not fully explored or understood (Walker, 2014). Indeed, as cash-strapped healthcare organisations can exert no control over factors such as size, funding or professionalism these influences are acknowledged as important to conceptualisation of understanding innovation, but provide little support for how the innovation-friendly environment can be developed. Baregheh, *et al.* (2009) descriptor of the 'social attribute' includes the organisational environmental factors that support innovation.

2.5 The social attribute

Innovation is '*an intensely and uniquely human activity*' (Pisano, 2019 p.223), a key element is the creativity of individual actors and their interactions within their social environments (Greenhalgh, *et al.* 2005). The healthcare ecosystem has been described as a complex network with indistinct boundaries, filled with individual autonomous actors (Greenhalgh, *et al.* 2005), whose actions impact within and change the

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context of the whole. Such systems have porous boundaries, are adaptive, with multiple feedback loops, responding to external pressures, organised around competing internal demands (Robert, *et al.* 2009). In these environments, rational controlled planning models may not always work (Plsek, 2003) and progress might be dependent on the social context (Greenhalgh, *et al.* 2005).

Robert, *et al.* (2009) in their comprehensive review of organisational factors that influence technology adoption, identified six broad themes that work together within this complex social ecosystem that affect technology adoption (Table 2.4).

Table 2.4 Factors that affect technology adoption

1	The innovation itself
2	The adoption process
3	Communication and influence (including social networks, opinion leaders and change agents)
4	The 'inner (organisation) context'
5	The outer (inter-organisational) context
6	The implementation/sustainability process

(Robert, *et al.* 2009 p22)

Three of these elements are the innovation, and its stages (adoption, implementation) which have already been discussed in the creativity process (section 2.3.1). The third factor, communication and influence might be considered integral to complex systems and thus is implicitly addressed. The fourth and fifth factors of the the inner and outer context however, warrants further exploration when considering the social attribute, particularly their influence on developing organisational innovation, also described in the literature as the antecedents for innovation.

Antecedents of innovation can be described as context specific features known to positively or negatively influence the innovation process and have been defined within four levels: environment, organisation, individual, and the innovation itself, with little difference between stages of innovation (De Vries, et al. 2016; Fleuren, et al. 2004). The environmental antecedents are associated with the outer context described by Robert, et al. (2009), although the focus of this thesis is organisational innovativeness, Greenhalgh, et al. (2005) points out that the outer context appears to have a large effect on decision-making within the inner context, and therefore merits some discussion.

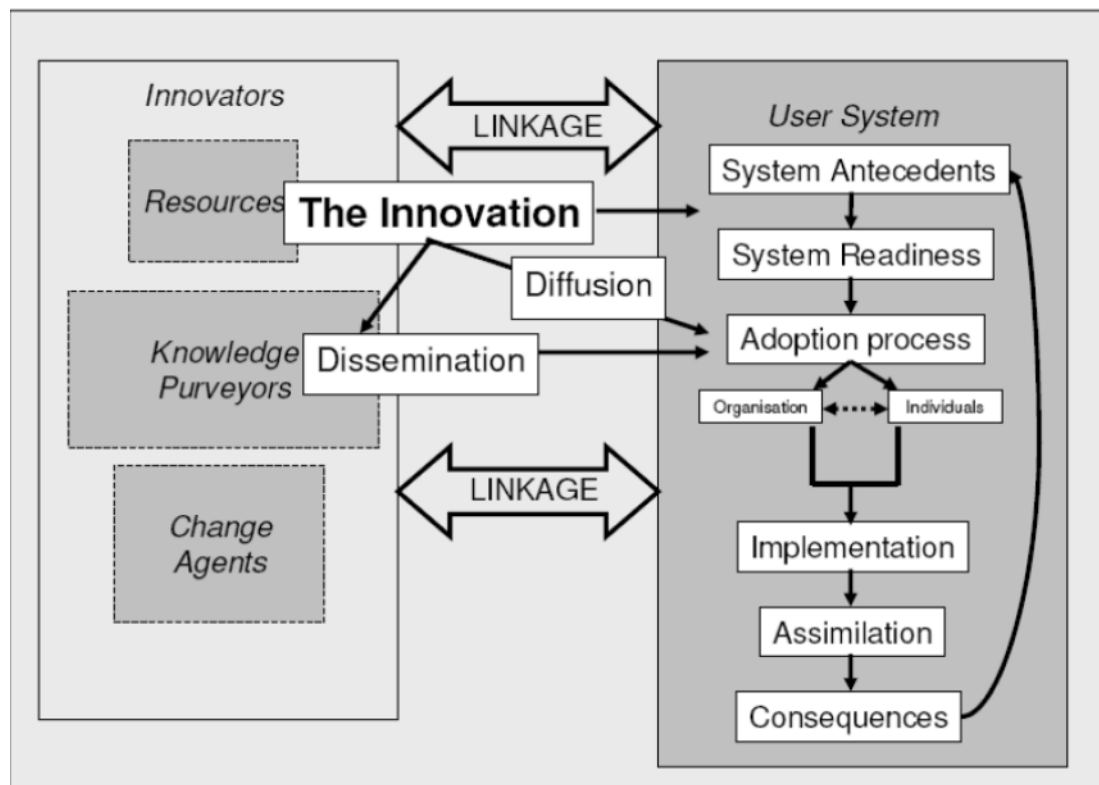
2.5.1 Outer context

Features of the outer context or environmental antecedent include: external pressures; networks and inter-organisational relationships; regulatory aspects and market competition (De Vries, et al. 2016), with external pressures applied from political, media, and public demands. The political element strongly resonates with the policy imperative already described (section 2.2.1). The National Innovation Systems expectation of organisational engagement has already been identified and might explain why NHS trusts are assimilating innovation into their strategies. There is also increasing recognition of the importance that the media and public play as '*powerful stimulants for innovation*' in healthcare (West, et al. 2017 p13), which until recently were unrecognised within public sector innovation strategy (Marjanovic, et al. 2018). As healthcare moves towards an age of personalisation, collaboration with patients and their representatives is now seen as fundamental to achieving success (Wellcome Trust, 2016). Businesses invest heavily in understanding both their customer base and their experiences; this is identified as a key lesson public sector innovation could learn from industry (Ling, 2002). It is accepted that all these elements have a direct impact on the inner context.

2.5.2 The inner context

The fourth theme, '*the inner context*' pertains to organisational level (Greenhalgh, *et al.* 2005); understanding this is essential, as the mesosystem exerts more pressure than its external counterparts (Walker, 2014). The '*organisational climate*' is an umbrella term that brings together eight components of organisational nature that support organisational innovativeness including the informal organisation and its routines, the environments for receiving innovations, and knowledge management capacity (Greenhalgh, *et al.* 2005 p150). Robert, *et al.* (2009 p87), synthesise this into a conceptual model, which demonstrates the complex relationship between this organisational climate and the creativity process (Figure 2.3). There is conceptual similarity between this model and features of Baregheh, *et al.*'s. (2009) definition of innovation as a process, such as the creativity process and resources, it is therefore considered a useful tool for this research.

Figure 2.3 Conceptual model of the determinants of innovations



(Robert, *et al.* 2009 p87)

Specifically, this model identifies the system antecedents for innovation describing them as either the 'hard' visible structures or means already discussed (Section 2.4) or the 'soft' mediums of the culture and ways of working (Robert, *et al.* 2009 p24). The soft antecedents are summarised into two concepts; '*absorptive capacity for new knowledge*' and the '*receptive context for change*'. Although these are explored separately, it is accepted that concepts are broad and overlapping (Robert, *et al.* 2009).

2.5.3 Absorptive Capacity (AC)

Cohen, *et al.* (1990) described absorptive capacity (AC) as a firm's ability to recognise and adopt new knowledge to bring value to the organisation. As most innovations are 'borrowed' from other organisations, understanding the known, and recognising the new and being able to assimilate it, is therefore essential to organisational innovativeness (Easterby-Smith, *et al.* 2008). This ability to adapt, in addition to adopt, is

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also gaining momentum in the healthcare sector (Horton, *et al.* 2018; Castle-Clarke, *et al.* 2017). Robert, *et al.* (2009) summarised AC into four central components for technology adoption (Table 2.5).

Table 2.5 Components of absorptive capacity

existing knowledge and skills base
pre-existing related technologies
a 'learning organisational' culture
proactive leadership to enable the sharing of knowledge both internally and externally

(Robert, *et al.* 2009 p84)

A comprehensive citation base on AC within healthcare does not exist, perhaps because as Cohen, *et al.* (1990) discuss, AC is intangible and the benefits indirect. Several other authors, however, reference the concept, identifying it as an essential element of knowledge management and learning organisations (Williams, 2011; Castle-Clarke, *et al.* 2017; De Vries, *et al.* 2016; Walker, 2014).

Knowledge itself is a nebulous concept, with a wide variety of types utilised within the professional healthcare context including scientific, experiential, and tacit knowledge (Barnfather, 2013). Production, management and transference of knowledge is acknowledged as problematic in large organisations, particularly so within busy complex ecosystems, or in relation to tacit or unspoken knowledge often associated with healthcare professionals and technology (Barnfather, 2013). Sackett, *et al.* (2000) hypothesised that doctors develop routines for the management of frequently encountered clinical conditions; first in medical school, but then repeated as postgraduate trainees under the supervision of consultants. Later as the clinician develops, knowledge may be modified based on experience, but it's far less common for clinicians to seek support from guidelines, created on best evidence of others. Williams,

(2011) corroborates this, adding that clinicians distrust sources that are unfamiliar or distant; perhaps one reason for this is professionals feel their clinical judgement is challenged when asked to change and adopt new practices developed elsewhere (Castle-Clarke, *et al.* 2017). This makes the adoption of innovative practices problematic.

Innovation has been identified as a socially constructed human activity; communication is an essential component of this process. Rye, *et al.* (2007 p247) refers to this as '*connectedness*', embedded social communication networks that facilitate the swift transfer of information from individuals across systems supporting innovation adoption. The NHS however, is acknowledged to work in silos (Castle-Clarke, *et al.* 2017), proactive initiatives are required by organisations to improve their knowledge management, including the development of internal, and external communication networks (Cohen, *et al.* 1990). Internally, publishing case studies, creating clinical groups, or sharing forums with identified individuals as '*boundary spanners*' (Castle-Clarke, *et al.* 2017 p7), working across groups, and spreading innovation prevents this silo working and is suggested to open up the organisational learning culture (Williams, 2011). Externally organisations need to look to the RIS, supported by the AHSNs, who lead on the development of networks and communities of practice (Marjanovic, *et al.* 2018).

Organisational stability is positively associated with the development of organisational AC (Williams, 2011); conversely organisational change is identified as having a negative influence (Castle-Clarke, *et al.* 2017). The frequently changing healthcare ecosystem has already been noted, and as Williams (2011) points out, experience and memory are powerful and long-lasting forces, that can destabilise progress. This is harder to address and slow to change, and impacts directly on developing an organisational receptive context for change. Robert, *et al.* (2009) present two core elements for the receptive context for change, leadership and culture,

both concepts are recognised within other healthcare innovation literature (Maher, *et al.* 2010; West, *et al.* 2017) and within other sectors, such as the educational (Dearnley, *et al.* 2013) and business environments (Pisano, 2019). Their impacts are considered significant in the context of an innovative organisation and are explored further.

2.5.4 Leadership

The importance of leadership within the NHS is well understood, the NHS Leadership Academy promotes the idea that better leadership delivers better care (NHS Leadership academy 2017). Leadership for innovation is much discussed within the healthcare literature (Maher, *et al.* 2010; Walker, 2014). Innovation, as a human activity, requires creative individuals that break through the risk-averse environments of public sector administration, empowered autonomous employees is a significant aspect of this process (De Vries, *et al.* 2016); leaders have significant roles to play (Greenhalgh, *et al.* 2004). How this might be achieved, however, has only recently been presented (West, *et al.* 2017). West, *et al.* (2017) highlights the shift within healthcare from hierarchical leadership models to a collective approach and the beneficial consequences that has for empowering innovation. The role of the '*compassionate leader*' is clearly articulated, through four key elements: attending, understanding, empathising and helping.

Although human factors can be managed and supported by compassionate leaders, change carries an element of risk and NHS organisations are known to be risk adverse (Albury, 2005). Psychological safety is identified as an essential cultural requirement for innovation (Pisano, 2019), so leaders who can infer this to staff and support safe risk-taking, are essential to the process (Williams, 2011). Likewise, failure is a recognised component of innovation, an empathetic leader will understand staff frustrations, support learning from the process and encourage the next

steps in innovating (West, *et al.* 2017). Achieving this is acknowledged as problematic; the NHS is under constant political, economic and social pressure, contributing to claims that its culture is '*institutionally deaf, bullying, defensive and dishonest*' (Pope, 2019 p45).

Another key issue in the public sector are the resources necessary for innovation; this might be time or financial resources, leaders are not only in a position to agree the necessary time, but also to identify routes to achieve the other necessary resources (Maher, *et al.* 2010). NHS organisations are high-pressure environments, the relationship between environmental pressure and creativity is non-linear, typically described as an inverted 'u-shape'; although a certain amount of pressure is necessary to develop the need to problem solve and change, if pressure is excessive, innovation is stifled and activity drops (Walker, 2014). Healthcare managers need to be attuned to this and have the ability to flex with and control the situation (West, *et al.* 2017). They also have a significant role in maintaining the motivation of staff and embedding innovation as the norm within these environments (Greenhalgh, *et al.* 2004).

Leaders operate as both a collective and as individuals within organisations, and have a disproportionate influence in the development of the organisation's innovation culture (Maher, *et al.* 2010). Business theory has recognised the important role of the '*creative constructive leader*' in innovation (Pisano, 2019 p222), further identifying that leaders need to be '*Culture Warriors*', vigilantes who guard their organisation's innovation culture, keenly aware of both its importance and how quickly it can be destroyed.

2.5.5 Organisational culture for innovation (CfI)

Organisational culture has been described as powerful force that must be recognised and understood (Schein, 2004), having a greater impact on

desired outcomes than both structure and strategy (Hogan, *et al.* 2014). First associated with scientific inquiry by Pettigrew, (1979), organisational culture is a popular concept within behavioural and management science (Hogan, *et al.* 2014) with emergent theory of organisation culture drawing from psychology, social psychology and anthropology roots and describes a wide range of social phenomena. Organisational culture identifies shared language, behaviours, values, and beliefs as an expression of an organisation's character, with individual actors supporting diffusion through social interactions (Scahill, *et al.* 2009; Scott, *et al.* 2003).

The term '*organisational culture*' is nebulous and complex; definitions range from '*the way we do things around here*' (Scahill, *et al.* 2009; Davies, *et al.* 2000) to '*an anthropological metaphor used to inform research and consultancy to explain organisational environments*' (Parmelli, *et al.* 2011). A popular definition appears to be the '*essence of culture*' defined by Schein (2004) (Scahill, *et al.* 2009; Mannion, *et al.* 2008; Scott, *et al.* 2003; Parmelli, *et al.* 2011).

'a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaption and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems'

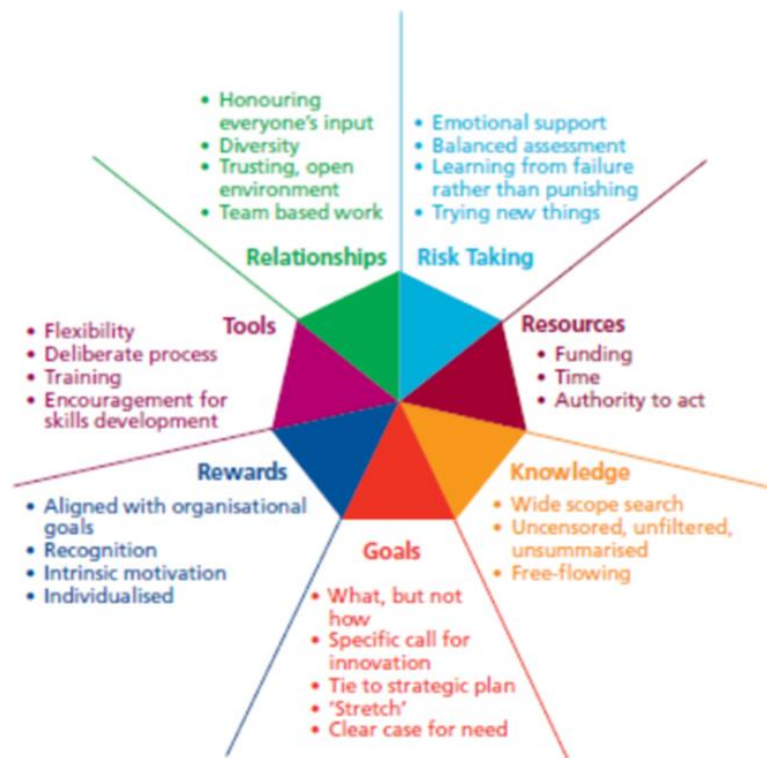
(Schein, 2004 p17)

This is a widely recognised definition within healthcare literature, but usefully it identifies both group and individual member's behaviour. In doing so this recognises of both the mesosystem and microsystem. This definition also acknowledges the relationship between external adoption and internal integration, and thus the relationship between the inner and outer context. It is therefore considered useful to support conceptualisation of organisational culture within this thesis.

The link between organisational culture and creativity is well established (Efrat, 2013; Hogan, 2014; Martins, *et al.* 2003; Harrington, *et al.* 2005). Pisano, (2019 p181) describes an organisation's culture as its 'software', becoming a 'shadow system' shaping how the 'hardware', formal systems, run. There is evidence that organisational culture is linked to performance, the risk adverse nature of NHS culture does not lend itself to creativity (Albury, 2005), however, changing an organisation's culture, could achieve positive benefits (Mannion, *et al.* 2008). There is, however, a paucity of evidence regarding both the measurement of culture, or effective change strategies (Parmelli, *et al.* 2011). One reason for this is that the understanding of culture is implicit, predicated on the tacit knowledge of the experts within that system, rather than explicit (Plsek, *et al.* 2007). Greenhalgh, *et al.* (2004) reflects on the importance of the culture for innovation (CfI) and the difficulties of creating this in NHS organisations, stating that there are no magic ingredients for success.

Addressing this and developing an understanding of what makes innovation-friendly environments, and how they might be grown within healthcare organisations remains problematic (Fleuren, *et al.* 2004). Maher, *et al.* (2010), acknowledging that the healthcare evidence in this area was poor, drew from a much broader literature base from outside the healthcare sector, then using a pragmatic 'design science' approach, identified 27 constructs, organised into seven dimensions of supportive factors of the CfI (Figure 2.4).

Figure 2.4 Dimensions of culture for innovation (CfI)



(Maher, *et al.* 2010 p9)

These dimensions can then be considered the characteristics of the 'culture for innovation' within NHS organisations summarised as: risk-taking; resources; knowledge; goals; rewards; tools; relationships. Each is then explored in detail, presenting its evidence-base and activities that can be undertaken to support development and measure impact (Maher, *et al.* 2010), thus providing a useful theoretical framework for exploring and measuring CfI within NHS organisations. Although the tool was successfully piloted and validated within NHS trusts, no subsequent publications have been identified to provide any benchmark data.

2.5.6 Individuals within the system

The social attribute also acknowledged the role of individuals within these social systems, the groups or collectives they form and the culture they create (Baregheh, *et al.* 2011). Robert, *et al.*'s (2009) conceptual model

(Figure 2.3) identifies as key elements within the inner context both the organisation and individual, and highlights the interactional relationship between them. In the discussion on leadership and culture the role of both the organisational and individual is implicit, it is now made explicit. De Vries, *et al.* (2016) identify nine individual level antecedents of innovation (Table 2.6), acknowledging the role of '*creative individual entrepreneurs*', empowered to break through the organisational norms.

Table 2.6 Individual antecedents of innovation

Employee autonomy (empowerment)
Organisational position (tenure, mobility)
Job related knowledge and skills (professionalism)
Creativity (risk-taking, solving of problems)
Demographic aspects (age, gender)
Commitment/satisfaction with the job
Shared perspective and norms
Innovation acceptance
Other

(De Vries, et al. 2016 p158)

These soft antecedents all work together within the inner context, identified as having influence on the likelihood of innovation being undertaken and assimilation into business as usual (De Vries, *et al.* 2016). Change will not occur however, if the system is not willing and able to change, a concept recognised as '*Organisational Readiness for Change*' (Robert, *et al.* 2009).

2.5.7 Organisational Readiness for Change (ORC)

The literature on innovation has much in common with that of change management (Ling, 2002), which identifies Organisational Readiness for Change (ORC) as an essential element for successful change

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implementation within complex healthcare systems (Weiner, 2009). There is a growing citation network that ORC is an important antecedent of innovative behaviour in healthcare (Kelly, *et al.* 2017; Williams, 2011). ORC has been theorised as multi-level and multi-faceted organisational level construct, that can be described as a psychological state, where organisational members' share a collective determination to implement a change (*change valance*), and a belief in their collective capacity to deliver (*change efficacy*) (Weiner, 2009). This supports two notions previously postulated, that innovative organisations can achieve more impact, than individuals working alone (Weiner, 2009; Ling, 2002), and that the antecedents of innovation may make an organisation amenable to an innovation, but not ready or willing to assimilate it into routine practice (Greenhalgh, *et al.* 2004). Baregheh, *et al.* (2009) links this to the importance of an organisation sharing a collective aim for innovation, including articulating market value, advantage and success. This is the final attribute of their model and explored in more detail next.

2.6 The aims of innovating

Baregheh, *et al.*'s (2009) definition of innovation postulates that the aim of innovation is what an organisation wants to achieve through innovating. Pisano, (2019) states that it is not good enough to articulate a general desire to be good at innovation and believe that this positive message will achieve impact, to add value the purpose behind innovating must be clearly described and understood, and supported (Pisano, 2019). Yet, even within the business literature it seems little written in this regard, Baregheh, *et al.* (2009) conclude that the aim of innovation maybe a taken for granted assumption.

Greenhalgh, *et al.* (2004) concur that a clear strategic vision for innovation within the health sector is required, supported by Maher, *et al.* (2010) who identify 'goals' as a key dimension of the CfI (Figure 2.4), yet,

whilst there is a lot of rhetoric referring to the need for innovation in macrosystem policy, a clear statement regarding why NHS trusts should innovate has not been identified. Indeed, De Vries, *et al.* (2016) report from their literature review of 267 papers on public sector innovation, that identification of innovation goals was absent in over a third (35%) of the those that did state a goal, the most common equated to improving performance denoted by effectiveness (18%), or efficiency (15%), especially within the UK health sector. This relates directly to the policy imperative for innovation in order to deliver economic and service benefits (section 2.2.1). Pisano, (2015) whilst agreeing with the need for a goal focused innovation strategy acknowledges the connectivity of this to an organisations business model. Although the policy definition for innovation (DH, 2011) was previously linked to the marketplace (section 2.3), this macrosystem policy has been criticised for the suitability of applying innovation theory from outside the healthcare sector (Osborne, *et al.* 2011), with the suggestion that as NHS trusts are public sector organisations, these goals may not be directly relevant, and other models should be explored.

2.6.1 Social innovation

In the years since the economic recession, there has been a decline in the welfare state, with reforms in the public sector driven by the need to create the most cost effective models of service provision (Hazenberg, *et al.* 2016^a). This has allowed public sector employees to '*spin-out*' from public sector control becoming employee-owned '*mutual*' organisations (Hazenberg, *et al.* 2016^a). These hybrid organisations are often referred to as social enterprises and have merged boundaries within the healthcare sector, (Millar, *et al.* 2012). Encouraged and developed through national policy directives, social enterprises can be considered as organisations that provide public sector services, such as healthcare, that are not within

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the public sector and where stakeholder control, public and employee, play a significant role (Hazenberg, *et al.* 2014).

As these organisations do not fall under the control of the public sector, they have more decision-making freedoms, a particular distinguishing difference from their public sector counterparts; one aspect of which is how surplus income generated can be used, including supporting innovation (Shaw, *et al.* 2013). Social enterprises have been categorised as '*hybrid organisations*', organisations which span institutional boundaries (Doherty, *et al.* 2014) and are suggested as being more innovative and responsive organisations from their conceptualisation providing a real alternative for service users and healthcare staff (Millar, *et al.* 2012). In these social enterprises, there is a developing dissatisfaction with mainstream definitions and models of innovation; the term '*social innovation*' is postulated as a solution (Vickers, *et al.* 2017 p1756). Social innovation is a holistic innovation model, which draws on the positionality of social enterprise as hybrid organisations that are able to mobilise resources creatively for mutual benefit. Although theory in this area is still emergent this conceptualisation could have major benefits, not just within the emerging world of social enterprise, but also for NHS organisations (Shaw, *et al.* 2013). Indeed, maybe it is time that the NHS starts thinking like a 'start-up' (Youth Health Parliament, 2016); developing an innovation strategy that can respond to its mesosystem might be an appropriate place to start.

2.7 Chapter summary

This research acknowledges the problems faced by those within NHS trusts tasked with leading the development of innovation. It aims to contribute to the theory base of how 'innovation' is perceived and 'organisational innovativeness' is understood within healthcare, as well as how it can be developed. Scrutiny of the literature concurs with previous

findings, reaffirming the heterogeneous nature of the evidence-base around innovation (Greenhalgh, *et al.* 2005). Although a large quantity of texts were identified referring to innovation within the public sector or healthcare context, there is no prevailing citation body (De Vries, *et al.* 2016). The number of empirical research publications in this cohort was small; a significant number of texts either discussed a specific innovation or reiterated the policy rhetoric that innovation is necessary to meet the future demands of healthcare, with limited contribution to theory development. There are a few seminal and widely quoted literature reviews specific to innovation in the UK healthcare context, most notably Greenhalgh, *et al.* (2005) and Robert, *et al.* (2009). Whilst useful, these focus on a single stage of the innovation process, adoption, rather than a holistic organisational understanding of innovation or innovativeness.

The literature review also noted that authors are generally critical of the methodological rigour of public sector innovation research, highlighting the lack of a consistent definition of concepts and confusion over constructs within publications (Fleuren, *et al.* 2004; Walker, 2014). This lack of parity between concepts leads to a significant challenge in aggregating a cogent body of knowledge to support development in this field (Rye, *et al.* 2007; Fleuren, *et al.* 2004). The lack of clarity around innovation definition and the paucity of theory regarding innovativeness in NHS organisations are apparent, and the researcher postulates that this is perhaps one reason NHS trusts are not systematically or strategically articulating their organisational approaches to innovation (Thune, *et al.* 2016, Williams, 2011).

This literature review explores organisational innovativeness presenting the results in three sections, the first describes the healthcare ecosystem (section 2.1); this serves to place the '*subject*' of this research, 'the Trust', within its contextual frame (Thomas, 2016). The second section, presents the policy requirement to innovate within this context (section

2.2) provides the analytical frame or the '*object*' of this research (Thomas, 2016). The final section (section 2.3-2.6) explores theoretical propositions (Yin, 2014) around innovation and innovative organisations. Two theories dominate this exploration; Baregheh, *et al.* 2009 conceptual definition of innovation and Maher, *et al.* 2010 Culture for Innovation model.

Baregheh, *et al.* (2009) conceptual definition of innovation from the business literature, describes innovation as a context specific, multi-stage process, identified by six key attributes. These six key attributes are explored in depth with reference to healthcare through the conceptualisation of innovation (section 2.3), which discusses the nature, type and stage of innovation, the means (section 2.4), the social attribute (section 2.5), before exploring the final attribute of aims (section 2.6).

These theoretical propositions raise questions regarding how 'innovation' is understood, what is the relationship between the antecedents of innovation within an NHS trust, and if these were identified and understood, how could organisational innovativeness be developed? Answering these questions has been identified as the objective of the research (section 1.2). The review also presented a model for the measurement and development of a Culture for Innovation (section 2.5.5), validated within the healthcare sector (Mayer, *et al.* 2010). This evidenced based model highlights seven interrelated dimensions required to develop innovation at an organisational level, which collectively cover many of the complex elements of the social attribute (section 2.5), it is therefore identified as a key underpinning theory to address the questions postulated within this research. The next chapter outlines the methodology through which these questions were then explored and this model used.

Chapter 3. Methodology

The methodology chapter of a research thesis follows logically from the propositions articulated in the preceding literature review. This section is designed to clearly articulate the methodological approach taken, in order that the reader can understand how the research was conducted, ultimately allowing an appreciation of how results were conceived, and conclusions drawn. Robert, *et al.* (2009) stated that future research regarding organisational innovation in the NHS should utilise a holistic in-depth approach and acknowledge the complex multi-level systems of the NHS trust. The approach should include the role of formal and informal structures, politics, and policy, teams, and individuals, to take into account the unique environment of an NHS trust. Thomas, (2016 p23) states that a case study is about '*seeing something in its completeness*', and identified this approach as particularly good for developing analytical insights, thus used for this research.

This research is an instrumental mixed-method, single case study, with two embedded units of analysis undertaken from a critical realist perspective. The design is a correlation of methodological approaches presented primarily by Yin, (2014), Thomas, (2016) and Carolan, *et al.* (2015), augmented with other literature. To support methodological rigour this chapter first presents an overview of the approach used, before providing a more detailed description of the individual stages of the case study design: the situation of the research and researcher; determining the components of the case study design, the choice and delivery of the research methods employed and how the data was analysed (Carolan, *et al.* 2015). The final section then explores how the issue of quality was addressed.

3.0 The case study approach

The case study has a long history of use across a range of disciplines, which establishes its usefulness as an approach for research (Yin, 2014). The approach is increasingly popular within healthcare where it is purported to accommodate multi-level, complex system research (Harrison, *et al.* 2017). A concise methodological description of the approach is essential to underpin any research, however, Carolan, *et al.* (2015) highlight that within healthcare the case study has a variety of descriptors, varying by the unit of analysis (case), the process (design) or indeed the product itself (the study), with the only uniting factor being the utilisation of mixed methods of data collection. In their review of healthcare case studies they identified the most commonly cited methodology authors were Yin, (2014) and Stake, (1995), further identifying Yin's definition as more frequently cited (Carolan, *et al.* 2015).

'A case study is an empirical enquiry that

- investigates a contemporary phenomenon (the "case") in depth and within its real-world context especially when*
- the boundaries between the phenomenon and the context many not be clearly evident*

(Yin, 2014 p16)

Healthcare organisations are situated within a real-world context and the complexity of the area of study has already been described (section 2.1), this definition thus presents an appealing approach. Although offering a useful, high-level conceptualisation of a case study, alone it confers no particular philosophy, methodology, or method (Carolan, *et al.* 2015). This adaptability can lead the unwary researcher to confusion and academic criticism (Yazan, 2015). The antidote to this is clarity regarding the ontological and epistemological lens through which the study was conducted (Harrison, *et al.* 2017). Carolan, *et al.* (2015) notes that this is often poorly described within the healthcare literature and suggests that a

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structured framework (the '**DESCARTE**' - **DES**ign in **C**ase **R**esearch in **healThcarE** model) is used to support articulation of the design, conduct and reporting of case studies, suggesting three sequential phases are addressed (Table 3.1). This has been used to inform the methodology section of this thesis.

Table 3.1 Stages of the DESCARTE model

Stage 1	The situation of the research and researcher
Stage 2	Determining the components of the case study design
Stage 3	Data analysis – adopting the three stances

(Carolan, et al. 2015 p5)

3.1 Stage one: Situating the research and the researcher

Three areas to be discussed are laid out by Carolan, *et al.* (2015) in this component; the ontological frame, the situation of self, and the ethical dimensions of the research. Careful consideration of these elements ensures that the research aligns with the researcher's world view and addresses the aims of the study (Harrison, *et al.* 2017). The ontological frame of critical realism and the emic position of the researcher was outlined in Chapter 1 (section 1.5), further exploration is included in Appendix 5.

This emic provides a unique opportunity for the researcher to be immersed within the research itself (Hammersley, 2006), as such it is impossible for the researcher to be seen as a passive recipient of the research, by necessity they must embrace the notion of active participation (Thomas, 2016). As such the researcher brings into the enquiry their prior knowledge, beliefs, and values, this researcher-self must be recognised and understood, in order to ensure a cogent understanding of its impact on knowledge creation (Carolan, *et al.* 2015). Thomas, (2016 p148) identifies this position as a '*Participant Observer*'

The Case to Innovate: understanding organisational innovativeness in one NHS Trust and highlights this as a fundamental concept within the 'interpretive' case study approach.

3.1.1 Ethical tensions

This emic perspective has other advantages including an in-depth knowledge of the local context, a shared language with participants, knowledge of the right questions to ask as well as easy access to the field (Silverman, 1998). Such positionality also presents ethical tensions that must be acknowledged and managed (Simmons, 2012). These were identified prior to the research and discussed within the protocol and ethical approval process, (Appendix 2.II); however, they remained under review throughout the study (Pillow, 2003; Riley, *et al.* 2003).

Fraser (1997) identified five ethical concerns the emic researcher needed to be aware of: personal values and their potential for bias; the researcher's role within the organisation; role conflict; confidentiality and anonymity; and time constraints. The researcher's professional role has been explicitly stated within the introduction of this thesis, transparently identifying her position. In addition, the previous section acknowledges the researcher's values thus addressing Fraser's, (1997) first two concerns. Role conflict pertains to the conduct of the researcher in the field, an issue carefully considered and monitored throughout the study, so as not to exceed the rights afforded to the researcher by her position. Through the approval and data collection stage of this study the researcher was cognisant of her senior post within the organisation and the bi-dimensional power dynamic that interviewing both very senior and very junior staff presented. This impacted the research practically in several different ways described next.

This research went through the same organisational scrutiny processes through which all other student projects are assessed, including review at

The Case to Innovate: understanding organisational innovativeness in one NHS Trust the Trust's research committee³. The researcher neither attended this meeting nor engaged in the approval process. Care was then taken to maintain mutual respect within the workplace (Fraser, 1997); practically, this included ensuring that all staff had the Participant Information Sheet well in advance, they (or their administration staff) controlled the interview time, date, and chose the location of the interviews so they felt comfortable. This was particularly important for junior staff, who were invited to participate by a third party, such as their ward manager and interviewed within their place of work. This was underpinned by the informed consent process.

The anonymity challenge required practical consideration throughout the study, particularly as interviews took place with a small cohort of very senior managers. Thus to preserve anonymity all personal identifiers were removed, rather than assigning pseudonyms which might infer gender, a unique alphanumerical code was created for each participant, based on staff group, interview order and a random letter, so no hierarchy was conferred. This anonymity was extended throughout and included light editing of '*in-vivo*' quotes so as not identifying the Trust within the thesis. Once the research was completed, formal permission was obtained from the Trust before submission, dissemination, or publication (Appendix 2.III).

People's time to participating in the research and the impact it might have on their workload was appreciated and respected. This meant that all staff

³ . The Trust holds a monthly research review committee which reviews all student research

groups were not represented within the interviews; one group not included were estates staff (cleaners, catering and maintenance staff). Additionally, if a staff member had volunteered and made time for an interview, the interview was undertaken. As more interviews than required were booked to allow for clinical pressures, this meant a slightly larger number of interviews (n=28) were conducted than originally planned (n=24). All interviews in the clinical area were done at the convenience of clinical staff, did not exceed the forty minutes allocated, and interruptions for clinical care duties were accepted. Post-interview, all interviewees were followed up by email and thanked for their participation, which also provided an opportunity to share their interview transcripts within them for validation.

The impact of these decisions on data collection and analysis needs to be reflected upon and understood (Carolan, *et al.* 2015). In this study, the researcher noted in her journal that when interviewing very senior staff, the interviews were

'controlled by the agenda they [very senior managers] wanted to share and by the time allocation they had available, thus very short and professional' (PO:09/07/18).

Care was also taken with the interviewees to make them feel comfortable, reassurance was given by the researcher that there were *'no right or wrong answers'*, and that it was *'their understanding that was of interest'*. This was particularly important when junior staff did not understand words used, such as *'innovation'* itself. Indeed, in these instances *'ideas'* was substituted. All staff appeared happy and comfortable to discuss the subject matter with no concerns raised.

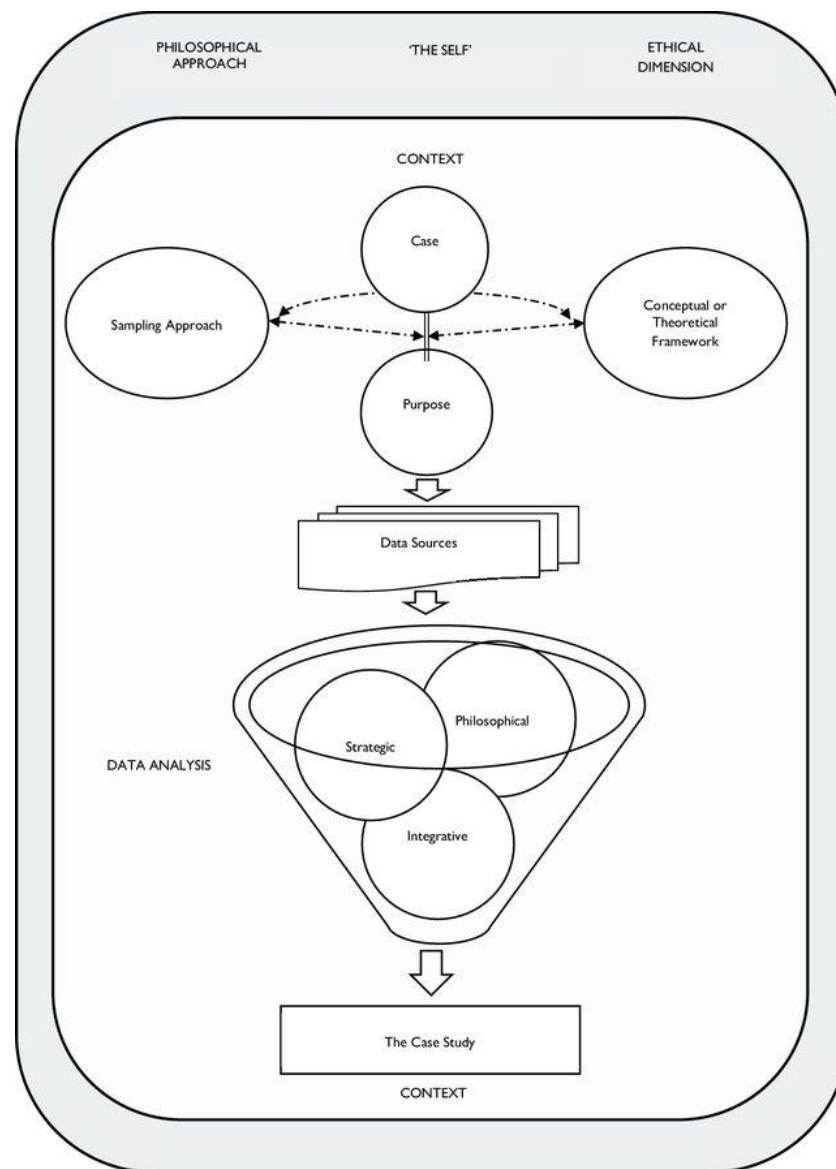
Reflexivity has been described as a critical component of the interpretive research process through which a researcher confronts their ontological

and epistemological position and acknowledges the impact this has on knowledge generation (Ribbens, *et al.* 1998). Day, (2002) proposes that through the reflexivity process the unspoken is spoken and the invisible made visible. A view supported by Carolan, *et al.* (2015) who identifies the importance of reflexivity within the case study, as the process which moves beyond methodological rigour to become a management tool that continues to assess ethical considerations of the research, balancing the needs of study design and the needs of the participants. Reflexivity is thus considered an essential element of this study, in relation to the ethical dimensions of this research. The analytical impact is discussed in section 3.3.1.

3.2 Stage two: determining the components of the case study design

A study's design addresses the logical issues of how the research aims will be answered, not the logistical issues associated with the method (Yin, 2014). Although this principle is noted, the logistical aspects required for the purposes of academia are also understood; therefore both are described so that a judgement regarding the quality of this investigation can be assessed. Carolan, *et al.* (2015) in stage two of the DESCARTE model identify four interrelated components of case study design; the case, the purpose, the sampling approach, and the conceptual framework, presented within a conceptual model (Figure 3.1 DESCARTE model).

Figure 3.1 DESCARTE model



(Carolan, *et al.* 2015)

Carolan, *et al.* (2015) acknowledges the interaction of the design with the context and states the importance of addressing all of these four components, before responding to the rationale behind the data source chosen. To support this, the researcher is challenged to respond to six non-sequential questions (Table 3.2).

Table 3.2 The components of case study design

How is the case defined?
How is the context defined?
What is the purpose of the case study?
What is the conceptual/theoretical framework for the case study?
What is my sampling approach?
What is the rationale for my choice of data sources?

(Carolan, et al. 2015 p6)

Carolan, *et al.* (2015 p8) groups the first two components together as the '*case-purpose dyad*', addressed by three questions. Although articulated differently, other authors concur with the importance of defining these components within a case study. Yin, (2014) identifies these as '*propositions*' that outline the purpose of the research and the '*unit of analysis*' the case to be explored. Thomas, (2016 p15) states a case study is made of two halves, '*a subject*' and '*an analytical frame or object*'. Describing the case-purpose dyad is important as this exemplifies two points; the connectedness of these components and the uniqueness of each case (Carolan, *et al.* 2015). Identifying uniqueness is crucial, as this in turn delineates the case boundaries (Yin, 2014; Thomas, 2016). These boundaries not only articulate the nature of the case, but crucially also include elements such as social groups, organisational context, geography, and temporal dimensions (Crowe, *et al.* 2011). These propositions are presented next.

3.2.1 The case

The case is the subject of the case study (Thomas, 2016) and as such selection is a crucial decision for the research, requiring careful consideration in relation to the research questions and study purpose (Yin, 2014). Yin, (2014) identifies the first decision is whether a single or multi-

case design is required, acknowledging that single cases may be the only option in cases of uniqueness, but comparators between multiple cases lends robustness to the findings. Once this decision is made, a bewildering array of descriptors abound, varying by author and their epistemological commitments, making comparisons problematic (Yazan, 2015). Additionally, some texts identify a case as a phenomenon or an entity (Carolan, *et al.* 2015), whilst others require it to be an entity (Yin, 2014), compounding the issue. Thomas, (2016 p98) provides a simple solution, stating that selection of a case may be based on a researcher's familiarity with it, highlighting this as a practical option for students where time and resources are limited, terming this a '*local knowledge case*'. The advantages and disadvantages of this approach and the strategies through which they were managed have been discussed in section 3.1.1.

Once case selection is made, consideration needs to be given to the level of exploration required to answer the research questions (Thomas, 2016). A single case study design undertaken holistically without enough detail might produce an abstract conceptualisation, this can be mitigated with embedded units of analysis, which position the study and prevent theoretical slippage (Yin, 2014). If too much attention is placed on the embedded units there might be limited contribution to the contextual theory, thus a careful balance is required throughout the enquiry (Yin, 2014). It is recognised that people's perception differ with organisational positionality, variation between managers and frontline staff are recognised within healthcare literature (Plsek, *et al.* 2007). To provide the rich detail necessary for the integrity of this research, not only was the organisational level perspective explored, but granular detail was developed through two 'embedded' units (Yin, 2014 p50). These were classed as 'Senior Leadership Team', (SLT) representing the management position and 'Front-Line Staff' (FLS) representing clinical roles, although some overlap was noted between these two notations. This research is a

local knowledge single site case study, with two embedded units of analysis.

3.2.2 The context

The subject of this research is an NHS trust, identified as 'the Trust' here-on-in to protect anonymity. The Trust is located within the mesosystem of the UK healthcare ecosystem described in section 2.1.2. The Trust is a legal entity in its own right working strategically as a bounded organisation, but constrained by the policies and reporting structures of the macrosystem. It is also a highly complex system, functioning at multiple levels, employing the individuals who work in teams (microsystems), to provide healthcare to its population. Whilst acknowledging the relationship and influence of the macrosystem and exosystem, the focus of this research is the mesosystem, the Trust itself, as a unique entity.

Innovation has been part of the Trust's strategy since 2014; however, the current Innovation Strategy was only launched in June 2017. This research retrospectively explores the Trust's early documentation and strategy development from 2014 onwards with data collection primarily taking place from January to December 2018. This is therefore considered the temporal bounds of the study (Thomas, 2016), with the main element of the research considered a 'snapshot' of the organisation.

The Trust could be described as a '*common*' case (Yin, 2014 p51), it, like many other trusts, delivers healthcare services to an identified geography. It could also be described as an '*unusual*' case (Yin 2014 p51), as it was rated as '*outstanding*' by CQC in August 2018, one of only a few providers in England to achieve this accolade. The Trust is also unusual in having a designated strategic theme '*To Innovate*' and a senior manager, the researcher, tasked with delivering and developing this theme. Thomas

(2016 p114) alternatively refers to common cases as 'key' cases and unusual cases as 'outlier' cases, however, recognises that these states can be allowed to coexist, as they provide conceptual options that support the development of the research. In this research, no specific proposition as to whether it is a key case or outlier has been made.

3.2.3 The purpose

The purpose of the case study defines what will actually be examined within a particular study and why (Yin 2014). Stake (1995 p445) identifies the case study's purpose as '*intrinsic*', a study of interest with no specified outcome in mind or '*instrumental*', which provides insight and the necessary evidence to support change. In instrumental studies the case becomes less important with the focus shifting to purpose and its analytical frame (Crowe, *et al.* 2011). Alternatively, case studies might be described as evaluative, explanatory or exploratory, the most common being explanatory, where connections are made and explained even if only within the limited context of the case. In this way, a single case study can be used to confirm or challenge a theory (Thomas, 2016).

Thomas (2016 p15) defines the '*analytical frame*', as the unique element of a case study that binds the subject, the context and the research aims and objectives. This makes it difficult, but also necessary to define. The subject and context are defined in section 3.2.1 and 3.2.2, the aims, and objectives of this research are identified in section 1.2. The analytical frame might be described as the policy imperative to innovate in order to meet the future demands of the healthcare ecosystem, described within in section 2.2. The purpose of this research is to both develop theory and provide solutions for NHS trusts in addressing how innovation is understood, identifying the innovation environment and how it might be developed. This case study can thus be described as an instrumental or explanatory case study.

Carolan, *et al.* (2015) proposes that if the case-purpose dyad is clearly conceptualised, complex typology descriptors become redundant. Practically, however, typologies provide clarification and summary, thus have been included in the case-purpose dyad description. In summary this research could be described as an instrumental or explanatory, local knowledge, single case study with two embedded units of analysis.

Texts differ on whether the case-purpose dyad should precede (Carolan, *et al.* 2015; Thomas, 2016) or follow the research questions (Yin, 2014). Carolan, *et al.* (2015) states that where the research questions are placed first, a pragmatic paradigm is established regardless of whether this changes later within the research, they promote that the case-purpose dyad is central and thus should come first, with the research questions logically following it. This research is required to meet the standards of an academic thesis, and thus the research aims and objectives were stated at the outset; however, specific research questions follow in section 3.2.6 thus placing it in the critical paradigm.

3.2.4 Theoretical framework

Yin's (2014 p37) focus for the design phase of the research is on the development of logical models, linking this to '*theoretical propositions*', or theories that are to be tested within the research. Yin, (2014 p41) acknowledged the difficulties in this, stating that it must be informed by an in-depth analysis of the literature to identify all available theories to be tested, noting that some of these may be '*rivals*' that must then be explored within the study. He postulates that this theory testing approach is a key difference between the case study methodology and other qualitative forms of enquiry (Yin, 2014).

The literature review undertook a pragmatic, recursive approach to distil key elements from the evidence-base regarding what is currently known of organisational innovativeness in the context of NHS trusts, augmented with theory drawn from the business literature to create a theoretical framework. This recognises innovation within the complexity of the NHS mesosystem, the NHS trusts, and their porous boundaries to the wider healthcare exosystem and macrosystem. Thomas (2016 p38) suggests distilling these key propositions into a 'storyboard' to provide clarity for the research design; this is presented in Figure 3.2 .

Figure 3.2 Storyboard of propositions (authors own)



The critical realists perspective accepts that the world is theory-laden, not theory driven. In this instance, 'theory' is conceptualised as a 'temporary conceptual framework' that can be used for the purposes of the study, 'discarded' or 'retained' depending on the outcome of the research (Thomas, 2016 p150). In addition to the propositions of the literature review, three other theories inform the design and analysis of the research, these are described next.

Complex and general system theory

NHS trusts have been described throughout as complex, dynamic systems, with multiple individuals, undertaking different functions, at the same time. As units of analysis, they have been described as '*open systems*', with no possibility for a researcher to exert control (Edgley, *et al.* 2016). Complex and general system theory recognises this, and describes how within each level of the ecosystem, individuals have autonomy and a freedom to act in ways that are not always totally predictable. Each action impacts on other interconnected elements within the system and as the levels within the systems have '*fuzzy*' boundaries unpredictable consequences can occur (Greenhalgh, *et al.* 2005 p79). These systems are dynamic and constantly changing, with important implications for how information is understood and transferred throughout the ecosystem (Greenhalgh, *et al.* 2005). Exploring complex systems holistically, to ensure an understanding of the interactions between components and between all parts of the system is essential (Greenhalgh, *et al.* 2005), thus making the case study approach an ideal methodological choice.

Design Science Approach (DSA)

Chapter one identified the purpose of research as two-fold; knowledge development and problem solving; the researcher has stated her own positionality in relation to these concepts. Van Aken (2007 p68) makes a distinction between two types of knowledge, linking the '*knowledge problem*' to the understanding of the present reality and '*field problem*' to designing a better reality. He elucidates that the explanatory sciences are concerned with knowledge that uncover truths, whereas design science is the underpinning theory through which research is linked to problem solving (Van Aken 2007). It is suggested that design science is the process through which experts and professionals think, using their tacit knowledge to create solutions to field problems (Bevan, *et al.* 2007).

The approach is characterised by an underpinning holistic stance and is strongly customer and outcome focused (Van Aken 2007). In addition, it focuses on establishing the right specifications and uses deliberate procedure, thus distinguishing it from the lay approach. Bevan, *et al.* (2007) identifies four sequential phases to the design science approach, described in Table 3.3.

Table 3.3 Four stages of the design science approach

1	Reflection, analysis, diagnosis and description: looking back, harvesting, establishing and codifying what we know
2	Imagining and visualising: looking forward, hypothesis formulation, imagining what might be possible
3	Modelling, planning and prototyping: knowledge exploitation, though prototyping and testing coming up with something that might work
4	Action and implementation: intervention, building and testing

(Bevan, et al. 2007 p139)

Design science does not seek to find statistical truths; instead the focus is on converting the implicit, tacit knowledge of experts into explicit, actionable knowledge to present the possibility for change. It postulated that if you want to achieve a goal, within a specific context then actions such as 'X' might help (Plsek, *et al.* 2007). Four practical methods have been associated with design science; reviewing documentation, convening groups of experts, listening to stories and posing hypothetical scenarios (Plsek, *et al.* 2007). This approach has been successfully used within the NHS to create large scale transformation change (Bevan, *et al.* 2007). It is therefore considered a useful theoretical framework to support the second aim of this research and the data collection methods.

Soft System Methodology (SSM)

Thomas, (2016 p214) suggests that case study analysis can be usefully informed by '*systems thinking*'. This approach, sometimes called '*Soft System Methodology*' (SSM) was conceived by Checkland (1981), and has developed over 30 years to become widely recognised within the private sector (University of Cambridge, 2019). SSM is situated with the design science paradigm (Van Aken, 2007) and uses a similar logic model to provide a purposive solution focused approach within integrated social systems, to address complex problems.

Thomas (2016) presents a six-stage approach to SSM, the first two of which, outlining the problem, and organising and describing it. Stage-three, the system thinking stage, attempts to identify the root cause of the issues, characterised by appreciation of the situation from varying perspectives, customers, actors, transformation, Weltanschauung, owners and environment, exemplified by the acronym '*CATWOE*' (Thomas, 2016 p215). Table 3.4 presents how CATWOE has been interpreted for the Trust in this research.

Table 3.4 Six features of situation as a system 'CATWOE'

Thomas 2016			Interpretation at the Trust
a	C ustomers	Those who benefit from the system	Patients, service users, carers and staff
b	A ctors	People who transform inputs into outputs	All Trust staff(SLT and FLS)
c	T ransformation	From this to that, a to b, inputs to outputs	Findings and analysis
d	W eltanschauung	The broader context and worldviews	Healthcare ecosystem; Macrosystem, exosystem, mesosystem, microsystems
e	O wners	People who 'own' the problem and want to solve it	Trust senior managers (SLT) and Innovation leads
f	E nvironments	The constraints that the environment sets up	Hard antecedents, social context

(adapted from Thomas, 2016 p215)

This variation then informs stages four and five, speculate how things might be different, and how they could be changed, before a final stage identifies the differences between the actual and the desired and proposed actions to bridge the gap (Thomas, 2016; Checkland 1981). These stages loosely mapped to the four DS stages, with CATWOE providing a tool to support the consideration of the variation of perspectives within the system.

Thomas, (2016 p219) describes theories as '*tools*' for analysis and as '*glue*' that binds understanding, holding it together, rather than the end point of an enquiry. If theory is considered in this context, then these three frameworks bind this research ontological perspective, design, and analysis. They acknowledge the complexity of the social system under investigation and problems this infers for empirical research. They support the need to explore complex systems holistically and from a variety of levels and perspectives. They accept the temporary nature of reality coterminous with a critical realist's perspective, where the transient nature of knowledge is accepted (Scott, 2007; Edgley, *et al.* 2016). In addition, these frameworks provide useful structure and tools for data collection, analysis, and presentation of complex research findings.

3.2.5 The sampling approach

Carolan, *et al.*'s (2015) fourth component of the research design is the sampling approach; however, this is poorly described within their model, referring the reader to other texts, so it is unclear how they intended it to be discussed. Thomas, (2016) rejects completely the notion of sampling within the case study, stating the term lies within the positivist paradigm and has no place when seeking to understand the holist nature of a specific case, with case selection paramount. Yin, (2014) who represents the post-positive perspective, states that both qualitative and quantitative methods are of equal importance within the case study methodology, but also rebuts the use of sampling logic, stating that any power calculation for sample size is irrelevant for case study research. Indeed, Yin, (2014 p61) dismisses commonly reported confidence levels as '*discretionary judgements*', following that in his opinion, discussions about sampling are to be avoided if possible.

As case identification has already been addressed (section 3.2.1), by default sampling here must refer to the data collection methods. In this

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research, all sampling should be considered purposive (Yin, 2014), and no attempt at statistical generalisation from the case itself made. To support an understanding of investigation size, however, numerical values are presented for specific data collection methods and summarised in Table 3.8.

3.2.6 Choice of research methods

In the DESCARTE model the final question of stage-two (Table 3.2) requires an exploration on choice of data sources (Carolan, *et al.* 2015). Data in its simplest concept is information, however, Thomas (2016 p187) makes the distinction that '*evidence*' is data that supports some proposition. Yin, (2014), concurs stating that the theoretical propositions should lead naturally to the development of the research questions, these then narrow the focus to what specifically will be examined within the research (Creswell, 2005). Unlike other methods, case study questions are therefore posed to the researcher as a tool that helps define the evidence sources required to address the study aims, with each question linking to a 'likely' sources of evidence (Yin, 2014). Theoretical propositions from the literature review were summarised into a storyboard (Figure 3.2) and further distilled into five specific research questions (Table 3.5).

Table 3.5 Research Questions (RQs)

RQ1	How was innovation understood?
RQ2	How was innovation leadership articulated?
RQ3	How was the innovation culture perceived?
RQ4	What were the shared belief, values, and behaviours around innovation?
RQ5	How has strategy and policy impacted on the development of the innovation?

As there are no prescribed data collection methods within a case study approach (Harrison, *et al.* 2017) critical decisions need to be taken regarding data sources that will yield the right evidence for the enquiry, with the evidence sources multiple and various to support triangulation. Differing methodologies lean towards differing methods depending on their ontological leanings, (Yazan 2015), where Yin (2014) states these may be qualitative, or quantitative, with no hierarchy of methods implied, Stake (1995) however, focuses only on qualitative approaches. A summary of potential data sources is presented by Thomas (2016), this has been augmented by other authors to give an overview of the choice on offer to the researcher, although this is not considered definitive (Table 3.6).

Table 3.6 Common data types in case study method (authors own)

Commonly used data collection method		Authors	Stake, 1995	Thomas, 2016	Plsek, et al. 2007	Crowe, et al. 2011
		Yin, 2014				
Interviews/stories/accounts	Qualitative	✓	✓	✓	✓	✓
Diaries	Qualitative			✓		
Expert group interviews/focus groups	Qualitative			✓	✓	✓
Document/record interrogation	Qualitative	✓	✓	✓	✓	
Questionnaires/Surveys	Mixed methods	✓		✓		✓
Participant observation	Mixed methods	✓	✓	✓		✓
Direct observation	Mixed methods	✓	✓			✓
Photographs/image based methods	Mixed methods			✓		
Physical artefact	Mixed methods	✓		✓		
Measures/Tests scores	Quantitative	✓		✓		
Audits	Quantitative	✓		✓		
Accounts	Quantitative			✓		
Official/healthcare statistics	Quantitative			✓		✓

Of necessity, pragmatic but informed decisions on research methods must be made. Particularly relevant to this research was the Culture for Innovation Framework (Maher, *et al.* 2010) (section 2.5.5), as this offered a context specific, validated framework. The framework provided two data collection methods; a structure for convening groups of experts and a structured questionnaire, both identified as primary data collection tools for case study research (Table 3.6). These two primary methods were augmented by a third primary data collection method, semi-structured interviews, described in more detail next.

Collaborative Enquiry Workshop (CEW)

On 8 January 2018 the Trust held a conference for approximately 120 staff members, including but not limited to Senior Leadership Team (SLT) on the topic of '*Innovation and Creativity*'. The conference saw the public launch of the Trust's strategic innovate theme and the supporting '*Innovation Pathway*' (TD5). It also introduced staff to the idea of '*embracing change*', by becoming leaders of innovation, presented tools to support creative thinking and a real-life case study from within the Trust (TD6). The day commenced with an external motivational speaker presenting '*The Leader's Mindset in The Age of Disruption*', taking concepts of innovation from the business world, in particular, creativity, and catapulting them into this NHS arena. At this event a ninety minute Collaborative Enquiry Workshop (CEW) was held with all participants. The methodology was adapted from Maher, *et al.* (2010 p132) and Parkes, *et al.* 2013 and summarised in Table 3.7.

Table 3.7 Summary of Collaborative Enquiry Workshop method

1	Whole conference 15 minutes	Presentation of purpose: overview of CEW, culture for innovation tool, summary dimensions of innovation, actions to be undertaken
2	Individual session 5 minutes	Individual consideration of seven domains of culture for innovation (participants, n=120)
3	Individuals scores	Individual Scores on A4 size portal charts (CEWi, n=90)
4	Table top discussions 20 minutes	Scores shared and discussed in small table groups of 8-10 participants. Summary of Dimensions of Innovation available on each table
5	Table scores	Table groups scored A3 portal charts to produce a consensus rating for the table group (CEWg, n=22)
6	Table discussions 20 minutes	One or two dimensions of the portal chart identified as priority, ideas, and actions discussed on how to improve the scores, captured on flip charts.
7	Whole conference feedback session 15 minutes	Groups presented scores (n=1) and ideas to the whole group, convergence/divergent noted.
8	Scoring of ideas Over lunch session	Flip chart pages placed on walls, individual participants given three voting sticky dots. Voted on top three ideas using sticky dots (Dotmocracy, 2019) (Appendix 4.III)
9	Summary presented at end of conference	Summary portal chart created from CEWg Mean Dimension Score scores. List of most highly ranked ideas tabulated presented back to the participants at the end of the conference

(Adapted from Maher, *et al.* 2010 and Parkes, *et al.* 2013)

The data outputs from this session included quantitative scores for each of the seven dimensions plotted on portal graphs for CEW individuals (CEWi; n=90), CEW group (CEWg; n=22). These scores represented discrete interval data, scaled from, -5, negative behaviours and practices associated with innovation, to +5, positive behaviours and practices associated with innovation. The strength of positive or negative association was represented by number size, with 0 representing neutrality. Mean Dimension Scores were calculated for both the CEWi and CEWg scores and plotted on a portal chart.

A secondary data output from the CEW was the qualitative data generated from the discussions regarding actions that could be taken by the Trust to develop the CfI, these actions were also assigned an ordinal rank through the Dotmocracy process. Dotmocracy is a novel process designed as a fun way to quickly assess group preferences when limited options are available (Dotmocracy, 2019). This approach has a developing evidence base within healthcare where it has been used in lieu of a survey to achieve effective stakeholder involvement in hard to reach groups (Parkes, 2013) or as an abbreviated Delphi to address significant, complex issues and in a meaningful way quickly (McGarath, *et al.* 2018). In this research CEW participants were given the opportunity to vote on their top three actions identified in the discussions.

Maher, *et al.* (2010) identify that this activity provides a quick assessment and develops a rich understanding of the current situation and supports idea generation. These results therefore, are a snapshot that cannot be seen as representative of the whole organisation or replicated, for this they suggest a survey (Maher, *et al.* 2010).

Trust Survey (TS)

A validated survey tool is presented within the Culture for Innovation framework which Maher, *et al.* (2010) suggest has several advantages including the ability to reach a larger population, develops a deeper level of understanding, and can be repeated over time. The questionnaire had 29 items, presented as a group of four questions for each of the seven dimensions of CfI, the fourth question in this group addresses management support, in this way making the connection with organisational leadership (Appendix 1.0). This framework thus provided a useful method tool to quantitatively measure RQ2, and RQ3.

The survey (Maher, *et al.* 2010 p142-143), was formatted verbatim within an online tool, Survey Monkey (Survey Monkey, 2019) augmented by a question regarding staff group and a free-text response box. The questionnaire used an implied consent model, all responses were anonymous and took approximately ten minutes to complete. This was promoted widely through the Trust's normal communication routes, supported by SLT, from 1 to 30 April 2018. The TS provided quantitative data for analysis similar to the CEW quantitative data, discrete interval data scored from -5 to +5 bit for all 29 items. The results were exported via an excel spread sheet directly into SPSS (n=159 responses; 5% response rate).

Semi-structured Staff Interviews (SI)

Plsek, *et al.* (2007) identified in their design science approach that the advantages of engaging with groups of experts were that they readily understood the concepts and engaged in the discussions, however, they also noted that participants tended to describe what they would like to happen and genuinely struggled to think explicitly in terms of actions that could be captured. It was suggested this was due to the complexity of thinking required to both recall what was done and why, whilst

simultaneously conceptualising what could be taken forward (Plsek, *et al.* 2007). To address this issue the DSA suggests augmentation data collection using qualitative methods, getting both operational managers and frontline staff to tell their stories in semi-structured interviews (Plsek, *et al.*, 2007).

In this research, although the CEW discussions were tasked to identify actions, the results concurred with Plsek, *et al.*'s (2007) findings, and so augmentation with 28 semi-structured interviews took place, drawn from the two embedded units (SLT, n=12; FLS, n=16). Participants were purposively drawn from a wide range of disciplines, ethnic backgrounds, and pay grades within the Trust. The most junior was pay band 2 the most senior on very senior managers pay scales (Appendix 3.IV). Formal consent was taken from each interviewee and the interviews were supported by an interview schedule (Appendix 2.IV) that addressed all the research questions directly. In keeping with the DSA, the summary portal chart from the CEWg (Appendix 3.III) was used as a physical artefact (Yin, 2014) and shown to participants to support hypothetical discussions regarding how culture for innovation was understood and might be developed. The interview length varied between 13.56 to 41.14 minutes (mean=22 minutes approx.). Each interview was recorded and transcribed verbatim.

These three primary data collection methods were augmented throughout by other secondary data including Trust Documents (TDs), outputs of Trust events, such as Sli.do poll (Appendix 4.vi) and the participant observation conducted by the researcher (PO). At the Innovation and Creativity event, 92 people responded to a direct online poll (sli.do, 2019) to the question '*In 1 word describe what innovation means to you?*' (Appendix 4.VI). Practically, this research produced a lot of data that required careful and meticulous management, a database of evidence was kept (Appendix 4). Flexibility and adaptability was supported through a

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research journal and also by regular meetings with the researcher's supervisory team, using a critically reflexive approach. Data collection methods are summarised in Table 3.8.

Table 3.8 Research Question with primary and secondary data sources identified

RQ	Activity	Sample size	Analytical methods	Outputs
ALL	Understanding of current knowledge and theory <i>Secondary data sources</i> Literature review: database searches; grey literature; conference Participant observation and Reflexivity	N/A	Qualitative document analysis, interpretation and synthesis Active participation of researcher	Conceptualisation of subject, analytical frame and conceptual framework and current theories, emergent theories
RQ1	How was innovation understood? <i>Primary data source</i> Semi-structured interviews (SI) with purposive sample very senior leaders and senior leaders Semi-structured interviews (SI) with purposive sample of frontline clinical staff (March –September 2018)	N=12 N=16	Constant comparison analysis using NVivo 11	Thematic analysis of understanding of innovation
RQ2	How was innovation leadership articulated? <i>Primary data source</i> Semi-structured interviews as per RQ1 <i>Secondary data source</i> Document analysis	See above	Constant comparison analysis using NVivo 11	Thematic analysis of understanding of leadership behaviours
RQ3	How was the innovation culture perceived? <i>Primary data source</i> Collaborative Enquiry Workshop (CEW)	N=120 Individual responses	Analysis of 'Portal Charts' individuals and groups, Dotmocracy data using	Thematic analysis of organisational innovation culture

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	<p>(Parkes, 2013) 'Culture for Innovation' portal charts (Maher, <i>et al.</i> 2010) using and <i>Secondary data source</i></p> <p>Dotmocracy approach (Dotmocracy, 2019)</p> <p>Sli-DO poll (sli.do, 2019)</p> <p><i>Primary data sources</i></p> <p>Questionnaire trust survey (TS) Culture of Innovation using Survey Monkey (4 weeks April 2018)</p> <p>Semi-structured interviews as per RQ1</p>	<p>N= 22 groups responses</p> <p>N=160</p> <p>See above</p>	<p>qualitative methods</p> <p>Constant comparison analysis using NVivo 11</p> <p>Statically analysis SPSS 22</p>	
RQ4	<p>What were the shared belief, values, and behaviours around innovation?</p> <p><i>Primary data source</i></p> <p>Semi-structured interviews (SI) as per RQ1</p>	See above	Constant comparison analysis using NVivo 11	Thematic analysis of understanding of belief, values and behaviours
RQ5	<p>How has strategy and policy impacted on the development of the innovation?</p> <p><i>Primary data source</i></p> <p>Semi-structured interviews (SI) as per RQ1</p> <p><i>Secondary data source</i></p> <p>Document analysis</p>	See above	Constant comparison analysis using NVivo 11	Thematic analysis of understanding strategy and policy
ALL	<p>Synthesis of finding and lessons for practice</p> <p>All data sources</p>		Triangulation of CEW, survey data, staff interviews, document review (TD) and Participant Observation (PO),	Distillation of results to case report and theory development

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			Key Informant Feedback (KIF) thought critical reflexivity, phronesis and abduction	
ALL	Outputs and dissemination Post viva			Publically available thesis in UoN library Journal publications: target Qualitative Health Research and Health Service Journal

3.3 Stage three: data analysis and adopting the three stances

Analysis is the process of giving meaning to data (Yazan, 2011), yet, this stage of case study methodology is poorly described with no ready-made conventions; thus presenting a challenge to researchers (Yin, 2014). Thomas, (2016) postulated that the analytical framework is shaped by the first two stages of the study design already described, with a focus on the study object. This is corroborated by other authors; Carolan, *et al.* (2015 p9) stress the overlapping nature of this process, but state the need for three specific stances to be described; '*philosophical, strategic and integrative*'. Although much of the philosophical approach has already been addressed in this chapter, the element of reflexivity and the other stances require further development.

3.3.1 Philosophical stance

The philosophical stance pertained to the ontological and epistemological assumptions that underpin the research analysis supported by the reflexivity process (Carolan, *et al.* 2015). The researcher's ontological stance has been openly described as one of critical realism; however, little attention has been given to date to reflexivity and its purpose within this research, and so is addressed in more detail next.

Critical realism acknowledges that empirical research explores what can actually be observed of the real world from a position of the researcher's current knowledge. Throughout the research process, empirical study of data collected is interpreted into the study findings, and abducted into new theories relevant at that particular point in time; to apply these theories to the real world, a process of retrodution must occur (Tsang, 2014). To achieve this, the researcher must both immerse themselves in the research process and engage in critical recursive thinking throughout the analysis (Thomas, 2016). This process of continuous internal analytical deliberation recognises the role of the researcher, both within

the researching process and as an instrument of the research interpretation, which is often termed '*reflexivity*' (Berger, 2015). Reflexivity by necessity is particularly important to the emic researcher and the critical realist, where the researcher brings their knowledge and understanding into the research.

Pillow, (2003 p176) describes reflexivity as a '*methodological tool*' common within qualitative research practice that can support legitimacy and validity within the interpretive process. The frequency of its citation however, means its definition is often implied rather than explicitly stated, this has led to criticism and challenge regarding how reflexivity contributes to better research (Pillow, 2003). In order to address this, the researcher must explain how and why reflexivity is being used for their research. Pillow, (2003) suggests four co-dependent reflexivity strategies to achieve this; the first is awareness of self. Berger, (2015) articulates the impact of self in three ways: access to the field and its impact; field relationships; and the knowledge the researcher brings with them. The emic positioning of the researcher and the ontological positionality have already been discussed (Section **Error! Reference source not found.**).

The three other reflexivity strategies then need to be considered throughout analysis these are: the '*other*', '*truth*' and '*transcendence*' (Pillow, 2003). If these concepts are expounded, the '*other*' refers to '*how well does the research allow the voice of the participants to be heard?*' '*truth*', asks '*is this right?*' (Pillow, 2003); and '*transcendence*' then encourages the researcher to transcend their own subjectivity and cultural context in a way that produces an honest interpretation, acknowledging the uncomfortableness of this process (Pillow, 2003). In doing this the real value and meaning of the research is produced. If this reflexive journey is then understood as one of many versions of the possible, this then becomes a new text of a reality, which can be interrogated as evidence, as opposed to being a mere reflection of what has transpired (Riley, *et al.*

2003). This responds to the philosophical concepts postulated as critical realism (Edgley, *et al.* 2016) and thus considered the philosophical stance of the analysis and is strived for throughout this research process. This was managed and supported throughout the study by the use of a reflective journal (section **Error! Reference source not found.**) and the supervisory process.

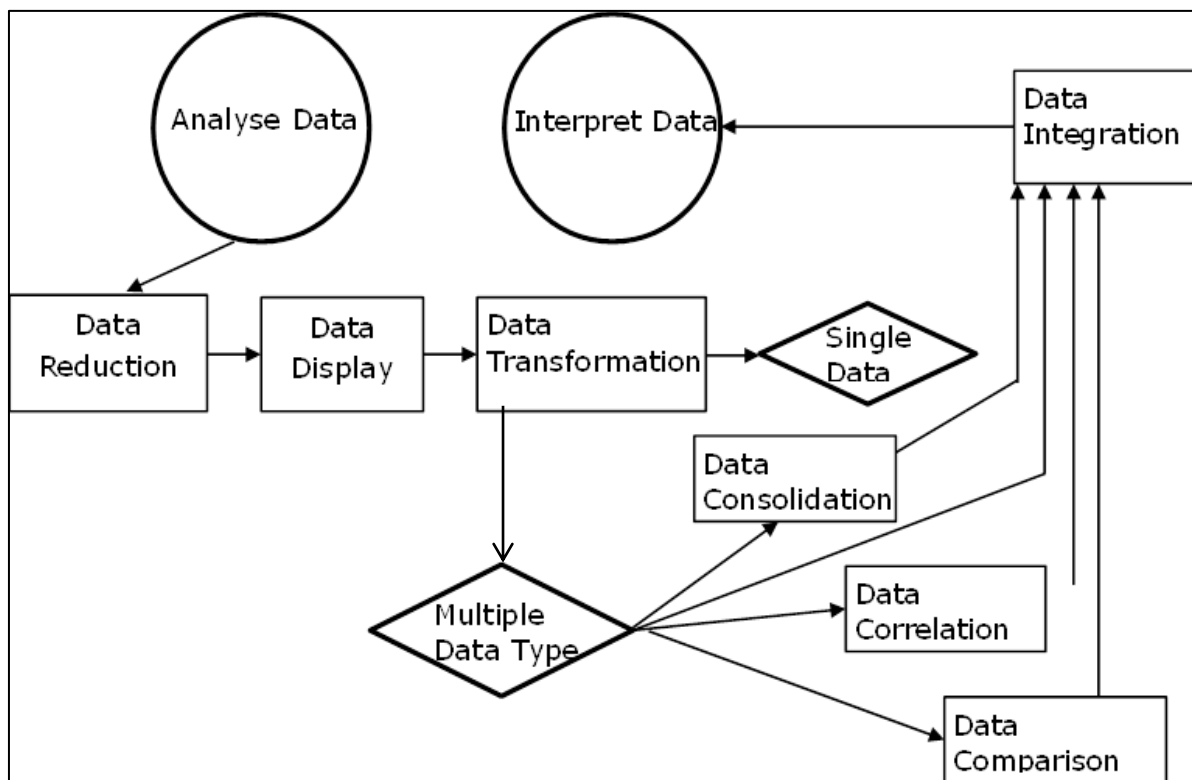
3.3.2 Integrative stance

The strategic stance is relevant for multiple case study designs where the analytical approach might be variable-based or case-based (Carolan, *et al.* 2015), as a single case study by default the strategic approach is case-based. The integrative stance is therefore the last component requiring description in Carolan, *et al.*'s (2015) DESCARTE model, although there is recognition that this is the least well described and the most problematic. Multiple data sources must converge through a non-hierarchical triangulation process to describe the phenomenon as a case (Yin, 2009; Reeves, *et al.* 2008; Scott, *et al.* 2003). The researcher must explicitly state how each stage of the analysis was conducted so that a judgement about the quality of the research can be made (Carolan, *et al.* 2015).

Yin, (2014 p135) agrees that a strategy is required for data analysis, suggesting a starting-point as '*playing with your data*', before using four general strategies and five specific analytical techniques. Outside of the case study methodology, however, mixed-methodologists have developed logic frameworks to support the triangulation of mixed-data (Onwuegbuzie, *et al.* 2006). In their framework, Onwuegbuzie, *et al.* (2006) describe a cyclical analytical process, linking the research aims, to research questions, design, data collection and the analysis phase, using this to re-define the research questions where necessary. They suggest within their logic framework a researcher utilises at least some elements

The Case to Innovate: understanding organisational innovativeness in one NHS Trust of seven sequential, but non-linear, processes in their analysis (Onwuegbuzie, *et al.* 2006) (Figure 3.3)

Figure 3.3 Seven stage process of analysis



(adapted from Onwuegbuzie, *et al.* 2006 p476)

Case-study research produces a lot of data that requires preliminary management. Onwuegbuzie, *et al.* (2006) describes this process as reduction and primary display, using descriptive statistics and exploratory thematic analysis. Field (2013) also suggests that first phase of quantitative data analysis is visualising the data using frequency distributions and assessing the properties of the data through exploring the central tendencies. The quantitative data collected from the Collaborative Enquiry Workshop individuals (CEWi) and groups (CEWg) were tabulated in Excel, frequency distribution graphs analysed and mean dimension scores (mDS) calculated. The Trust Survey (TS) was first tabulated in Excel, then frequency distribution graphs and mean survey question scores (mSQS) were calculated for each of the 29-items for the

TS. Each group of questions pertaining to the dimensions of CfI were then combined to give a grand mean (Field, 2013) dimension score (mDS) and again frequency distributions assessed.

All quantitative data was then imported into IBM® SPSS® Statistics v22.0 (SPSS) where a more formal process of assessment of frequencies and measures of central tendency were undertaken, exploring normality, dispersion, and dimensions for each data set. Portal charts were plotted using Excel, histograms and bar charts were plotted in SPSS (Appendix 4.IV). Throughout the analysis process, attention was paid to the type of question being interrogated by the data, if a question is a simple descriptive question, then descriptive techniques were used within the analysis; as the analysis progressed the questions asked of the data developed in complexity, thus different analytical strategies were required (Onwuegbuzie, *et al.* 2006). Maher, *et al.* (2010) acknowledges the statistical limitations of their CfI tool, predicated on a DS model, although this was scale data it was found to be non-parametric, hence a non-parametric test, a one-way ANOVA (Kruskal-Wallis test⁴) was used to compare means between different data sets.

Saldaña, (2016 p20-21) suggests making and reading a '*hard copy*' of all qualitative data as it is generated in a processes of '*pre-coding*' and '*preliminary jotting's*, as an initial stage of qualitative analysis before

⁴ The Kruskal-Wallis test is the non-parametric version of a one-way independent ANOVA and is used to test the hypothesis that data from multiple independent groups comes from different populations by using ranking. The test can be used when the size of sample differs greatly or data has been assessed as not having a normal distribution. Both factors applied in this case (Field 2013).

level-one coding is undertaken. Thomas, (2016 p205) terms these '*temporary constructs*'. Qualitative data was generated from staff interviews (SI), all data was transcribed verbatim, formatted in Microsoft Word, and a hard copy printed, before an electronic version was uploaded into NVivo 11. Each hard copy transcript was read, significant quotes highlighted and notes made to give a visual presentation of data and to develop temporary constructs. Textual data from the CEW feedback session and qualitative comments from the TS were also tabulated and manually reviewed before being formatted and uploaded into NVivo. Other data sources were captured and logged on the database of evidence (Appendix 3.I).

Level-one coding was undertaken using the constant comparative method (CCM). Although CCM is commonly associated with a grounded theory approach (Glaser, et al. 1967), this research did not take this underpinning philosophical approach, recognising the implications of the emic researcher and the prior knowledge in this field. Instead this research acknowledging CCM as described by Thomas, (2016 p204) as '*the basic method of interpretive enquiry*' , following the principle of repetitive cycles (*constant*) of exploring data against known concepts (*comparison*) to elicit '*themes*', in an iterative process. A primary coding cycle was undertaken by comparing the data to the '*temporary constructs*' (Saldaña, 2016). This was followed by a transitional reflexive phase (Saldaña, 2016), before a second-level coding cycle was undertaken, comparing the data to the primary codes and refining the themes. This was repeated until points of data convergence and themes evolved (Thomas, 2016 p204) (see Appendix 4.V). Yin, (2014 p136) identifies '*four general strategies*' that support this process, the first three concur with CCM; '*relying on theoretical proposition*'; '*working your data from the ground up*' and '*examining rival proposition*' all of which were used in this process.

The third stage transformation is optional, where quantitative data are converted into narrative data that can be analysed qualitatively and/or qualitative data are converted into numerical codes. This was not undertaken in this study. Stages four, five and six involve correlation, consolidation, and comparison of the qualitative and quantitative data sources in parallel (Onwuegbuzie, *et al.* 2006). Although CCM supports the development of descriptive themes, alone it cannot demonstrate the connectivity, relationships, or differences between the themes required to develop a holistic picture, other analytical techniques are required to augment this process of '*theme mapping*' (Thomas 2016 p206). Yin, (2014 p143) recommends five specific analytical techniques that support data triangulation, three of which, pattern matching, explanation building, and logic model development were utilised at this stage of the analysis.

Data integration is the final stage, whereby both quantitative and qualitative data are integrated into one coherent whole. Yin (2014) describes this as '*developing a case descriptor*', which for a descriptive case study might be the end of the analytical stage. The case is presented as a '*thick-description*', a vivid picture through which the reader can understand the case within its context, augmented by in-vivo quotes and visual material (Yin, 2014; Thomas, 2016). The results of integration are coterminous with stage one of the DS approach; reflection, analysis, diagnosis and description (Bevan, *et al.* 2007).

3.3.3 Interpretation

The single case study can be considered a classic case study; the classic approach is often described as '*interpretative*' (Thomas, 2016 p147). The interpretative position has already been implied in the positioning of the researcher as a critical realist, this is now explicitly stated, doing so acknowledges that this approach can then be utilised to build or test a theory depending on the questions posed (Thomas, 2016). This is stage

eight of Onwuegbuzie, *et al.*'s (2006) model, substituted as a third analytical stance, and described as a two-stage process, abduction, followed by retroduction (Tsang, 2014).

Abduction is the process of developing a theoretical idea from the evidence presented within the research (Hammersley, 2006). This process changes the level of analysis from thick description of the entity provided in the integration stage, to provide theoretical re-description (Fletcher, 2016). The findings, informed by theoretical propositions are developed through the researcher's ontological beliefs, then abduction through critical thinking and the process of phronesis to develop new theoretical propositions (Thomas, 2016). Thomas (2014 p214) describes the usefulness of '*systems thinking*' and suggests using SSM to support this development. The process is iterative and recursive involving reading, coding, CCM, elaboration of emerging themes and re-engaging with wider literature (Waring, *et al.* 2014). The results of the abduction are coterminous with stage two of the DS approach; Imagining and visualising (Bevan, *et al.* 2007).

The final stage of analysis is retroduction, the distillation of the concepts back to the potential theoretical models of the real domain (Tsang, 2014). The results of retroduction are coterminous with stage three of the DS approach; modelling, planning and prototyping (Bevan, *et al.* 2007). The interpretation stage of analysis was supported by the second-stage literature review, the thick description from the case study, and researcher engagement. Throughout the interpretative analysis stage, engaging and feedback from key-informants was significant (Yin, 2014).

3.4 Assessment of quality

The case study methodology has been criticised for lack of scientific rigour and limited basis for generalisation (Crowe, *et al.* 2011). Yin (2014) states

that the researcher must be prepared for this criticism and be able to defend the quality of their method; however, various authors take different approaches on how this should be done. There appears to be a general consensus that multiple sources of evidence are required to ensure the process of triangulation can be achieved in enough depth to give a rich description of the case and that this should be informed by theoretical propositions (Yazan, 2015; Haughton, *et al.* 2012; Yin, 2015; Stake, 1995; Thomas, 2016). This principle of multiple data sources was, therefore, accepted as the first underpinning principle of quality used for this research. Beyond this, opinions diverge depending on epistemological perspective (Yazan, 2015).

Yin's, (2014) realist suggestions include addressing three areas of validity; (construct, internal and external) and reliability supported through a series of strategies. At the other extreme Thomas, (2016) rejects the concept of having to prove a study's reliability and validity, stating that reliability is imported from psychometrics and validity only addresses whether the research findings confirmed the aims of the study. Thomas, (2016) also rejects traditional interpretivist perspectives of trustworthiness, stating instead that a case study is a unique holistic study, which in using multiple data sources and rich description presents a case that should be accepted as such. Riege, (2003) suggests that in mixed-methods research a blended approach incorporating both the realist and constructionists paradigm and includes a further four principles, alongside those of Yin. This leaves the student researcher in a quandary regarding how this element of the thesis should be presented.

The researcher, within her professional role is familiar with all clinical research being subjected to external audit to assure its quality and therefore felt that attention should be given to this concept. Yin's (2014 p45) realist model identifies the study protocol, the development of the research database, and the establishment of the chain of evidence as

confirmation of an audit trail. Houghton, *et al.* (2012), whilst rejecting the positivist notion of reliability and validity, links the concept of dependability and confirmability to having a clear audit trail of decision-making in order that the reader, who may not share the researcher's ontological perspective, can at least appreciate how analytical decisions were taken and conclusions drawn. Indeed, Houghton, *et al.* (2012) identifies that NVivo provides a traceable account of how the qualitative analytic decisions were made, which supported by the process of reflexivity captured within a reflective diary, can provide a useful audit trail.

These principles all appear to have three common factors: firstly, a well-conceived research enquiry with a properly designed protocol; secondly a fully identifiable audit trail of how the research was conducted, data collected and managed; finally, evidence of how analytical decisions were made so others could assess if these were correct. This description of an auditable process then marries the realists and interpretivists approach to quality. The researcher accepts the elements described as good research practice, thus having a transparent audit trail is identified as the second underpinning principle of quality used for this research.

There appears to be a third area where the notions of quality from across the paradigms meet. Yin, (2014) presents the need for key informant feedback to situate the analysis and make it real; however, Houghton, *et al.* (2012 p14) identifies '*peer debriefing*' and '*member-checking*' in a very similar way, where the former uses external experts to assess the credibility of findings and the latter allows members to check their transcripts for accuracy before analysis. The researcher acknowledges it is good practice to check with participants that they feel their transcripts have been accurately transcribed and to share preliminary analysis with both internal and external witnesses to establish the credibility of the work as it developed. The researcher accepts the principle of the feedback loop

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between data, key informants and analysis as good research practice, this is then the third underpinning principle of quality used for this research. In this research, the external experts were the supervisory team that supported the methodological and analytical process; the internal experts were Trust members who commented on the initial findings. These approaches to quality are summarised in Table 3.9.

Table 3.9 Approaches to quality

TEST	Case Study Tactic adapted from Yin, 2014 & Riege, 2003	Phase of Research in which Tactic Occurs	Undertaken in this research
Construct Validity – Neutrality and objectivity	Use of multiple data sources of evidence Establish chain of evidence Have key informants review draft case study report	Data collection Data collection composition	Yes Yes Yes
Internal Validity – How spurious effects will be managed and how inferences will be made	do pattern matching do examination building address rival explanations use logic models	data analysis data analysis data analysis data analysis	Yes Yes Yes Yes
External Validity – How will you know that findings have meaning beyond the case	use theory in single-case studies	research design	Yes
Reliability – How can the research be repeated	use case study protocol develop case study database	data collection data collection	Yes Yes
Confirmability- Logical and unprejudiced	Retention of raw data for audit so auditor might judge inferences made	Data collection	Yes

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Credibility – Are the findings believable	Triangulation techniques using multiple sources of evidence Peer debriefing – expert review Member checking – presentation of findings and conclusions to participants	Data collection Analysis	Yes Yes Yes
Transferability- Do findings show analytical generalisation	Creation of thick description Cross case where possible Use specific procedures for coding and analysis	Analysis and report writing	Yes No No
Dependability- Stability and consistency of process	Audible design phase description of the researchers theoretical positioning	Design stage	Yes Yes

(Adapted from Yin 2014 and Riege, 2003)

3.5 Chapter summary

This chapter addresses how the research was conducted, working as the bridge between the theoretical propositions presented in the literature review and the subsequent findings of the research. The literature review suggested the need for the case study approach to explore the conceptualisation of innovation holistically within the complex multi-level systems of NHS trusts (Robert, *et al.* 2009). This approach allowed the containment of the research within identified boundaries whilst acknowledging the significant influence of the context (Thomas, 2016). Case studies have been criticised within the literature for poorly articulated design, to circumvent this, the DESCARTE framework was used to explicitly describe the methodological approach, augmented by other literature to ensure the quality and rigour (Carolan, *et al.* 2017; Yin, 2014; Thomas, 2016).

The research design was underpinned by three supporting theoretical frames; complex and general system theory, design science approach and soft system methodology. The theoretical propositions from the literature framed the research questions and the choice of data collection methods. In particular, the Culture for Innovation framework (Maher, *et al.* 2010) was identified as providing a useful tool to support data collection both in terms of the collaborative enquiry workshop and the trust survey. The data analysis approach is described in detail using Onwuegbuzie, *et al.* (2006) mix-methods model of reduction, presentation, triangulation, and integration of data. The results of the integration stage are presented through thick description in the next three chapters.

Chapter 4. Conceptualising innovation

This chapter presents the findings in relation to RQ1 and RQ5⁵. These findings have been transformed through triangulation into a rich description of the Trust to address the first objective of this research, how is innovation understood. The findings are presented in five sections; the first section presents the Trust, as a case-descriptor within its context. The next three sections conceptualise innovation, including the strategic position, definition of innovation, and the creative process, before a final section presents the hardware of innovation.

4.1 The Trust

The Trust is situated within a countywide healthcare system, strategically working with multiple other partners to provide healthcare to a diverse and growing population of 741,000. It is commissioned, by two local Clinical Commissioning Groups (CCG) and Public Health (PH) within the local council and is required to report performance via these routes, as well as maintaining other national reporting requirements from DHSC and NHS E. It has partnership agreements with both the regional AHSN and NIHR infrastructures and is inspected annually by the Care Quality Commission (CQC). At the outset of the study it was rated 'good' by CQC, but achieved an 'outstanding' rating in August 2018. As a unit of operational delivery the Trust is an NHS foundation trust, (DH 2003), as such it has some autonomy in terms of management and financial

5

RQ1: How was innovation understood?

RQ5: How has strategy and policy impacted on the development of the innovation?

decision making, however, resources are constrained, with the key financial imperative year-end break-even.

The Trust's function is to provide more than 100 healthcare services from four main in-patient sites. It also has numerous outpatient units throughout the county, and via a field-based workforce directly delivers care into patients own homes. A large number of these services are sub-divided into geographical located teams, where staff work in partnership with General Practitioners, and many other services to provide clinical care to patients at their time of need. In 2017/18, the Trust had a workforce of approximately 4,000 whole-time equivalent staff (including students and temporary) provided more than 1.5 million care episodes to patients. Of the permanent staff, (n=3,169) 50% are highly trained and educated healthcare professionals (n=1530), the largest group of which are nurses (n=1130). The non-clinical workforce (n=1639) are a made up of mangers, administrators, and estates staff.

These elements inform the means (section 2.4) or hard antecedent of the innovative organisation, where individual staff works in highly pressured environments, within a culture of 'busyness' (Nevalainen, *et al.* 2018) can be clearly demonstrated. These individuals work together in service or teams, each of which could be considered a microsystem. The Trust can then be identified as a complex mesosystem, managing these teams, but situated within the wider healthcare ecosystem.

4.2 The strategic position

The Trust proudly promotes its mission statement '*making a difference for you with you*' and its ambition '*to be a leading provider of outstanding, compassionate care*' on its website. It also states that it strives to '*continually innovate and make a positive difference to our community and those working for and with our Trust*'. These statements have been

supported by the development of a comprehensive Corporate Strategy over the last five years, evidenced through publicly available board papers and corporate documents. In a review of these papers the Trust first presented its current Corporate Strategy in 2016 (TD1), laying out five 'Strategic Themes'; Develop, Innovate, Grow, Build and Quality (known internally as 'DIGBQ'), around which it has built a strong brand. These strategic themes are supported by other integral elements including a 'Communication Strategy' (TD2) and 'Leadership Matter's Strategy' (TD3).

The Trust has invested in its Leadership Matter's Strategy, stating its ambition to empower all staff as leaders through four leadership behaviours: take responsibility; embrace change; work together; and being authentic. These behaviours are presented at all trust induction programmes and embedded within supervision and appraisal process. The Trust augments this with quarterly '*Leadership Matters*' conferences and a programme of internal '*Leadership Matters*' training. The Trust's Learning and Development Team regularly deliver a one-day Foundation Level course '*Quality performance and innovation*', which 134 members of staff accessed in 2018. The CQC report (TD4) contained specific commentary regarding the impressive nature of the Trust's innovation ethos, making particular reference to the leadership behaviours, the Innovation and Creativity conference (section 3.2.6) and the foundation course. This deliberate and exceptional stance to include innovation within the Trust Corporate Strategy was reflected on in the interviews by Senior Leadership Team (SLT) interviewees.

'I think we have deliberately put this centre stage, I don't think everybody does that, I think we've invested in it, which I don't think everybody does, I think we've sought to align our strategic aims across the organisation' (8E:SLT)

Although SLT interviewees were fully engaged in the Trust's Corporate Strategy, well versed in DIGBQ and the innovate theme, many of Front-line Staff (FLS), particularly very junior grades, did not understand these concepts. SLT members intrinsically recognised this and reflected within their interviews that the Corporate Strategy may not have penetrated to all levels of the trust; however, felt that this in itself was not significant, as long as staff were embracing the organisational ethos. This embracing of the ethos appeared evident, epitomised by a very junior member of staff who had been in the Trust only short time, who struggled to respond to any questions about the Trust Corporate Strategy, or innovate theme, but understood embracing change as part of her role.

'I think it's definitely something that the Trust wants members of staff, to do, um, when I did my leadership and appraisal training, they spoke quite a lot about embracing change and it is everybody's responsibility, and everybody's, you know, it not just for people that are higher up, if you have an idea, its, you speak up and voice what you need to say.' (15Q:FLS)

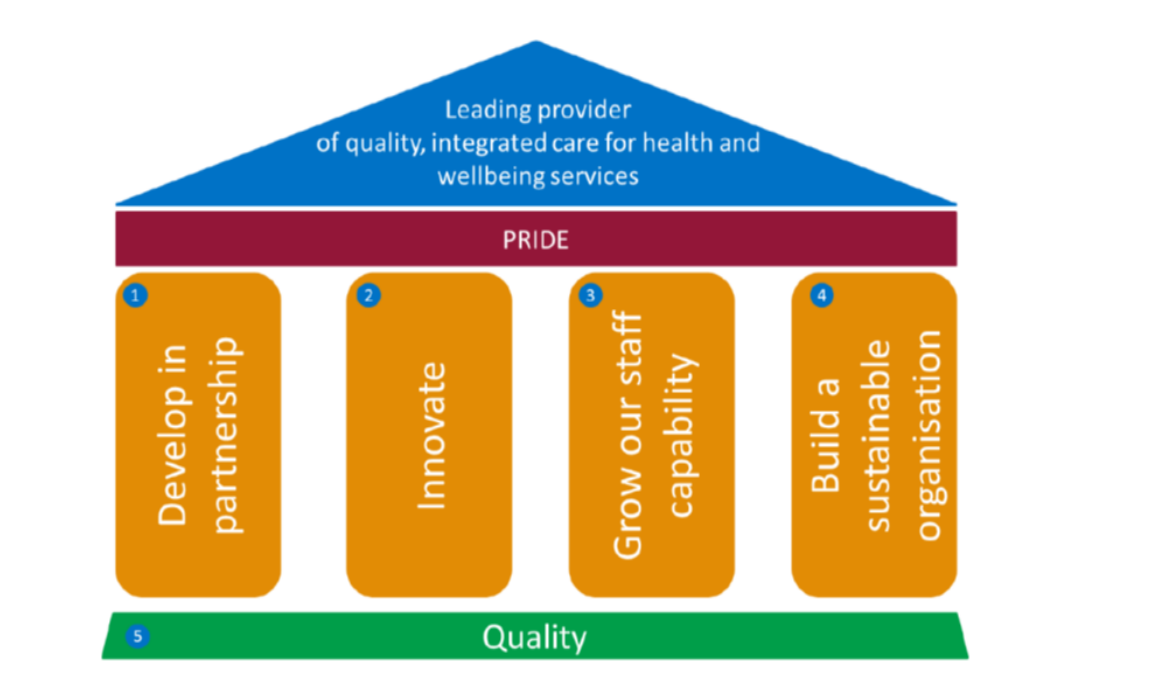
There was evidence of the Trust commitment to innovation within its strategic documentation and to 'embracing change' as everybody's business through deliberate communication and training. This directly supports the proposition that high-level macrosystem policy has been directly assimilated into the mesosystem (Farchi, *et al.* 2017). In addition, by describing innovation as part of everyone's business the conceptual scope can be associated with a broad, umbrella meaning of innovation (Osborne, *et al.* 2011) (sections 2.2). A rival proposition was also noted; the Trust's stance was identified 'exceptional' by the CQC, this would indicate that not every NHS trust is taking this approach. Although a strategy for innovation is important, to be effective it and innovation must be clearly understood (Baregheh, *et al.* 2009) (section 2.6), and this is explored next.

4.3 Conceptualising innovation

At another leadership event, the researcher was sat next to a Trust Governor (PO:22/03/18). The Governor, who had a scholarly knowledge in the field of Neuro Linguistic Programming and marketing, remarked on the use of the word '*innovation*' used throughout the Trust's presentations, highlighting the ambiguity of language, explaining '*to innovate, is a verb, thus active, useful within strategy context; an innovation, is a noun, thus passive, better used within the context of projects*'. This, when explicitly stated, appears obvious, (section 2.3) however, in the Trust document review inconsistent terminology was identified.

The Trust's Corporate Strategy was approved by the Board in July 2016 (TD1); the first page of the document identifies 'Innovate' as Strategic Theme 2 (Figure. 4.1), however, by page two, this has changed to 'innovation', with the stated outcome firmly associated with quality improvement and an objective that linked explicitly to income generation (Figure 4.1 and Figure 4.2), how the definition of how innovate or innovation was being conceptualised was not expressed within the documents.

Figure 4.1 Trusts corporate strategy 2006



(TD1)

Figure 4.2 Trust corporate strategy page 2

Strategic Theme	Lead Director	Strategic Outcome	Strategic Objective	
2 Innovation		A contemporary organisation engaged in delivering and sharing change and improving quality through research and innovation.	2.1	Identify, implement and publish our top five innovations
			2.2	Introduce a mechanism to streamline idea and income generation, communication and implementation of research and innovation
			2.3	Embed innovation in the design of job-plans, appraisal and an employee recognition scheme
			2.4	Create a patient and carers academy

(TD1)

The Innovate Theme has since evolved and now includes an annual delivery plan (TD5), it still does not include a definition of how the Trust is interpreting innovation conceptually; instead it postulates a simplified strategic objective and vision for the future (Table 4.1).

Table 4.1 Trust innovate theme annual delivery plan

Strategic Theme 2:
Innovate to change the future
Outcome – what will it look/feel like in four years’ time?
A diverse, contemporary organisation engaged in delivering and sharing innovations that are changing the future.

(TD5)

This ambiguity of the language corroborates the proposition from the literature that innovation is a ‘buzzword’ with an axiomatic meaning (Osborne, *et al.* 2016). Although it is noted that some state this distinction is unimportant (Maher, *et al.* 2010), others disagree. Pisano (2019 p28) states that if innovation means ‘*anything*’, then it actually means ‘*nothing*’, adding that a shared understanding of the concept is essential within an organisation to prevent different fractions being pulled into separate directions and limiting impact (section 2.6). As no mesosystem definition was identified, the meaning of innovation was explored further with individual actors.

A sli.do poll undertaken at the Leadership Matters conference (section 3.2.6) was analysed using the word frequency function of NVivo and presented as a word-cloud (Appendix 4.VI). This provided a useful visual aid to how innovation was understood (Thomas, 2016). Words such as new, ideas, service, and improvement appeared most frequently, reaffirming the proposition that innovation and improvement are used interchangeably (Maher, *et al.* 2010). This was examined in greater depth within the interviews where understanding was questioned directly, the majority of SLT interviewees were confident in their responses.

‘innovation is taking a completely differently look at a current or emergent problem and providing a solution that has not been tried

before um, using disruptive techniques, to be quite honest and um, creating a gap between, where you were and where you want to be, so the analogy for me would be the difference between cave men not having fire and cave men having fire, and the possibilities that then emerged as a result of that, in terms of development the species, er, er, along with being able to cook your dinner' 6K:SLT

This might have been anticipated as a large proportion of the SLT were engaged in developing the Trust's strategy, attended Trust events, and courses. There was however, no uniformity to these descriptions, and many also linked their response directly or indirectly to quality improvement. Indeed, only a minority appear to recognise the notion of step change or risk. Concerns were raised by some SLT actors that there might be even less clarity of this operationally within the trust, perhaps resulting in innovation happening within the services unrecognised.

'people are innovating but not realising that they are innovating, so when I do service visits and go round to various parts of the organisation and see what people are doing and say to them that looks like innovation, they say oh? Is it? And it is, they don't realise it is, so there's a lot of innovation going on that nobody knows is innovation or they don't see it as innovation, um they just see it as being the sensible way to do things or clinically, we found that this worked better, or we went to a conference where somebody talked about using this particularly way of doing things and we've adapted it to [trust], um, so there is I think, potentially not so much a lack of innovation, but a lack of understanding of what innovation is?' (2P:SLT)

It was also postulated by SLT actors that communication of a complex strategy across the Trust was problematic. It was noted that the majority of people who attended Trust Leadership events were team leaders (Band

6)⁶ or above and that in a large fragmented organisation communication routes were challenging and messages did not always translate well, with some honest reflections around this.

'I don't think we ever, get that bit brilliantly right, in that, you know I've been a band 5, band 6, band 7, and you, might get some drop down information about how we're trying to do things, or what's happening, or what you're involved in this, it's very hard to always get that at the right level and I don't think we always manage to do that' 9H:SLT

This was confirmed within FLS interviewees, where actors, including Band 5 and 6 registered nursing staff, did not recognise the Trust's DIGBQ strategy and described the word innovation as '*big*', '*posh*' or '*complicated*', associated with '*academic study*', that could go '*over people's heads*', rather than delivering any practical change at their level. In the case of very junior unqualified staff (Band 2), several struggled with the word 'innovation' itself, finding it completely unrecognisable, until the Researcher re-phrased questions using 'new ideas' and 'change', whereby they readily re-engaged in conversation, highlighting how ideas had been taken forward within their teams to improve quality. In general interviews with FLS, and in particular very junior staff appeared much less certain, less focused on innovation and more associated with quality improvement, (section 2.2.4).

⁶ Bands denotes NHS pay grades

'Innovation is basically making improvement of the service, so, stuff like, er, an idea in order to improve the quality of service that we provide' 13I:FLS

The connection between innovation and quality improvement was made by most interviewees across both cohorts and when prompted to differentiate between the two concepts, no clear distinction was articulated. At SLT level some felt that actually small changes might be *'more useful'* and at FLS level busy clinicians felt the differentiation was irrelevant, their focus was on doing the right thing for patients.

'as long as you're doing the best you can do, and you've got the best level of care you can give and whether somebody's labelled it as quality improvement or research and innovation, probably, I'd say on the ground level people don't really care as long as, they feel that they're doing the best they can do.' (9C:FLS)

The actual conceptualisation of innovation within the trust concurs with two findings of the literature review. Firstly, the lack of strategic goal for innovation (De Vires, *et al.* 2016), highlighted as significant because innovation requires not only dedicated resources, but to be understood and supported by the organisation (Pisano, 2019). Secondly, although some SLT members confidently described innovation, no shared definition was evident and junior staff were unclear what the concept meant, corroborating the proposition that innovation is poorly understood (Page, 2014; section 2.3). At all levels the term innovation and improvement were used interchangeably, confirming the proposition from the literature that the parlance of healthcare is more keenly associated with improvement (Marjanovic, *et al.* 2018). Nevertheless, many stated that innovation was happening, as such a conceptual understanding of the nature, type and stage of innovation is important to both manage risks

and identify the resources to support it, this is explored in the next section.

4.4 Understanding the creativity process

The connection between innovation and technology was made by several interviewees, and divided opinion. There was, for some, a belief that technology brought advantages in terms of safety to patients and efficiency within the Trust and embrace with enthusiasm. Others however, were more reticent, recognising that not everybody felt confident using technology, discussing the fear faced by some staff in relation to the recent introduction of new computer systems.

'[IT system] it's an innovation that actually improves the skills of the, of the staff, but there's barriers 'cause, obviously, some of the staff, they are not really adept to computers, they haven't got much computer skills, so, although it quite, self, it's quite simple and easy to use, I don't know, they kind of, um, scared of that thing, you know, computers' 13I:FLS

This tension around technological innovation is recognised within the Trust, staff are supported by an extensive Information Technology team and multiple training programmes. This is also recognised within the healthcare literature, whilst the need for technological innovation is promoted (Welcome Trust, 2016), the barriers around its adoption and spread are documented (Roberts, *et al.* 2019). The NHS digital strategy now recognises the need to take all NHS staff on the technology journey (Honeyman, *et al.* 2016), acknowledging that a digitally enabled NHS workforce would release time to care (Topol, 2019). Although technology innovation is a large focus of NHS innovation (Welcome Trust, 2016), it was not the only type of innovation discussed.

At the mesosystem level the Trust had been recognised in July 2018 for a disruptive innovation technology project, which had won a safety award. SLT actors might again be expected to cite these examples of disruptive innovations, but more surprising a significant number of FLS across all levels presented this information, having heard about the Trust winning the award via routine communication channels. Other FLS discussed other new initiatives within the Trust that they had personally come into contact with, even if they didn't recognise them as innovations, an example of which was the Nurse Associates project

'there, a new, yeah, the Band 4 thing, that we're going to have Band 4 nurses on the ward, because normally we are work as Band 7, 6, 5 and then we've got Band 3, but the band 4's will be more qualified to even do medication and other things, so they'll be helping the band 5's a lot more with the works' 10V:FLS

The majority of FLS, when asked, spoke about ideas they or their teams had, or heard of from outside the Trust, projects they had or wanted to take forward. They articulated at their level, within the supportive structures of their teams, they felt empowered to engage in these, yet, it appeared that few FLS had stopped to think about what sort of initiative these ideas were. In addition, there was very little knowledge about what to do with an idea, beyond discussions within their team, hence, few had been shared beyond their own clinical area, despite the fact that other areas in the trust might have benefit.

This corroborates the SLT perspective (section 4.3) that innovation was happening in the Trust, but not recognised. In addition, it supports the prior notion that not only are there no shortage of ideas in the NHS (Kelly & Young, 2017), but positive deviant cases can be identified where change can be achieved within the workplace (Sheard, *et al.* 2017). The most frequent examples cited were small incremental changes, which could be

classified at the level of continuous innovation, synonymous with the ethos of the NHS (Maher, *et al.* 2010), however, even these were not being shared, contributing to the barriers to adoption and spread internally, as well as external (Collin, 2018; Horton, *et al.* 2018). This presents another challenge, how do large complex organisations, with a recognised culture of 'busyness', (Nevalainen, *et al.* 2018) get practitioners to stop, and think about their ideas? A small selection of FLS references are presented in Table 4.2 showing how some might be classified.

Table 4.2 Example of innovations given by interviewees

Potential nature/type	Interviewee reference
Product -Technology (Rowley, et al. 2011)	<i>'I guess, it's always good to try something new, and you might, try something that say someone doesn't think may become anything massive and actually it does and it, like for example, the body worn cameras, that was obviously just an idea and actually its grown so much now, and, didn't they win awards for it or something, yeah, and it can change things' (11J:FLS)</i>
Process – people (Rowley, et al. 2011) Disruptive (Pisano, 2019)	<i>'Absolutely, absolutely! Erm, February last year, as a team we were struggling, erm, we felt like we were firefighting, with all the patients that we've seen and that's how we'd, we've kind of looked at areas of why we were seeing certain patients, erm, what call, callouts we were getting, so that's when we introduce the trauma boxes to the care homes, care, um, link nurses to the care homes, because the care homes felt that they were, erm, were being isolating, and having lack of continuity, with different nurses coming in all the time, um, and areas well, where we felt, if we did some teaching with the care homes and made them take a bit more responsibility and a bit more ownership for the care that they're delivering and that's why we've introduced them administering insulin in the care home, with teaching went alongside the diabetes team, we've also done pressure ulcers prevention, moisture lesion, and we're doing, um, end of life care a well. So.'</i> <i>'Yes, yeah, rather than just going in and doing things for them we're empowering them to make really important decisions in looking after the, looking after their residences, really. (7N:FLS)</i>
Process-innovation (Rowley, et al. 2011) Continuous Innovation	<i>'There's a few things that I've tried, but they haven't really worked, when I first started I noticed that there was a lot of waste, I still notice that there's a lot of waste, but it's just trying to find out how to, fix that problem, I did originally email, a charity, that were looking for medical supplies in, I think it was Syria, but they wasn't interested, in what we'd got so back to square one. Yeah, yeah. (14Z:FLS)</i>

(Pisano 2019)	
Adoption (Baregheh, et al. 2009) Technology (Rowley, et al. 2011)	<i>'we also have like technology wise, its call a My Life, it's like a machine that has, like, loads of activities on it for patients, um, reminisces, so they can watch like little clips of TV programmes from however long ago, and then, that they can use' (11J:FLS)</i>
Adoption (Baregheh, et al. 2009) Continuous innovation (Pisano, 2019)	<i>Yes, I mean nothing technology wise but I did an AIMS review and we went to a ward where they (Researcher: AIMS?) Sorry, Accreditation in Mental Health, so we have an app, it's under CQC we have it every 3 years and band 6's are expected to go out and do assessments in other hospitals, so on the back of that, we came back and said that, this particular hospital was giving out jelly, every day, very simple idea but it helps to improve hydration, it's been researched and clinically proven, that actually someone might say no to a glass of water but they'll take a jelly, so I brought that back and said I think that's a really good idea, so within a week we went out brought jellies and introduced that onto the ward, which, we've seen notices asked families to bring things in, so we put those onto the ward, so not always the bigger things, but some of the little things, that make a difference. (9C:FLS)</i>

4.5 The hardware of innovation

There was some thoughtful reflection around 'innovation' as a concept particularly by healthcare professionals, its relationship to clinical research, its role in developing robust evidence to support clinical practice along with their professional duty to engage with, keep up to date and provide the highest standard of healthcare. There was a view by more senior clinical staff that 'innovation' was a better term, a broader, and more encompassing term than 'research' and to many a more engaging word.

But, one FLS actor reflected that 'innovation' here, was being utilised as a new standalone concept in its own right. This added uncertainty, the discussion alternatively acknowledging how this could both empower staff and impact patient care, but, presented a juxtaposed position of the clinical risks innovations might pose, and the need for careful governance. The need to stop unsuccessful innovation or discontinue old practice if new practices are successful was not fully articulated, although clinical staff touched on this through their reference to the traditional research route. This was corroborated by another clinical SLT member who commented that to innovate was a challenging process and not something that everyone might feel that they could do.

'innovation, you know, in terms of the terminology being used, in, in terms of it being a flag of something that we do here, is new to me, relatively new to me, 'cause I think it's probably just something that come under the umbrella of research and development before' 16B:FLS

This nervousness of managing the risk of clinical innovation was recognised by clinicians and corroborates finding from the literature that

innovation is inherently risky (Osborne, *et al.* 2011). Although the literature connects to the management of innovation through research or utilisation of regional innovation systems (Marjanovic, *et al.* 2019), there was limited discussion of this in the interviews. One SLT interviewee remarked that in previous roles in the private sector, they had just done things, but noted that they didn't have the associated risks around patient care.

'I've not worked in the NHS for ever, so if I compare us [the Trust] to a private sector organisation and I think private sector organisations are sometimes more free to innovate, um, we were always changing things in organisations that I worked, because partly we didn't have the same risks associated with patient safety, um, partly because we had more funds, we had no constraints and sometimes limited governance, around these things so we could go out and kind of go, we'll just do that, we had, in fact we had a term called JDI, 'Just Do It', let's just have a go' (5G:SLT)

Pisano (2019) presents the organisations formal innovation systems, as the '*hardware*' through which it performs. The Trust, when it launched its 'Innovate Theme' in January 2018, recognising at the time the need to accompany the strategic aim with a supportive innovation system, processes and structures, including a governance framework that supported the innovation pathway (TD6). This is accompanied by an operational plan (TD5), progress against which is reported on quarterly to the Trust's Strategic Executive Board. These include specific meetings, structures, and processes that support innovation, with information available to all staff through the trust's intranet and widely promoted within the Trust's standard communication routes, yet, despite this there was limited recognition within the interviews of this system.

4.6 Chapter summary

This section presents the Trust as a unique entity and the subject of this research. The context of its operation is described holistically and in doing so the chapter presents the Trust's means for innovation, its size, complexity and professional identity (Section 2.4). The strategic position then provides more detailed description of the analytical frame, demonstrating how the broad umbrella policy imperative to innovate has influenced strategic development (Farchi, *et al.* 2016), with no clear definition of innovation, making its conceptualisation within the organisation uncertain (De Vries, *et al.* 2016).

The ethos of embracing change appeared to be developing throughout the organisation, with the Trust engaging in wide variety of innovations (Rowley, *et al.* 2011). Recognition of innovation, however, and its typology was poor (Page, 2014) and closely associated by staff with quality improvement (Marjanovic, *et al.* 2018). Despite wide communication of the innovation support system, the hardware to support innovation, this pathway was unrecognised by the majority of interviewees, with FLS not usually sharing ideas beyond their teams. This corroborates theories of silo working (Castle-Clarke, *et al.* 2017) and the impact that this could have on adoption (Collins, 2018).

It appeared that the relationship between the organisation's mesosystem innovation strategy and the innovation taking place within the microsystem is complex, on some levels aligning yet, on others dysfunctional. To understand this better the social attribute was explored and is described next in relation to the receptive context for innovation within the organisation.

Chapter 5. The receptive context

This chapter presents the findings from RQ2 and RQ3⁷. These findings have been transformed through the triangulation process into a rich description of the Trust's receptive context for innovation, the 'software' that shapes how it thinks (Pisano, 2019). This chapter explores the second objective of this research, how the antecedents of innovativeness are understood and recognised, supported by propositions from the literature review (section 2.5). The findings are presented in two sections, leadership matters and the culture for innovation.

5.1 Leadership matters

The Trust's leadership strategy has already been presented (section 4.2). It is however worth exploring this in-depth, as leadership has been identified as having a disproportionately large impact on an organisation's innovativeness (Maher, *et al.* 2010). In 2018 the Trust held four conferences, all of which had been attended by the researcher in her professional role. The impact of this visible presence was acknowledged by members of the SLT, recognising the contribution it made to including innovation as core Trust business. These conversations were linked to the importance of the Trust's leadership strategy (TD3), and its leadership behaviour of 'embracing change' as the mechanism of devolving the responsibility for innovation throughout the trust (TD11). There was evidence that the approach was working engendering a feeling that

⁷

RQ2: How was innovation leadership articulated?

RQ3: How was the innovation culture perceived?

embracing change was everybody's responsibilities across all levels of the workforce.

'we have got a good team of people, want to embrace change, but if we can't do that then I think we would be in somewhat difficult territory and I think that the other things is that, we're monitoring that through appraisals and clearly reinforcing those behaviours, which is also important isn't it, so that people get clarity about what that behaviour looks like' (8E:SLT)

'it's everybody's responsibility you might only do the tiniest little thing but you've done something' (5W:FLS)

Differences were observed between two embedded units, Strategic Leadership Team (SLT) and Frontline Staff (FLS) regarding how they perceived their roles leading innovation. These are presented in two broad themes; SLT perceived their role as *'articulating the vision'* within the mesosystem, whereas FLS described *'leading from the front'* reflecting their place within the microsystem. The next sections describe how these different levels of leadership had differing foci.

5.1.1 Articulating the vision

Senior Leaders articulated their leadership role in three ways closely associated with the strategic aims of the Trust; leading the Trust's innovation vision, managing the risks, and developing the external relationships within the local healthcare ecosystem. SLT members spoke about their roles in developing strategic vision for innovation and spreading this vision across the whole Trust, acting as conduits of communication, champions, and celebrating success. There was acknowledgement that this was a dynamic, iterative process, which required embedding into all areas as core business. There were

suggestions for the next stage of development, particularly linked to technology adoption within the organisation.

'I think we need to position it much more strategically, in the organisation and we need to be thinking in terms of the, the, reach that it has into, not just services that are maybe open minded and looking at technology, but all our services, and how it fits with an overall strategy in the Trust. (6K:SLT)

Innovation is externally monitored by CQC as part of the annual 'Well-Led' inspection, SLT interviewees acknowledged this relationship and the need for innovation to be visible if an 'outstanding' rating was to be achieved and maintained. This was tempered with the role that they might have within the organisation, a few interviewees linked innovation to managing risk and safety.

'it's about quality and safety, so we wouldn't be innovating to do something worse to patients, I need to be assured that any innovations that we take forward have a governance structure around them to ensure patient safety' (7X:SLT)

The Trust's place within the local healthcare ecosystem was also recognised, and the role leaders had in developing the right relationships with commissioners and other partners, (universities, third sector, NHS organisations) for innovation was significant. This positioning reflects the national policy developments around system integration articulated within the NHS long term plan (DH, 2019). Although the local healthcare ecosystem featured in these conversations, there were no references to the NIS (section 2.2.2) or its regional bodies available to support the Trust to innovate.

'I think if you can get commissioners on board, if you can get partner organisations on board right at the start then, you've already done the work to start the innovation and we've got some really good working relationships with the thirds sector.' (9H:SLT)

5.1.2 Leading from the front

Clinical Leaders saw their role as *'leading from the front'*, remarking that this was not easy. Communicating strategic concepts down through the established hierarchy within the Trust has been highlighted as problematic, coupled with the challenges of change management. Clinical leaders recognised this, but accepted their responsibilities as agents of change. This was described in four themes; socialising the concept of innovation; supporting the innovation environment; evaluating and sharing; team work.

'I say, for the band 6's, we have to sort of leading from the front, and be seen to be embracing the, if we're sitting back and saying nobody will want to try this, blardy blah, load of old rubbish, then everybody else is gonna to follow that lead, whereas if we're at the front saying right we're going to try this, we think it's going to be really good for the patient and the staff, if it doesn't work, we'll review it, we need to be seen to be sort of embracing that ourselves, because if we don't embrace it, nobody else is, is going to be on board with it' (9C:FLS)

Clinical Leaders also discussed their roles in creating the right environment to support idea development. This included the need to encourage and support staff who came to them with ideas, positive feedback and praise as well as facilitating how an idea might be taken forward, including identifying any necessary resources. There was an acknowledgement that although resources were limited, taking forward

smaller ideas was not all about funding, a sound working knowledge of the Trust, its systems and relationships within this environment could facilitate innovation and mitigate some of the barriers.

More senior FLS recognised the need to evaluate the new ideas that they had taken forward to demonstrate impact, but admitted this was not something that they were very good at. The lack of evaluation skills and time were most commonly blamed for this, with FLS stating that if something worked then it continued, if it didn't work then they just stopped it, but did not really take the time to consider this further. There was little time or incentive to share what they were doing beyond their team, unless more formal support was given by the trust, with more imperative to share something that had worked. Within the FLS, the team element featured very strongly, very junior staff and staff who were lone workers, spoke in the interviews about the value of their immediate superiors and the support of the team in developing any ideas and empowering staff to implement changes that they might want to take forward.

'it's all about, supporting each other really, we're a team, it's irrelevant if you're a band 2, and band 1 and band 3 or a band 8, we are all still part of the same organisation, we're there to support each other.' (3Y:FLS)

5.1.3 Quantifying innovation leadership

The Trust was rated outstanding overall by the CQC in August 2018, this included achieving an 'outstanding' rating in the 'well-led' category, which includes 'innovation'. Although the qualitative evidence indicated that staff recognised and took an appropriate level of responsibility for innovation leadership, this did not provide an objective measurement for

benchmarking or replication, this was provided by the Trust Survey (TS) (section 3.2.6).

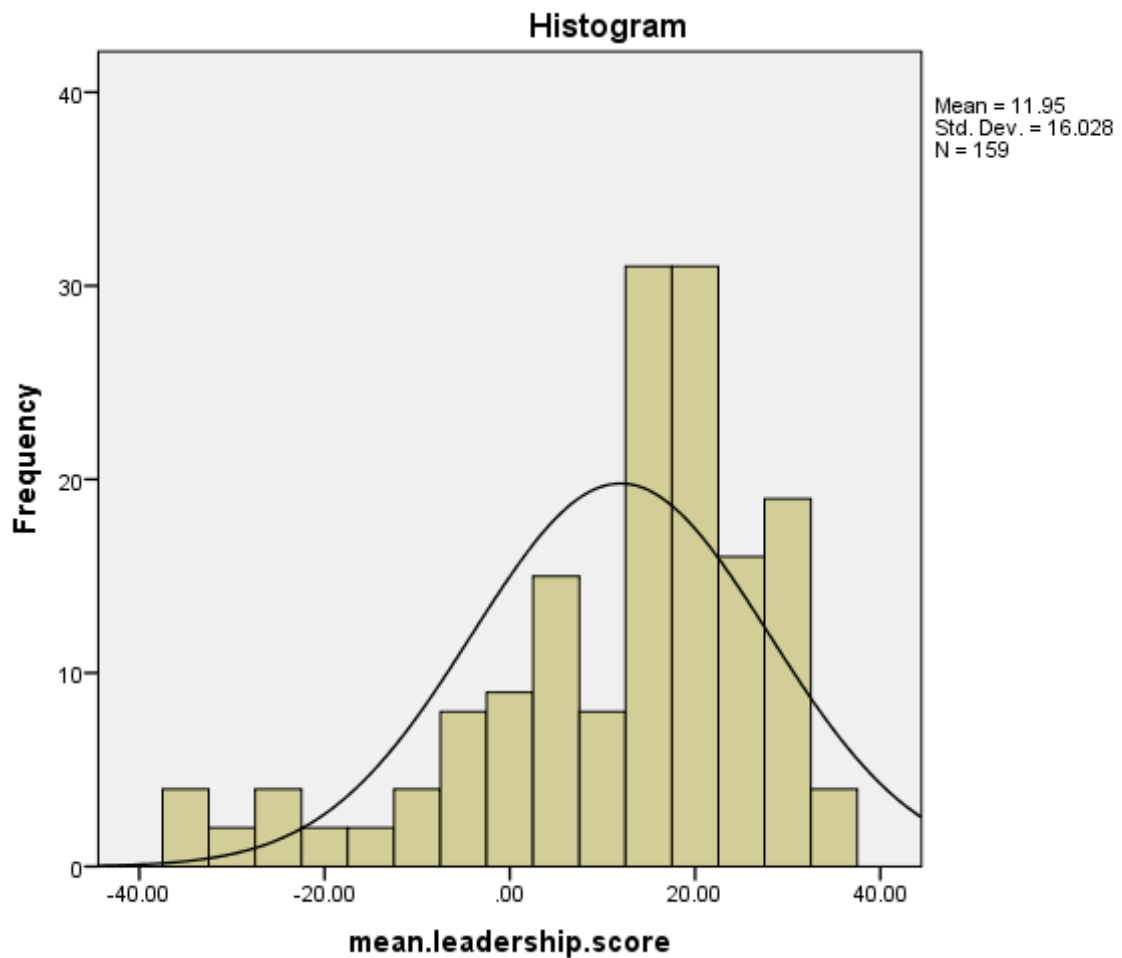
Mean dimension scores (mDS) for leadership were calculated for each dimension, each achieving a positive score (Table 5.1). The highest score was achieved for the dimension 'goals' mDS=2.45 (TS Q16: '*senior leadership has made it clear that innovative new thinking is required to achieve some of our organisational goals*'). This corroborated the findings of the qualitative analysis that embracing change was seen as part of everyone's' business. The lowest score was achieved for the dimension of resource mDS=0.52 (TS Q8: '*senior leadership makes sure there is both the availability of time and of money to support innovation*'). This finding for the resource dimension corroborates other findings covered in section 5.2.3.

Table 5.1 Mean dimension scores for leadership

	SQ4 RISK	SQ8 RESOURCE	SQ12 KNOWLEDGE	SQ16 GOALS	SQ20 REWARDS	SQ24 TOOLS	SQ28 RELATIONSHIPS
Mean	2.21	.52	1.73	2.45	1.62	1.64	1.78
Median	3.00	1.00	2.00	3.00	2.00	2.00	2.00
Mode	4	0	5	3	3	0	3
Std. Deviation	2.667	2.667	2.901	2.500	2.760	2.416	2.650

A Trust overall innovation leadership score was determined by calculating a grand mean of the above (Field, 2013). This demonstrates that the Trust was perceived to have a positive overall innovation leadership score of +1.71/+5, corroborating the qualitative data (Figure 5.1).

Figure 5.1 Overall innovation leadership score



There was evidence that the Trusts leadership strategy, leadership behaviours and devolved leadership model was embedded and recognised at all levels in the Trust, and that this was having a positive impact empowering staff to make and sustain change within their teams. These findings concur with established propositions from the literature which indicate the important relationship between leadership and innovation (section 2.5.4). Differences between the two embedded units were recognised; with the SLT focused on innovation strategy and vision, whilst FLS valued the role of compassionate leadership in supporting innovations to be taken forward within teams (West, *et al.* 2017).

These differing leadership roles are not discussed explicitly within the policy literature, although it is noted that at the mesosystem level there is uncertainty around the extent senior NHS executives or clinicians should engage in the process of innovation or transformation (Castle-Clarke, *et al.* 2017). In the microsystems there is tangential evidence corroborating the importance of the team in creating '*communities of practice*', which work together to problem solving and thus facilitate innovation (Swan, *et al.* 2002). Swan, *et al.* (2002) further elucidate, that although these communities of practice might be beneficial to the microsystems they support, they appear to have the opposite effect on organisational innovativeness, as when seeking solutions from within, the free-flowing information across the microsystems then ceases. If radical innovation occurs at the intersection of established groups it is postulated that strong team innovation cultures might act as a barrier to organisational innovativeness (Swan, *et al.* 2002). In this way innovation leadership is intertwined with the organisations culture for innovation, explored in detail in the next section.

5.2 The Culture for Innovation (CfI)

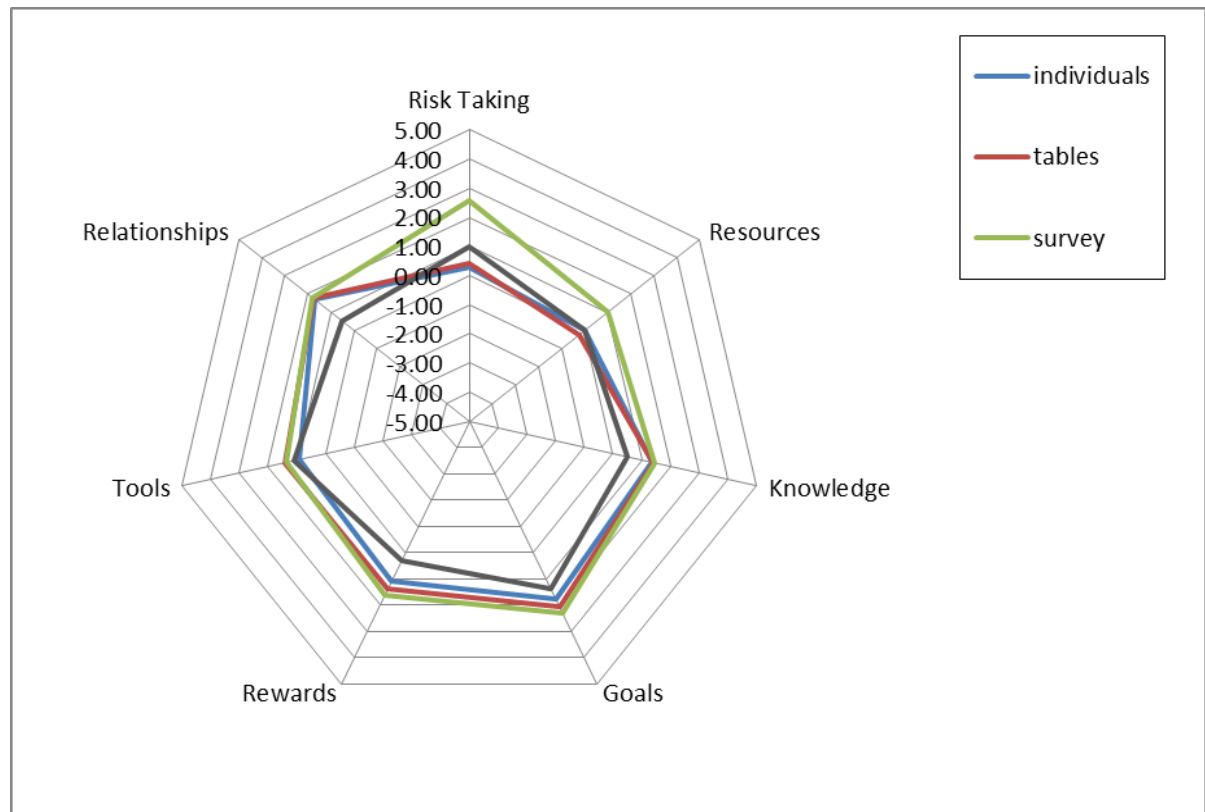
'I'm always wary of the culture questions, [laughs] because I don't think we have necessarily got a homogenous culture across the Trust' (6K:SLT)

The CfI was assessed quantitatively in two ways; the Collaborative Enquiry Workshop (CEW) which produced two data sets, individual scores (CEWi; n=90) and table groups (CEWg; n=22). Both data sets generated a single '*mean Dimension Score*' (mDS) for each of the seven CfI dimensions (section 2.5.5). The Trust Survey (TS) (Appendix 1.0) was undertaken 3 months later, again a mean Dimension Score (mDS) was calculated for each of the seven CfI dimensions. Comparison was made across the three data sets (Table 5.2 and Figure 5.2).

Table 5.2
CfI mean Dimension Scores (mDS) across the seven dimensions

Data Source	Risk-taking	Resources	Knowledge	Goals	Tools	Rewards	Relationships
CEWi; n=91	0.30	0.00	1.34	1.77	0.91	1.07	1.70
CEWg; n=22	0.41	-0.23	1.40	2.06	1.42	1.38	1.76
TS; n=159	2.60	1.18	1.66	2.43	1.52	1.80	2.10

Figure 5.2 CfI mean dimension scores portal chart



The data representation in Figure 5.2 visually showed differences between data sets, compared in more detail during the transformation stage. Although CEWi scores appeared slightly lower than CEWg, the two data sets shared the same '*organisational signature*' (Maher, *et al.* 2010) which, when compared statistically demonstrated no significant difference and were therefore considered to be from the same population.

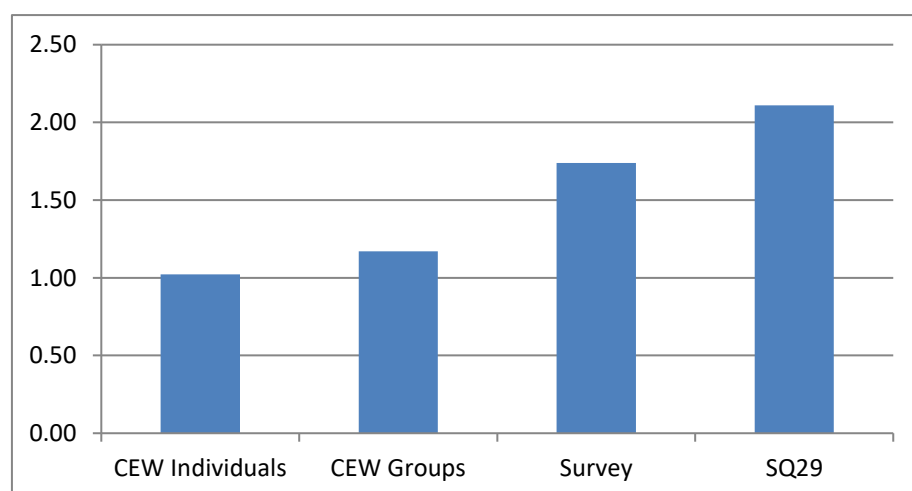
As the CEWg scores were negotiated amongst groups of individuals, the majority of which were senior leaders and managers, this was considered a proxy mesosystem CfI. This was recognised as being positive across the majority of dimensions, 5/7 dimensions scoring greater than +1. This was confirmed by calculating a grand mean, or overall Trust CfI score for the mesosystem of +1.17/+5.

The TS scores presented a broader cohort of individuals from within the Trust, and thus were considered a proxy for individuals within the microsystems. This was positive, with 7/7 dimensions scoring greater than +1, confirmed by the calculation of a grand mean, or overall Trust CfI score for the microsystem of +1.74/+5.

Statistical comparison was carried out between these two data sets using the Kruskal-Wallis test, demonstrating a statistically significant difference between the CEWg and TS ($p < .05$), highlighting the variance between the proxy mesosystem and microsystem scores, with the microsystem obtaining the highest overall CfI score.

The final analysis at this level was the comparison of overall CfI scores across four data sets; CEWi, CEWg, TS and the final TS item (TS Q29, *'my department has an underlying culture that supports innovation'*) for the Trust. The overall CfI scores were positive in all four datasets, the CEWi scoring the lowest (+1.02) and TS Q29 highest (+2.11) (Figure 5.3). An aggregation Trust CfI score was calculated using all data sets to give an aggregated Trust CfI score of 1.51 out of a maximum +5.

Figure 5.3 Overall Trust CfI score

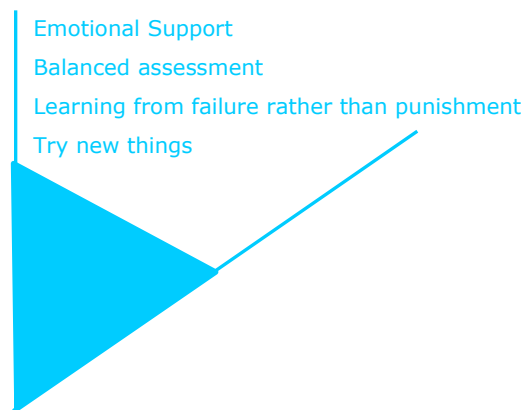


This quantifies a positive CfI position for the Trust, corroborating the opinion provided in the CQC report in 2018 (TD4). As this was the first time this tool had been used within the Trust, no internal comparator was available. The only external comparator identified was in the original publication (Maher, *et al.* 2010 p50), which presented a portal graph from a trust, where the questionnaire had been sent to 200 staff, level unspecified, eliciting 47 responses (24% response) which was described as '*having some of the highest scores amongst the Trusts in the pilot*'. The numerical values for this survey were not given, so statistical comparison could not be made; however, visual comparison indicated the Trust scored higher than pilot. This positive overview of the Trust's CfI is encouraging, but does not support the rich description and granular detail needed to assess where barriers to organisational innovation may lie (Swan, *et al.* 2002) or where support might be required.

In addition, although the majority of CfI dimensions appeared to share the same organisational footprint in the two data sets identified as representing the mesosystem (CEWg) and microsystem (TS), visually there were two exceptions; risk-taking, and resources. The differences between the mDS for these two data sets were explored statistically using the Kruskal-Wallis test. This confirmed that in five CfI dimensions there was no statistically significant differences between groups, the exception was risk-taking and resources, which both demonstrated highly statically significant differences ($p < .001$). This was explored in further detail, triangulating this data with that of the individual TS Questions (TS Q) and qualitative data drawn from the staff interviews (SI).

5.2.1 The complexity of 'risk-taking

Figure 5.4 CfI risk-taking dimension



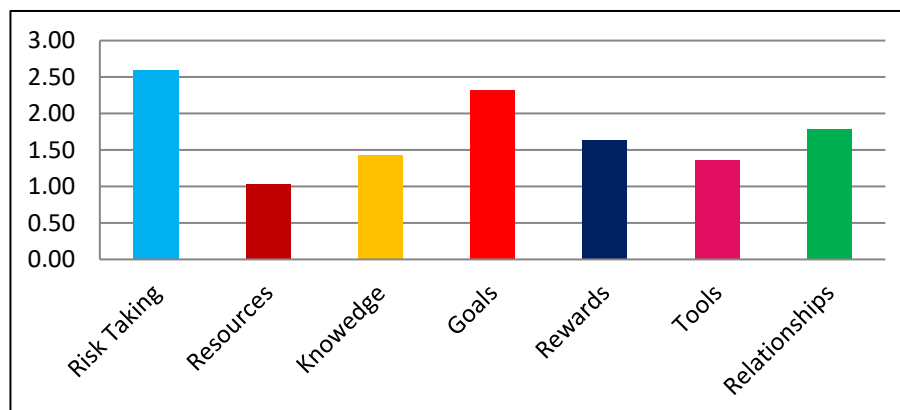
(Maher, et al. 2010)

'the majority of the people who work in [Trust] are clinicians and there are different aspects to risk, certainly, you um, er, certain services it's about taking positive risk, um, but then there is also the balance of looking to minimise um risk too, so, and that really feeds in, I think, to innovation, because um, whenever something is new there are risks associated with the introduction of that' (1B:SLT)

The elements of risk-taking are defined by Maher, et al. (2010) as emotional support, balanced assessment, learning from failure rather than punishment and try new things (Figure 5.4). Risk-taking was covered by

the first 4 TS Qs⁸ which achieved the highest TS mDS across the seven dimensions (Figure 5.5).

Figure 5.5 CfI Trust Survey mean Dimensions Scores (MDS)



If the risk taking CEWg mDS (0.41) is considered a proxy for an organisational or mesosystem score, and the TS mDS (2,60) a proxy for the individuals in the microsystem, it appeared that the mesosystem was more risk adverse than individuals within the microsystem. This risk aversion was recognised by some SLT interviewees, several of whom commented on the risk adverse nature of the NHS, although counter to this, one SLT member articulated their disappointment with this score, stating they personally would have expected it to be higher.

⁸ Trust Survey Questions (TS Q) 1-4 Risk-taking

TS Q1: My direct supervisor supports me if I want to try something new.

TS Q2: If I suggest a new idea and it fails, I know I will not be made to feel humiliated.

TS Q3: In my department the general tendency is to try new things rather than hold onto the status quo.

TS Q4: Senior Leadership is willing to take risk on new ideas that might make things better.

'NHS organisations are a little bit risk adverse, on the whole, um, I think that we as an organisation are more open to that, and in fact as a board, we set our risk appetite, one of the thing we are asked to do as a board is to set our risk appetite for different aspects and we set our risk appetite higher for innovation then we'd, then I think, traditionally organisations do, in the NHS, and I think that sends a signal about our preparedness to try different things'
(7X:SLT)

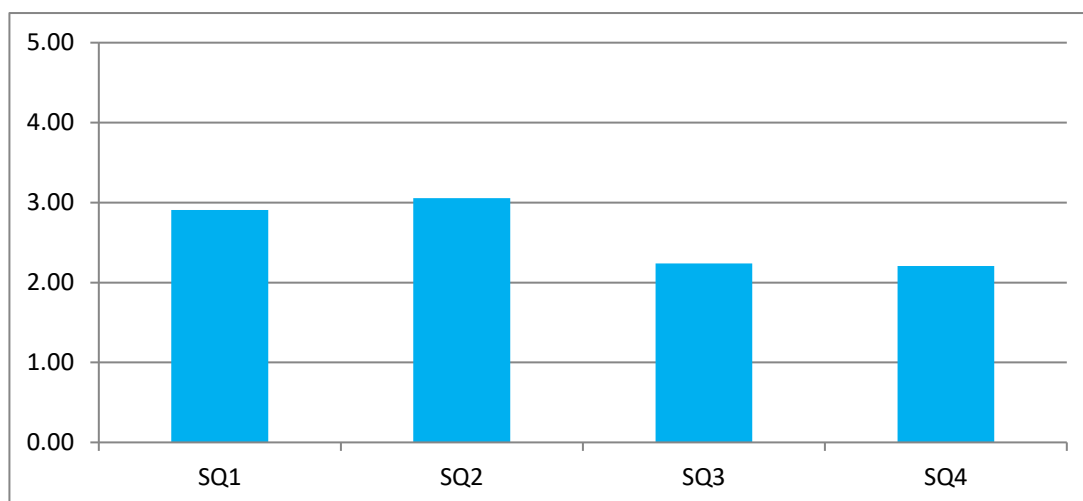
This statement can be directly corroborated by a Trust Board document published in July 2018, 'Risk Management Strategy', (TD7) which stated that the Trust's 'risk appetite' for innovation had been agreed as level 5, the maximum level, articulating its strategic ambition. The document further stating:

'Innovation the priority – consistently 'breaking the mould' and challenging current working practices. Investment in new technologies as catalyst for operational delivery. Devolved authority – management by Trust rather than tight control is standard practice' (TD7)

All Trust Board papers are publically available, yet, this document was not known to the emic researcher at the time and possibly not to other interviewees. This highlights two different problems; the first is the difficulty in communicating strategic decisions effectively across large complex organisations to those that need the information. The second is the temporal impact of research undertaken in a real world dynamic context; the CEW was undertaken at the beginning of January 2018, the TS April 2018, the interviews between June and September 2018, with the Risk Management Strategy published in July 2018.

In exploring the four TS questions that contributed to this dimension in depth, each achieved mean TS Question Score (mTS QS) of over 2, including TS Q4, which pertained to management support (Figure 5.6). This indicated that individuals within their teams, felt empowered to innovate and supported by their managers.

Figure 5.6 Mean TS Question Scores for risk-taking dimension



The mTS QS were positive, but more significantly, these could be corroborated with interview data where clinicians pointed out that they took positive risks as part of their clinical duties and acknowledged the need to mitigate the clinical risk of innovation within approved governance systems (section 4.5). There were also direct examples from SI data of positive risk-taking with teams, where FLS were empowered and supported by clinical leaders to take forward ideas after a balanced assessment had been made. Indeed, the risks were acknowledged, and where failure had occurred, accepted as the next two quotes demonstrate.

'I have [staff name], who just came in now, was our first apprentice, um, and we were a bit, you know, anxious about her coming because we weren't really sure how it was going to work, what it was going to look like and within a week she'd knocked on

my door and said, she'd been tidying up the treatment room, just to familiarise herself with where things were, she'd printed out a piece of paper, she said to me, can you look at this please, and it was, um, a charity, that collected out of date dressings and things for Syria, well my jaw just dropped, because she was this young girl, with no nursing background at all, who was 2 weeks in role, who was already looking at stuff like this, and it was just like, wow, I think we've aced out here' (12S:FLS)

'There's a few things that I've tried, but they haven't really worked, when I first started I noticed that there was a lot of waste, I still notice that there's a lot of waste, but it's just trying to find out how to fix that problem, I did originally email, a charity, that were looking for medical supplies in, I think it was Syria, but they wasn't interested, in what we'd got, so back to square one.' (14Z:LFLS)

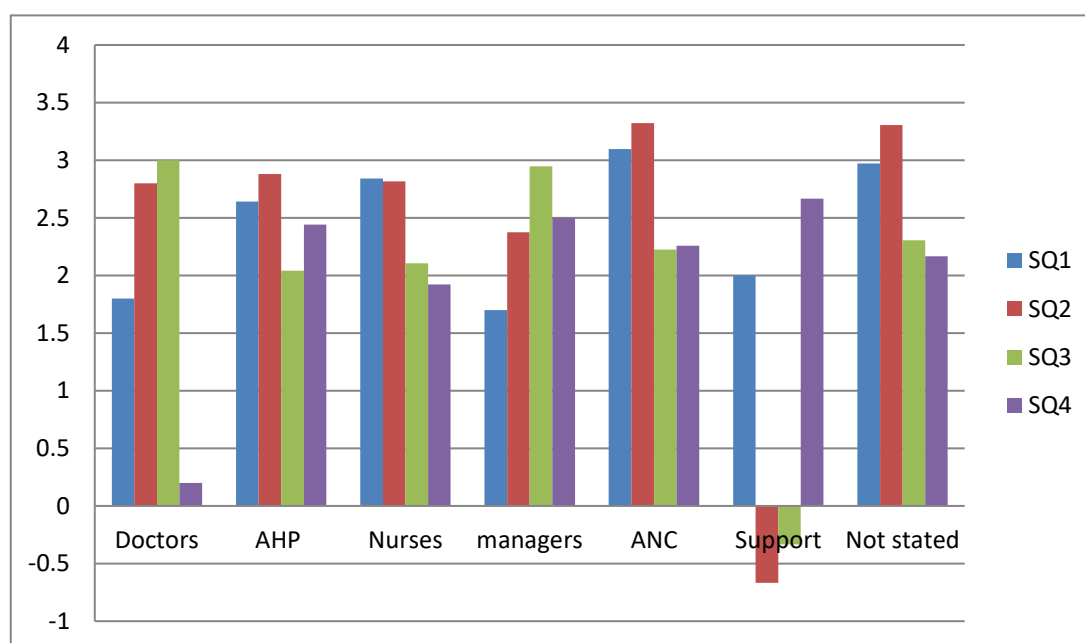
Risk-taking, tolerance of failure, willingness to experiment and psychological safety are described as essential to innovation (West *et al.* 2017), however, propositions from the literature identify NHS organisations are risk-averse (Albury, 2005). At organisational level this appeared to be the case within the Trust, although there appeared to be a desire to change this, this had yet to become established within the CfI. There was evidence that this was different however, within the microsystem, where clinical staff, within safe communities of practice undertook risky clinical procedures, including innovation, managed within their everyday roles. This juxtaposed position is evident in the quantitative data and recognised by staff, creating the most debate within the SI conversation, with the tension around getting this right acknowledged.

5.2.2 The exceptional case of medical staff (doctors and dentists)

This was not the whole story, when the mTS QS for Risk-taking was explored by staff groups, the majority scored above 2, across all 4 questions. There were two exceptions to this, doctors and dentists (collectively identified as medical staff) (n=5) and support staff (n=3). It was unclear who identified themselves as support staff, and therefore difficult to corroborate this directly with any other data; however, medical staff are easier to isolate from the data for separate analysis. Medical staff formed 3.1% of the TS sample (5/159), when compared with 2018 Trust workforce data, they also made up 3% of the Trust permanent staff (96/3183). In addition 4 medical staff took part in the interviews, although this cohort is too small for any statistical analysis, it is interesting to explore qualitatively.

In the TS medical staff scored 3/4 Risk-taking questions⁸ highly (TS Q. 1, 2 and 3), but scored TS Q4, senior leadership support lower than any other staff group (Figure 5.7).

Figure 5.7 mean survey question score risk-taking

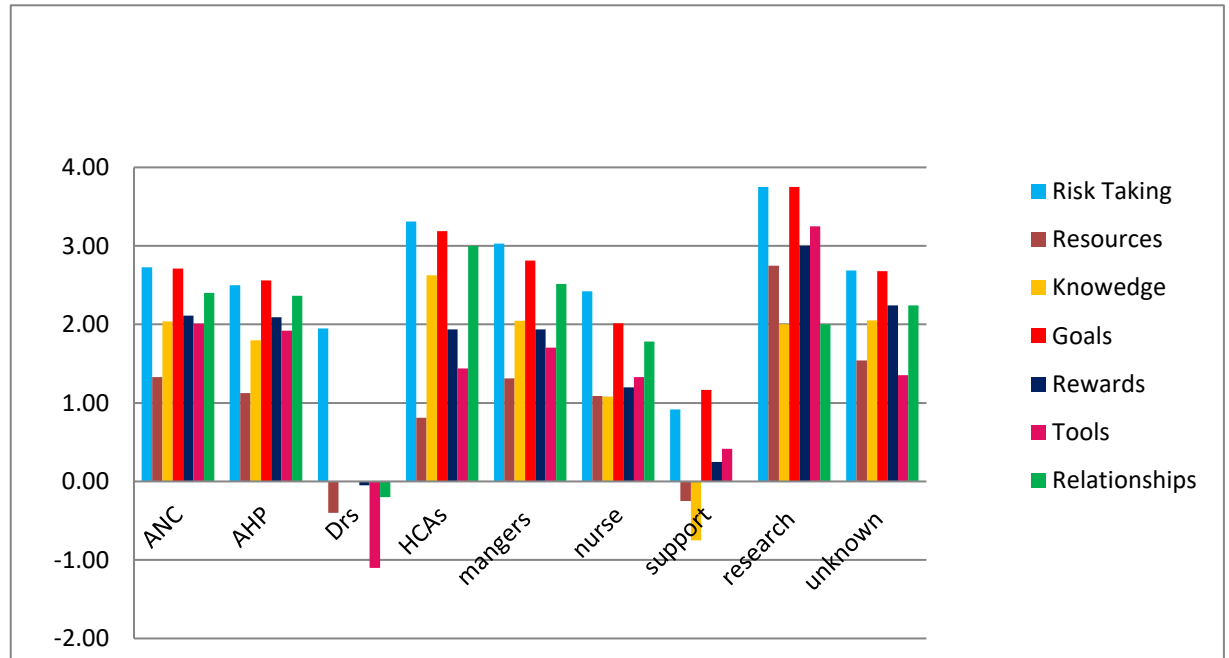


The interview data corroborates some of this disconnect in terms of recognition, reward and career prospects.

'You know the doctor who did the [innovation project], he is a very good doctor, he genuinely feels that he did something over and above, neither reward and recognition and he can't do it any longer, it is not, rewarded, it is not part of his core business'
(3T:SLT)

If the mTS QS are extrapolated across all survey questions by staff group data, this disconnect between medical staff and the perceived CfI is further evidenced. Medical staff only achieved a positive score in the Risk-taking dimension, all other MDS scored 0 or below. (Figure 5.8)

Figure 5.8 mSQS all dimensions by staff group



Several medical staff took part in the interviews, one explained:

'the average clinician needs to be convinced that what we are talking is for them, and, and, we can't really force it, you can't force anything on anyone, the moment that you say you need to do this and there is time in your job plan, then we will get into a discussion that 'I have not time', then we will lose the focus on innovation, because then the discussion will be time' (3T:SLT)

This opinion was not unanimous, as one member of the medical team (16B:FLS) postulated, innovation was actually restoring his own *'therapeutic optimism'*. The barriers to engagement in research and innovation are documented within the literature (Greenhalgh, *et al.* 2005; Collins, 2018), time, skill and support are well recognised across all health and care staff; however, as the access to support for innovation within the Trust is open to all, why one professional group might feel disadvantaged over others, particularly a group that professionally is usually described as being more empowered than others is curious.

As part of the analysis strategy, the researcher engaged with several Key Informants (section 3.4) to discuss findings and interpretations, one of which was a senior medical staff member. The difference in survey response and the comments from medical staff in the interviews were reflected on, the senior medic concurred with the predominate view, stating that they understood this response, that medical staff probably felt too pressured, didn't know how or where to go for support to take innovative ideas forward, and identified that this was an area that needed developing within the Trust. This confirms suggestions from the literature around the way that doctors are trained and use knowledge as a profession is at odds with adoption of innovation (Williams, 2011; Castle-Clarke, *et al.* 2017).

5.2.3 The issue of resource

Figure 5.9 Resources



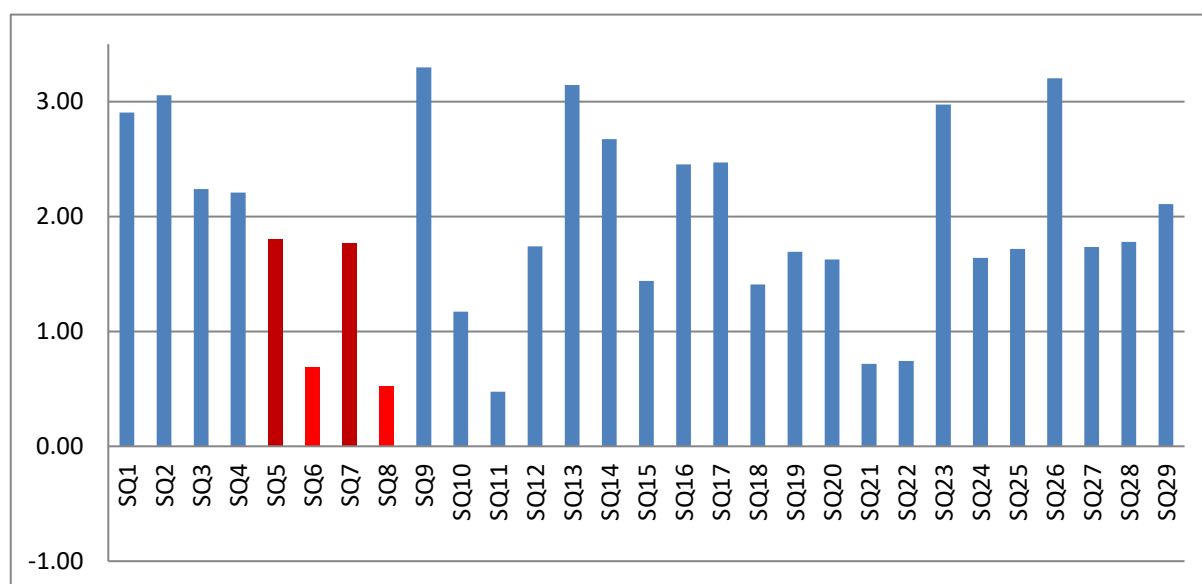
(Maher, et al. 2010)

'I'm just curious as to why people feel that resources is low, um, [pause], and whether that is, that links to people feeling like, feeling that they've nowhere to turn, or, or, they would, yeah, or they wanted, if they wanted more information about something or they wanted support with something? They'd know where to go maybe? And I think that's just always, challenging, it hard.'
(16B:FLS)

If risk-taking created the most debate, the most discussed dimension was resources; this not only included funding and time, but authority to act (Figure 5.9) (Maher, et al. 2010). All of these elements are recognised within the literature as barriers to research, innovation, and organisational change, so this was not an unexpected finding (Greenhalgh, et al. 2004).

In the CEWg 'resources' was the only mean Dimension Score to achieve a negative value, (-0.23) and in the TS was the lowest scoring of the seven dimensions (1.03). When exploring mean TS Question Scores across all 29 items, TS Q6⁹ and Q8, scored amongst the lowest across the data sets (Figure 5.10).

Figure 5.10 Trust Survey Questions, mTS QS across 29 questions



This dimension also generated the most qualitative feedback from the CEW discussions, the trust survey, and staff interviews (98 codes in NVivo), although numbers alone do not equate to significance within qualitative analysis, this confirmed it was an important issue, it was also

⁹ Trust Survey Questions (TS Q) 5-8 Resources

TS Q5: My direct supervisor supports me with the time to work on a promising new idea.

TS Q6: In my department we seem to find the resources we need to find innovative ideas.

TS Q7: I feel that I have reasonable authority to try out an innovative new idea

TS Q8: Senior Leadership makes sure that there is both the availability of time and of money to support innovation.

noted that the majority of these comments were coded as negatives. There appeared to be general agreement that resources were an issue within the Trust and the NHS in general. Amongst the SLT, some of the discussions were more reflective, the point was made that as a public sector healthcare provider, the core business was health delivery; therefore this was where funds were allocated.

'it certainly reflects the fact that we as an organisation have money to deliver care and treatment, that fundamentally where the resources are directed as a healthcare provider' (1B:SLT)

Other senior leaders reflected on what was available, rather than focusing on what was not available, with particular reference to the valuable resource of the staff themselves.

'I think the other one that's important to reflect on is that, resources, is much more significant, I don't know whether people would assume that you need overt resources, or whether you need people as resources and whether that influenced people's minds sets in relations to that' (8E:SLT)

At present within the Trust, innovation funding is ad hoc and time within clinical services is limited, even with a supportive culture and engaged staff, one SLT member commented

'I understand from the corporate point of view, from the board point of view, but truly speaking we are not going to be getting very far with the innovation if there isn't some kind of resource behind it, even if it's just to evaluate' (2P:SLT)

At an operational level there was an acceptance that this was just how it was; it was the same for everybody and even a feeling that there were

work arounds that might be implemented. This might account for the significant difference in scores between the CEWg and TS data for resources.

'I think definitely resources is a, I would have guess that this would score low, I think sometimes there is blame, that's the wrong word, but can always talk about lack of resources or we don't have enough time we don't have enough staff, we don't have enough money, but, it isn't always, that isn't always the main barrier and actually if you got knowledge or goals or the tools we'll find a way around the resource issue' (10F:SLT)

Yet, despite some more positive reflections, the lack of time and capacity within the services was clearly articulated, there was genuine anguish about the day-to-day pressures frontline clinical staff faced, and the impact that this had on them personally and indeed, ability to think or engage with any innovation, regardless of their desire.

'ok as a nurse, it's, it's kind of, 'cause, obviously, you're faced with daily challenges and its quite stressful and having to work in that kind of environment, sometime you don't have much time, to really think about, other things, you're basically putting all your energies and resources into working as a nurse, to get by, just to get by on a daily basis' (13I:FLS)

This lack of time is not just a 'feeling', it is corroborated through data captured by the Trust Corporate Performance System (TD12). 'Headroom' refers to a calculation made by organisations for managing staff unavailability (Hurst, 2003). It is the allowance within a Trust's budget that covers staff absence through annual leave, sickness, parenting, study and leave. The Trust's software provider supports comparisons to other NHS trusts; it demonstrated average headroom within NHS trusts of 21%,

with 63% of trusts operating above this threshold. The Trust's headroom at this time was only 19%, without the inclusion of any parenting leave. This confirms both the 'culture of busyness' (Nevalainen, *et al.* 2018) within the trust and the challenging environment of care delivery (section 2.1.3).

If the effort was made to create the headroom, support across a team garnered, then the introduction of an innovation could provide a solution to this problem, creating capacity and releasing time to care, something that was much valued. A set of interviews took place with FLS within one team; all interviewees independently discussed the same initiative. The team leader talked about the team being at breaking point, the imperative to change and the challenge of leading that change. Although she had been given time to plan, implement and evaluate the transformation, she also described the feeling that this time allocation was not valued by the rest of the team and the frustration of having her '*project days pulled*' due to '*workload pressures*'; conversely other team members commented that these project day's '*took her away from the work*' that needed doing, although they stated they understood the necessity of this. The initiative was successfully implemented, change had happened, and all had benefited from and valued the impact.

'it's worked out that we've saved a lot of, nursing hours, um, I did a presentation, with all the information on that, and also with the [innovation] we've saved, I think like, in a month, we saved 9½ nursing hours, so it's a big impact on, the girls, as well, because they are generally timed visits. (7N:FLS)

In summary, the Trust position on resources corroborated the propositions from the literature (Maher, *et al.* 2010). There was however, some difference between the SLT perspectives, where there was a reflection on the resource that Trust had invested and the resource that the Trust staff

themselves provided, possibly confirming propositions that this provided organisational slack (Walker, 2014). SLT actors also recognised the need to identify and invest in an innovation if it was to succeed (Pisano, 2019). Amongst FLS actors, it appeared staff felt empowered to innovate within their teams, but, a lack of funding and in particular, time, were as very real barriers again confirming propositions from within the literature (Greenhalgh, *et al.* 2004). Despite this, there was evidence of positive deviant cases of innovation (Sheard, *et al.* 2017) with individual staff members, willing to take forward, or support the development of an idea or adopt ideas from outside the Trust and implement them for the benefit of their patients, and their teams, acknowledging the risks within this process. Another barrier given in the interviews however, was limited knowledge of how to evaluate innovation, this finding is presented next.

5.2.4 What we know about knowledge

Figure 5.11 Knowledge



(Maher, *et al.* 2010)

'I think we need more good news stories, whatever level they are, because I think that's a classic, somehow we need to be much more aware of things that are going on in our own organisation, erm, and that's always difficult to do, I know, but I think once you

*hear something or see something that then start a spark for your own ideas or then you can think ok, how can we do that?’
(10F:SLT)*

Maher, *et al.* (2010) identify a broad knowledge base as the ‘fuel’ of innovation, including within their description, the need for knowledge to be a wide scope search, uncensored, unfiltered, unsummarised, and free flowing (Figure 5.11). Although the mDS for knowledge was the most consistent across all data sets, it only scored +1.66/+5 in the TS, with further analysis of the dimension’s TS Qs (9-12)¹⁰, demonstrating the greatest range within a dimension. (Figure 5.12).

¹⁰ Survey questions (SQ) 9-12 Knowledge

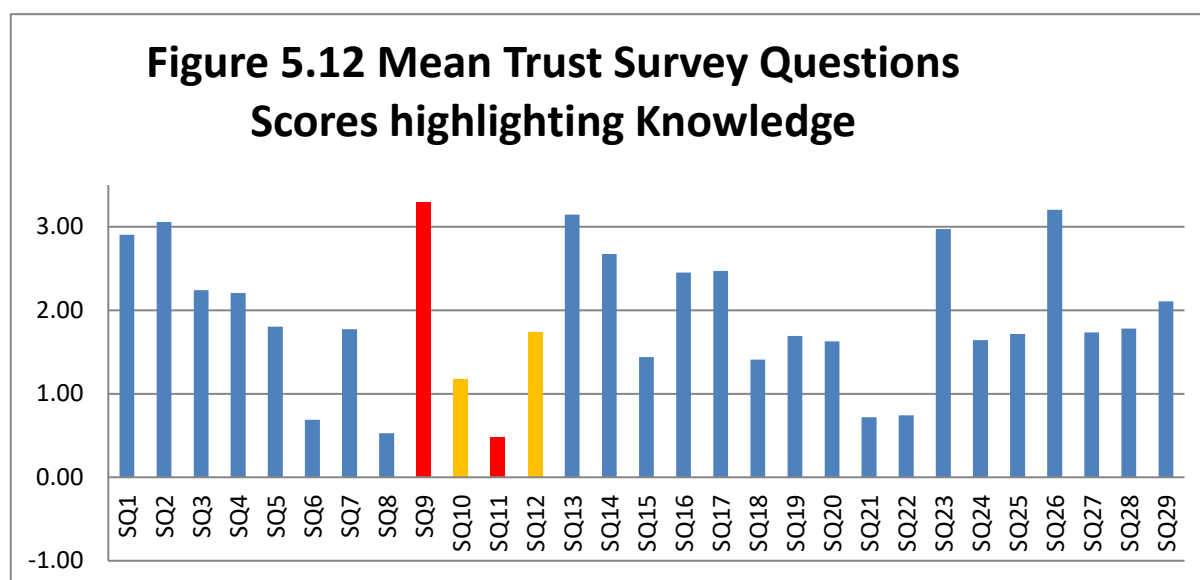
SQ9: If I don’t have the information I need, I feel comfortable asking my direct supervisor for it.

SQ10: We are generally kept informed of activities in other departments that affect our work.

SQ11: There is a lot of information available to me about what other organisations are doing to meet the same sort of changes we face.

SQ12: Senior Leadership openly shares information that is important to me and the work I do.

Figure 5.12 mean trust survey question scores highlighting knowledge



This dimension had limited attention within the interviews, however, when staff were asked directly where they went for support with ideas, FLS spoke in detail about the support of their immediate supervisors, with even very junior staff expressing how they felt comfortable taking ideas. In addition, the importance of the role of teams was emphasized, with the role of the team meeting highlighted as a place to discuss ideas. Clinical Leaders spoke about specialist support they could access from within the trust and from their service managers, corroborating the high value given to TS Q9.

'if it was something specific that I wanted to query, I would go to someone specific, if it was something general that I just thought erm, I'm not sure about this or are there issues there that I'm not sure about then I would got to [managers name] , she's my manager and she's great. (12S:FLS)

In the same way, when staff were asked what they would like in order to develop innovation, a common theme emerged around the need for the visibility of innovations within the Trust, supporting a low score of TS Q11.

'I think sometimes you get a little bit, sort of, almost, cocooned in your own role don't you, and I obviously know what in our team is, is, you know, what's there that's changing and moving forward, but I think probably for the whole, um, organisation, maybe a little bit more vision of what's there.' (6M:FLS)

Doctors also scored TS Q9 positively (mTS QS=+2.60); but, scored negatively on all of the other 3 questions in this section, this was commented on within the interview

'I would score probably a little lower on knowledge for innovate within the Trust, it's not a huge score in any case, but I'm looking at average jobbing medic, but I'm also talking of nurses, with whom we all work very closely, an average clinician, clinicians' awareness, knowledge about innovate, strategy or innovations in the Trust, out of 5 would be less than 1 point I think.' (3T:SLT)

This appears to concur with the other findings (section 4.4) of teams working in silos and not sharing what they are doing (Castle-Clarke, *et al.* 2017). It also starts to highlight steps that can be taken to ensure that teams at the microsystem level are able to develop more open communication networks (Cohen, *et al.* 1990), the opportunity to make internal case studies available to staff, and develop sharing forums working across groups, spreading innovation (Williams, 2011).

5.2.5 We need the tools to innovate

Figure 5.13 Tools



(Maher, et al. 2010)

'I certainly think we've got the tools, I don't know that people, clinicians or staff on the ground necessarily think that we've got the tools? Maybe they are reflecting on their tools, so have they got the tools rather than this, the Trust got the tools' (2P:SLT)

Innovating is a deliberate act, requiring both process and method; to believe that just because the culture is there that it will happen would not only be a fallacy, but creates chaos (Pisano, 2019). Maher, et al. (2010) concur, identifying the tools of innovation as flexibility, deliberate process, training, and encouragement for skills development (Figure 5.13), they note in their research that 46% of NHS staff said they require more tools for innovation. At the Trust Leadership Matters Event in January 2018 a workshop was presented around the accompanying publication *'Thinking Differently'* (Maher, et al. 2010a). This resource was also available on the Trust intranet site, in addition, this and other tools for innovation are

taught in the one-day Foundation Level course '*Quality performance and innovation*'.

TS Q23, explored the generation of ideas, scored amongst the highest in the data set, (2.97) corroborating the literature review proposition that individuals themselves did not feel there was an ideas problem (Adner, 2006) (Figure 5.14 and Figure 5.15). Despite this, TS Q21 and TS Q22¹¹ both scored less than 1, confirming that FLS did not believe they had been trained or had a systematic approach to thinking differently. When this was extrapolated, and explored across staff groups, it showed that doctors felt the least trained and prepared in thinking creativity, again corroborating propositions from the literature regarding the impact of professionalism (Williams 2011).

¹¹ Trust Survey questions (SQ) 21-24 Knowledge

TS Q21: My organisation has trained me in methods to support creative, new ways of thinking.

TS Q22: My department uses specific methods to generate creative ideas around the challenges we face.

TS Q23: I am capable of generative creative ideas.

TS Q24: Senior Leadership actively demonstrates innovative new thing in tis our work.

Figure 5.14 mean Trust Survey Question Score highlighting tools

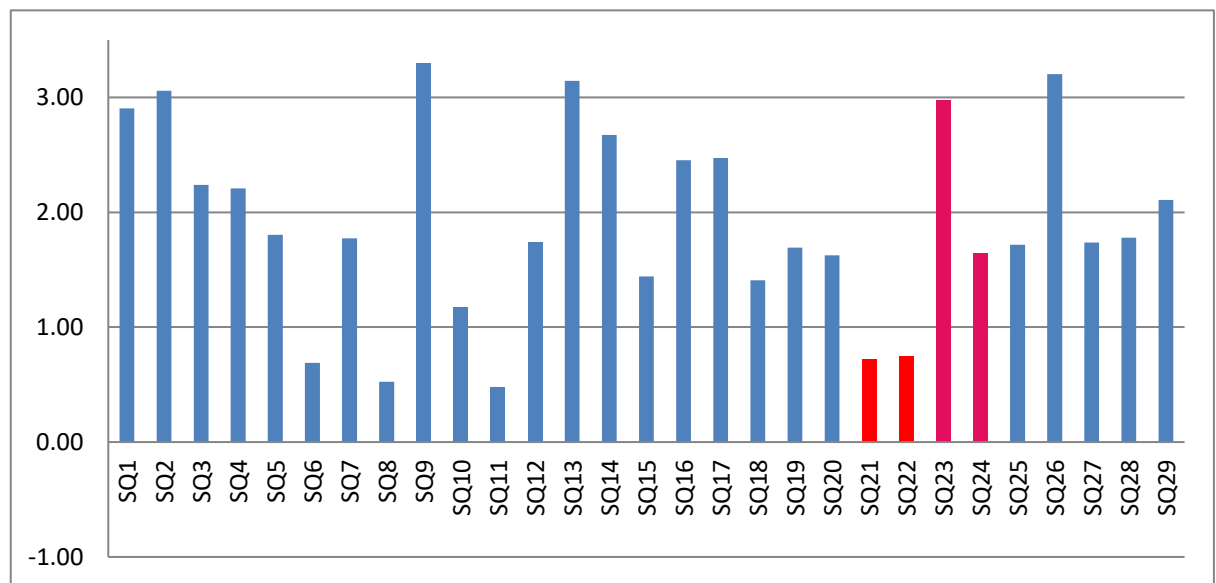
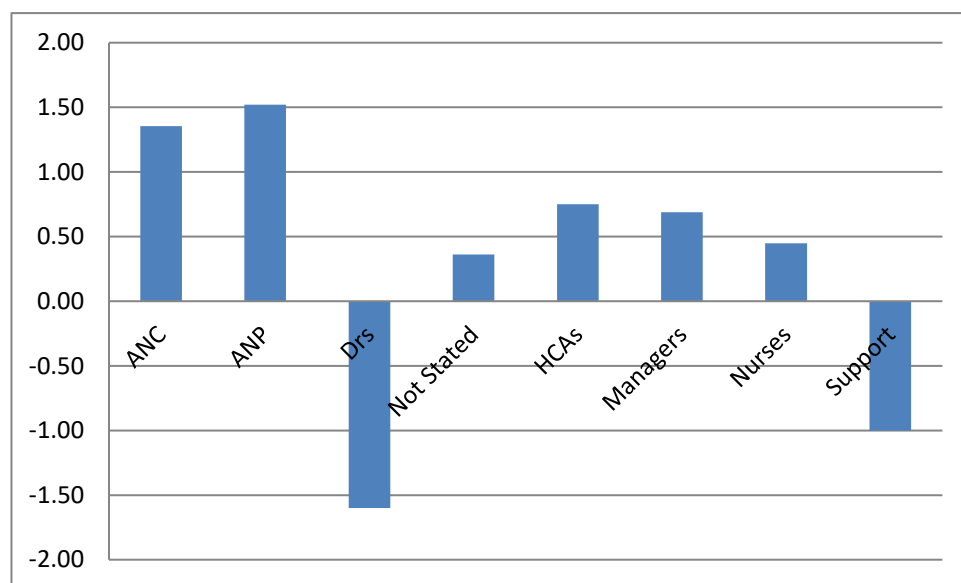


Figure 5.15 mean Trust Survey Question Score for TS Q21 by staff group



The interview data generated only a few comments regarding tools, however, there appeared to be a lot of uncertainty over what was available.

5.3 Chapter summary

This chapter presents an overview of the Trust's receptive context for innovation, particularly focusing on the soft antecedent of innovation of leadership, and culture for innovation (CfI) (Robert, *et al.* 2009). These were explored within both the mesosystem and microsystem, with differences found across these levels for both antecedents.

The SLT accepted their role in leading strategically, however the strategy itself was less explicitly described by FLS. The Trust leadership model has been described as devolved, and within the teams there was evidence that FLS were empowered to innovation, embracing change was part of everyone's business (West, *et al.* 2017). Although high-level strategic leadership of innovation is noted within the literature, (Castel-Clarke, *et al.* 2018), this difference in leadership is little explored, identifying it as an area requiring further exploration.

The organisations culture is recognised to be complex, difficult to measure and hard to change (Hogan, *et al.* 2014), nevertheless the CfI CEW format and TS provided a useful measurement tool (Maher, *et al.* 2010). The data from the CEWg was considered a proxy for the mesosystem's CfI and the TS a proxy for individual actors and the CfI within the microsystem; this was triangulated to give a rich descriptor of the Trust as the subject of this study. Overall the CfI was assessed as slightly positive, although potentially stronger within the microsystem than the mesosystem, and with some significant differences identified between the two around risk-taking and resources dimension. This has only been partially explained within the rich description.

The data confirms many of the propositions within the literature, but also presents several rival propositions (Yin, 2014) regarding how CfI was perceived within the Trust. The conceptualisation of changes in CfI over

the last year with the introduction of the Trust's Innovation Strategy elicited contradictory responses across both SLT and FLS. Some felt there had been a very real positive shift, and that had a previous survey been undertaken, this difference would have been clearly demonstrated. Others felt that there really had been no change at all. Some staff referred to the positive changes in the Trust's overall culture, but felt any impact this might have on innovation required much longer term investigation. Some appeared to feel empowered by innovation, for others it engendered a sense of fear. These contradictions clearly demonstrate that the CfI was not consistent across the organisation, or even within staff groups, thereby confirming the difficulties of measurement of the CfI (Hogan, *et al.* 2014; Maher, *et al.* 2010; Greenhalgh, *et al.* 2005). Perhaps one insightful reflection summarised this best.

'I'm not being critical but I still think it's a bit embryonic, [laughter] I think everything's there to make it something really special for the Trust, but it's not quite launched, in the, and I'm not just talking about the usual razzmatazz type launch, I'm talking about making it much more in everybody's consciousness, and I don't think we're there yet.' (4A:SLT)

This is accepted as a description of the Trust as it was, developing the understanding of what we know by reflecting, analysing, diagnosing, and describing, as the first stage of the design science model (Bevan, *et al.* 2007). Chapter six builds on this by exploring what the value of engaging in innovation might be to the organisation and how it might then be developed.

Chapter 6. Organisational Readiness for Change

This chapter presents the findings from RQ4¹² around the shared beliefs, values, and behaviours around innovation. Although these findings have been transformed through triangulation and provide a rich description of the Trust, this stage of the analysis moves from the descriptive, 'where are we now', the first stage of the design science model, to the second stage of imagining and visualising the future (Bevan, *et al*, 2007). In this way the level of analysis changes, and starts the process of abduction of the findings, to theory development (section 3.3.3). This chapter explores three themes: the NHS climate of change; the value proposition; where do we go from here.

6.1 The NHS climate of change

The last decade has seen some of the most radical changes within the macrosystem in the NHS's 70-year history, driven by the Health and Social Care Act (DH 2012), and ever increasing financial restraints. The macro level changes have reverberated to the meso-level; many NHS organisations have undergone significant and repeated organisational restructures. The Trust is no exception, undergoing a major restructure in 2016, with significant impact on many positions in the Trust. Several interviewees from both cohorts referred to the constant climate of change within the NHS, and the Trust. There were numerous references to both resistance to change and the impact organisational change had on staff

¹² RQ4: What were the shared belief, values, and behaviours around innovation?

within the microsystem, with recognition that memories were long and change was not necessarily seen as a positive.

'I mean transformation in terms of restructure and jobs, you know people, just 2 years ago we were seeing change as a threat, and we need to see it as something very different, so it's not about your job, it's about doing things differently and better, making your job better and making it better for your patients, Erm, but I do think we're almost, peoples' memories are quite long and sometimes, yes, some of the anxiety and the hurt that went along side that exercise, people haven't forgotten' (4A:SLT)

This particular thread resonated with the researcher, who, as an employee within the Trust at the time, and a long career in the NHS, could readily identify with the pain organisational change caused, reflecting in her journal that she *'had never associated the negative impact this might have on innovation'* (PO:25/06/18).

Although, there is a large body of healthcare literature on organisational change, how it should be managed, and on the wellbeing of healthcare staff, few authors recognise the impact that continual change within the healthcare ecosystem has on the innovation environment (Williams, 2011; Castle-Clarke, *et al.* 2017). Yet, organisational stability is powerfully associated with an organisations absorptive capacity (Williams, 2011) and psychological safety (Mueller, *et al.* 2012). The need for individuals to feel secure in order to innovate has been recognised in the business literature, where empirical evidence shows that uncertainty has a negative impact on creativity (Mueller, *et al.* 2012).

Here, the Trust has two advantages, as a foundation trust it has some autonomy over decision making, including management and financial affairs, and as a CQC rated 'outstanding' organisation, it is less likely to be

subject to external pressures. This optimism was apparent within some of the SLT interviews, indeed, it might be hypothesised that this positioning might be the very reason why the Trust was able to develop its focus on its innovation strategy. If this focus is to be properly understood, then there is a need to understand how innovation is valued within the organisation.

6.2 The value proposition

Prior to the Trust's innovation strategy being launched, the researcher had met with one of the Trust's directors and been challenged to articulate what value innovation brought to the organisation and why they [the director], should support it. Despite years of experience and a fundamental personal belief in the value innovation and research brought to the NHS, providing a succinct response to a direct challenge around innovation was problematic (PO:11/06/18). National healthcare policy states that innovation is critical to the NHS (NHS, 2019). If the policy aims are understood to be those of quality improvement and cost efficiencies (Farchi, *et al.* 2016; Osborne, *et al.* 2011), then the findings from Chapter 4. suggests that this aim has been directly assimilated into the Trust strategy (section 4.2).

Organisational Readiness for Change (ORC) (section 2.5.7) has been identified as the psychological state where the organisations members collectively value and commit to delivering change. This is however complex, not everyone shares the same motivation (Weiner, 2009). This was highlighted by other SLT members within in the interviews.

'I think there's something about us quantifying the value they're [innovations] bringing to the organisation, I don't think we're touching that yet, that's what I'd look for us to do, is its benefit realisation.' (2P:SLT)

If NHS organisations are to become innovative organisations, then understanding the value to the organisation from the differing perspectives from within the system is essential. This elicited a lot of discussion within the interviews; the results are presented in five broad themes. (section 3.2.4).

6.2.1 Value to customers; 'for you, with you'

The Trust's strategic plan '*for you, with you*' is a public document, available on the Trust website (TD8), within this the Trust outlines its strategic approach, '*to develop a public and patient involvement model*', a concept that links through to the innovation strategy articulated through the 'Involvement in Innovation (I³) plan (TD9). This reflects the impact of the outer context on organisational innovativeness, (section 2.5.1). Patients, carers, and the public were discussed at some stage within most of the interviews, across all staff levels. Interviewees stated they felt there was a clear commitment within the Trust to involve patients and the public in service improvement, re-design and innovation. This was particularly apparent at SLT level.

'if you can't innovate then there's no point in going and asking service users what they need from a Trust or organisation, because you're just going to come back and say well we can't do it, erm, so, so innovation should be a standard agenda item, because it's about being responsive to, your population' (9H:SLT)

Clinical staff also identified their professional responsibility to keep up to date with new clinical developments, stating that if a proven clinical intervention was available, they wanted to be able to offer this to their patients. This appeared to be internally motivated and connected with the moral responsibilities of being a healthcare professional. This was

associated with offering treatment choice, improved therapeutic outcomes, and also linked with improving safety, particularly how the adoption of innovative technology could improve safety. A specific example given was 'e-prescribing', identifying that poor handwritten prescriptions were not only time consuming to decipher, but inherently dangerous.

Most importantly there was recognition that doing things differently and doing different things to create a step change could release time to care. One ward leader summed this up when discussing the impact of a novel individualised drug administration routine recently initiated on their ward.

'...which sort of, avoided a lot of mistakes with them having the big trolley, with everyone's medication in it, then you have to look for it, as well, so it saves time, improves 1:1 time with patient and then not making mistakes and omissions 'cause you're just concentrating on what's in front of you' (10V:FLS)

The therapeutic advantages of patient choice, therapeutic outcomes and safety improvement innovation can bring to the NHS is a strong theme within the healthcare innovation literature, (NHS England, 2017). As the Trust is a healthcare organisation it is not surprising that this was explicitly stated within the findings. However, the benefit of customer engagement in delivering innovation are less well evidenced, only recently recognised as valuable to making sure that services meet the needs of the population they serve (West, *et al.* 2017).

6.2.2 Value to the actors: energising the staff

'it's about getting ideas, it's about getting um, new concepts, it's about bringing things together it's about problem solving it's about

creating energy in an organisation. Erm and for me it's part of our culture' (8E:SLT)

SLT interviewees recognised the energy innovation could create within the organisation. They understood that healthcare was a constantly changing environment, that the Trust needed to change with it, but acknowledged this as challenging. Bringing people together to develop innovative solutions helped not only to solve these problems, but took staff along the journey with the Trust, one clinical leader stated that this was the part of the role they enjoyed the most, possibility even the one thing that kept them in their role.

'if you're a nurse and you're in an environment where there isn't any change and you can't respond to challenges and the, the progress that needs to be made, then that's actually where some of your burn outs and stress and some of your difficulties with coming into work day to day is, because you just up against that wall all the time, whereas, if you're innovating you spending a lot more time working out how to get around that wall, rather than just banging your head against it, erm, and it's, it's a bit addictive in a way' (8E:SLT)

At an individual level, clinical staff understood their professional duties regarding innovation and research, linking this to their professional training, where innovation and research is being taught as part of the educational curriculum, stating newly qualified staff were embracing this as part of their role. They acknowledged the impact this could have on their teams, even small innovations impacting on patient care, save staff time, and deliver a morale boost. Innovation, in this sense, was discussed as restoring belief in the future and engendering a sense of 'therapeutic optimism' that some staff had lost.

'to do something more, to go beyond, um, what we're doing already, or what we're required to do, um, and that's exciting, that's, that make me feel, you know, enthused with some energy and some optimism for the future, and, you know, so, for example, um, my energy for um, for work and my sort of therapeutic optimism' (16B:FLS)

Workplace stress within the services is high, with an urgent call for NHS employers to address this (Wilkinson, 2015; George, 2016). Although there are recognised links to skill mix, workforce training and care quality (Addicott, *et al.* 2015) there is little in the healthcare literature about how engaging staff in innovation might energise them, potentially preventing stress or burn out. In the private sector it is recognised that people work for more than the financial reward, with innovative organisations that engage and motivate staff in problem-solving recognised to be good places to work, attracting, and retaining the most dynamic people (Pisano, 2019). This appeared to be articulated by the interviewees who stated that they felt excited by innovation and were starting to believe in the future again.

6.2.3 Value to the actors: join our team

'I saw the [Trust] were up for a national award with um, the [project], weren't they, and you just think wow that's phenomenal, you know, it's those little titbits, isn't it that you think, I, that's, I work for these people, that's wonderful' (12S:FLS)

The Trust, like many others, struggles to attract, recruit, and retain outstanding staff. The modern NHS is a highly competitive and challenging workplace (Addicott, *et al.* 2015). To address this the Trust has focused on becoming an employer of choice within the county, offering the living wage and career development opportunities (TD10). Staff at all levels

spoke of their pride to be working for an organisation that was looking to the future, taking things forward and offering patients treatment choice. They recognised the Trust had been nominated for several national awards and interviewees stated that they were pleased that they were working for the Trust, and the opportunity that this afforded them.

There is little recognition in the NHS literature of this effect that an innovative organisation might have on recruitment and retention of staff. The business literature recognises that people are motivated by more than money and recognised the psychological rewards that work brings as significant. Companies that can offer challenging and interesting solution focused work places are known to attract talent (Pisano 2019). This was discussed with one key informant, who concurred, sharing an experience that had occurred in a recent interview they had conducted. When they had asked a candidate why they were applying for the position, the response was linked to an innovation that the Trust was known for nationally and the candidate's therapeutic interest in that area of care. A reputation for innovation might therefore have the potential to attract talented staff.

In these three themes the value proposition that innovation and innovating might bring to the patients, as the customers of the system, and to the staff, as the actors within the microsystems is presented. Although the potential impacts for patients are frequently cited in healthcare literature, the other two themes identified as energising staff, and supporting the recruitment and retention for trusts are not identified. There is however, a theoretical link to ORC, (section 2.5.7) identified as where *'members share a collective determination to implement a change and a belief in their collective capacity to deliver'* (Weiner, 2009). This also connects to the aims associated with social innovation (Vickers, *et al.* 2017) (section 2.6.1), where working together in new and different ways with multiple partners to solve problems can create something new and

exciting. These themes explored the value proposition from the customer and actor's perspectives, the next sections explores the value proposition in the broader terms, within the constraints of environment, and transformation more closely associated with the system's owners and the mesosystem perspective.

6.2.4 Value to system owners: the on the front foot

'I think that embracing change is really important to us because everything we do be it internally or externally is about that, um, and if we're going to remain, you know, front foot around the best quality of care and the best outcome for people than its essential that our teams can do that, it doesn't matter where you sit in the organisation' (8E:SLT)

This desire to be and remain outstanding was not viewed as static; this was seen as a dynamic continuation across all interviewees. They understood that change was inevitable in healthcare, other organisations were innovating, and the Trust needed to keep moving forward, continually seeking out what was new and bring it into the Trust to remain contemporary. This was tempered with a note of caution that adoption was not a question of lifting and dropping into place, but needed to be carefully considered, trialled and evaluated to demonstrate real value within the specific context of the Trust. This was referred to as exploring the *'art of the possible'*, identifying problems, and finding solutions.

Some SLT interviewees extended this concept beyond the Trust working alone as a single unit, linking innovation to large scale system change within the countywide healthcare ecosystem. There was an appreciation of the importance of the relationships the Trust had with other partners and providers and acknowledgement that synthesis of ideas within the system

and a desire to make these happen would not only benefit the Trust, but the population it served as well.

6.2.5 Value to the system owners: survival of the fittest

'what do we need to focus the organisation on in order to remain, able to deliver services and to remain viable in an NHS environment, that's getting increasingly financially restrictive and difficult to operate within. And innovate is one of the areas where looking to the future, without innovation now, we will are not going to be fit for purpose for the future' (2P:SLT)

The limited resource available within the NHS has already been identified (section 5.2.3); it was therefore unsurprising that association was made to the financial (Farchi, *et al.* 2016), and cost improvement argument (Osborne, *et al.* 2011). All were presented as important reasons why the Trust, as an organisation, needed to innovate. SLT members made connections from this to another concept, the need for NHS trusts to explore opportunities for business development. Here, there was acknowledgment that the context in which NHS trusts operated was changing and leaders needed to look outside their comfort zones for new business.

'the issue we sometimes face is that the NHS tries against all odds to innovate and then you get private providers who come in and basically, they take your innovation and they cut your costs, so they're coming in and they nab the, nab the work away, so I don't think we've got, I don't think people here should see innovation as a threat, from within, but there will always be a threat from without unless we do, do things differently' (4A:SLT)

Innovating was presented as an opportunity to win new funding, to develop and test ideas or grow the business. There was recognition for the need to promote success, take advantage of the kudos this would bring, and the suggestion that to be known as an innovative organisation would bring a competitive edge when putting in tenders, with the organisation recognised for keeping costs low and provide value for money, essential if the Trust not only wanted to survive but thrive.

There was a hard business imperative to these conversations, in keeping with the business aims Baregheh, *et al.* (2009) definition of innovation (section 2.3). These value propositions, explored from the system owners perspective, were very different to the perception of the customers and actors in the first section where the conversations reflected on mobilising resources creatively for mutual benefit more associated with social innovation, (section 2.6.1). If these advantages are realised those within the organisation must collectively recognise them, how then to make innovation accessible is covered in the final section of this chapter.

6.3 The accessibility problem

'innovation to an extent is like an orchid, it needs a lot of care and attention, it needs nurturing, it's not just a seed that grows by the wayside, you got to put a lot of effort into it and if you don't, it just won't work, it's not just something that germinates by itself'
(2P:SLT)

The Trust can be demonstrated to have many of the building blocks of an innovative organisation in place; a strategy (section 994.2), systems (section 4.5), embedded leadership (section 5.1) and a developing culture for innovation (section 5.2), all essential for organisational innovativeness (Pisano, 2019). There are however, rival propositions within the evidence of the barriers to innovation, the nature of professionalism (section 5.2.2),

poor communication (section 4.5), the impact of organisational change (section 6.1) and differing values of innovation across staff levels (section 6.2). All of these might impact on the Trust's development as an innovative organisation, perhaps resulting in the overall Trust CfI score of only +1.51/+5, with the culture for innovation being described as '*embryonic*' and '*patchy*' (section 5.3).

Organisation Readiness for Change (ORC) has been identified as an important antecedent of organisation innovativeness, a psychological state where staff collectively value and share a belief in their ability to deliver transformation (section 2.5.7). Therefore unless there is collective awareness, understanding and engagement in innovation across the organisation, it is hard to envisage how ORC can develop. This led to what one senior leader called an '*accessibility problem*', identifying the need to socialise the concept beyond a central hub.

'How does it feel accessible to the cleaner who works at [hospital] who may have a good idea about something? That's the battle they're up against as they don't see it as innovation, they see it as just a good idea for their job, erm, unless it reaches that person who I see on a Wednesday I don't know that we're socialised it properly.' (12N:SLT)

ORC works across many elements of the social attribute required for innovation (section 2.5) and can be explored through the inter-relation of the seven dimensions of the CfI model (section 2.5.5). Several elements of this model have already been described in depth in Chapter 5. Three dimensions however, have not been explored and might further support development of this issue (Table 6.1).

Table 6.1 CfI mean Dimensions Scores

Data Source	Goals	Rewards	Relationships
CEWi	1.79	1.08	1.70
CEWg	2.06	1.38	1.76
TD	2.32	1.64	1.79
Overall mDS	2.01	1.23	1.75

6.3.1 Psychological safety

The quantitative data indicated that although the goals appeared to be understood, achieving the highest mDS across the CEWg (+2.06) and a high TS mDS (+2.32), the qualitative data highlights a disconnect. One discussion point from the CEWg stated *'corporate goals and operational goals needed to be clearly aligned and easy to understand'*, a point also recognised by interviewees.

'trust has identified this [innovation] as a significant area, my feeling is, this is all, corporate, or at the most at the managerial level as yet, it hasn't gone anywhere significantly because it hasn't percolated down to the people who will come up with these ideas and who will need input, the clinicians, they're probably saying because they [corporate] want to save some money, I'm not saying that is the reason, but it's how it is perceived.' (3T:SLT)

Maher, et al. (2010) suggests that leaders need to not only set the goals for the organisation, but to then communicate them clearly to the rest of the organisation. Of the 16 FLS interviewed, 14 had either not heard of the Trust strategy or were unclear about it. In addition, very junior staff did not understand the term innovation and beyond gaining support from their immediate teams did not know how any idea might be developed,

linking 'goals' to either targets, their team goals, or confirmed their lack of clarity on the matter.

Engagement across all levels of an organisation in innovation is recognised as important within the literature (Edmondson, 2018), this is not easy to affect though, particularly within a resource limited, culture of busyness (section 5.2.3). Some interviewees felt the innovation exemplars being promoted within the Trust were too complex to be accessible across all levels of staff, feeling simple examples that everyone might be able to comprehend or examples of continuous innovation taking place operationally, might give clarity of definition and purpose, making it part of everyday business for FLS.

In these environments having the courage to present a new and maybe challenging idea can be an issue, particularly for junior staff (Edmondson, 2018). Maher, *et al.* (2010) emphasises the need for leaders to support this process by framing the goals in a way that focuses on the 'what' needs to change and 'why', before then stretching these by asking individuals '*how might we.....*' address these and thus expand creative thought. To implement this however, Maher, *et al.* (2010) highlights the need for managers and staff to feel both empowered and safe, barriers that have already been discussed in leadership (section 5.1) and risks (section 5.2.1).

The 'emotional support' required to take risks has been described previously, but this can be strengthened by relationships developed between actors. Promoting open trusting environments, valuing everyone's inputs, embracing diversity and working as a team have been identified as having an important impact (Maher, *et al.* 2010). The relationship dimension scored consistently across the quantitative data. The TS qualitative feedback elicited several comments in this area, which perhaps due to anonymity, allowed for some brutal honesty. Several

stated that ideas were dismissed out of hand by target driven managers, or that there was a need for face-to-face/team meetings where open and honest conversations could be encouraged and supported. Indeed, it seemed if new ideas were to happen then there was a need for more engagement and collaborative working. This was corroborated by the qualitative data, where examples although less direct, still presented a mixed perspective regarding relationships, perhaps one reason the mDS for relationships was only +1.79/+5.

'Managers meeting their staff face to face and being open and honest with them. Encouraging and engaging rather than sending constant text messages with capital letters.' TS: 6842431804

'Staff need the confidence to block out time to discuss new ideas without worrying about waiting lists and other priorities.' TS: 6846037411

It was also noted by the researcher that all examples pertained directly to the Trust or the local health economy, there was no acknowledgement of the NIS (section 2.2.2) or the support this could offer the Trust. There was however, some positive indication that the Trust recognised that relationships might require improvement, both internally and externally.

'some of the challenges are those relationships, that, so I would score higher because in the sense that I believe that people are working very, very hard to make those right' (4A:SLT)

Reward was identified as crucial to staff feeling engaged in innovation (Maher, *et al.* 2010), this dimension again scored consistently within the quantitative data, although overall it was positive, scoring highest in the TS mDS it still only achieved +1.64/5. Rewards received little attention at

the CEW discussion and only received 6 comments from the TS, although again these were honest.

'Rewards- Scored neutral, but would like to have scored higher, but we felt recognition is dependent on positive outcome or success, rewards are based on external outward facing success rather than internal attempts as day-to-day innovation' CEW:8votes

Edmondson (2018) links innovation and learning with organisational growth, but describes how the actors within the organisation need to have a collective belief in the '*psychological safety*' to deliver this. It is only through psychological safety that individuals are able to share ideas and thoughts in the belief that they will be supported and without fear of personal reprisals (Edmondson, 2018). Psychological safety triangulates across other key texts; Maher, *et al.*, (2010 p85) commentary on goals, relationship and rewards and West, *et al.*'s (2017) compassionate leadership model. This might then provide an explanation for the rival proposition of how organisational instability negatively impacts on innovation, as this destroys the psychological safety of employees.

This might also go some way to explaining the variance of data between professional groups, if some professional groups such as doctors retain a more hierarchical model of knowledge development and structure (section 5.2.2), then psychological safety might be harder to achieve. It might be hypothesised that perhaps one reason the Trust can now engage in the dialog around innovation, is that some level of organisational stability has been achieved due to its outstanding CQC rating.

6.3.2 Contagious communication

'I think communications is one of the most positive things you can have, because if you have open communications that when as a

team you are sharing your ideas, that's when you're adapting ideas, pushing ideas forwards, erm, the knowledge again, that's very important' (4L:FLS)

If psychological safety is to be achieved and impact on the ORC then this message must be communicated to all Trust members. The Knowledge dimension, particularly in relation to TS Q11 has already been discussed (section 5.2.4). The TS qualitative comments (n=24) were analysed into two themes; better communication and sharing examples, this was echoed throughout the SI data.

There was recognition by SLT members of the Trust's strategic decision to put a few high profile innovations forward for national recognition; award winning innovations were also discussed by FLS, with both groups associating success in this area with a sense of pride. There was a reflection by staff across all levels that small innovations were also being taken forward within teams, but often remaining unrecognised, not celebrated and most importantly not shared, which worried some FLS as these perhaps could add value elsewhere.

'I always think that there's a risk that we do something really, really, good in one place and how do we capture and share that? So actually that becomes then, that innovation becomes good practice or best practice or becomes engrained within a protocol of actually that's the way we all do it now? Because it's such a good idea and it's made such a difference.' (5G:FLS)

Several innovation examples were given from frontline staff (Table 4.2), yet when probed about plans to share these more widely, there was an acknowledgement that they hadn't considered this, and agreed maybe they should, but didn't know how. Although the Trust has a feedback button for sharing innovation successes on the staff intranet site, this

mechanism has remained unutilised and was not known to the interviewees.

Clinical staff acknowledged that they were not very good at '*selling themselves*', they appeared to feel that smaller changes were of no real significance and larger ideas, if not robustly evidenced through proper research, would not be seen as valuable by other clinic staff. One clinical leader spoke about an evaluation that they had been involved in with a colleague, although they were enthusiastically sharing with other teams within the Trust; they explained they lacked the knowledge of how to write this for external presentation or publication.

'we've done an evaluation, we're um, myself and my colleague that's, that's been doing this, er, um hoping to publish, um, eventually, not really sure how to do that? So we're, we're trying to work our head around that at the moment' (7H:FLS)

It seemed that each interviewee had their preferred method of communication; notice boards, team meetings, electronic newsletter, the intranet, email updates and social media to name a few. The only method that most people agreed on was face-to-face presentation and support from the Trust's Innovation and Research Team. They also felt that to be effective this should be away from the day-to-day environment, at team meetings, away days and conferences, although they recognised the resource intensive nature of this method.

The importance of communication is generally cited within healthcare and is a key element of the Trust's Innovate theme delivery plan (TD5). Despite this there is clear evidence that the Trust's strategy is not penetrating across all staff groups (Chapter 4.), that there are time delays in communicating strategic decision even across the SLT (section

5.2.1), and staff do not share innovative practices beyond their immediate teams.

Maher, *et al.* (2010 p85) reiterates a '*timeless principal in communication*' that 'if they didn't get it, you didn't communicate it properly'. This certainly appears to be the case with innovation starting with the national policy documents that provide no clear message of how NHS trusts should understand innovation (section 2.2.5). This perhaps then has an effect on adoption and spread (Collins, 2018) or even on replication (Horton *et al.* 2018). It appears systemically, with the '*Weltanschauung*' (wider context of the macrosystem and exosystem), something is being lost in translation (Pope, *et al.* 2006).

In this dynamic ecosystem even the traditional 'gold standard' ways of knowledge generation, the Randomised Controlled Trial (RCT) is being challenged as slow and out dated (Cornish, *et al.* 2009). Indeed, in a world increasingly dependent on rapid communication through technology, where communication threads go 'viral' overnight, traditional methods of transferring knowledge, conferences and publication, might be seen as slow and counterproductive. Finding a way to support contagious communications across complex networks that can support innovation is a key challenge.

6.3.3 Demystification

'this whole thing's about demystifying research and innovation, so, getting people to realise that doing research in their particular areas it doesn't need to be this huge university sponsored piece of work, that actually so long as there's some good governance and parameters and you've got some advice and you've got all the key components in place you can do that in your area' (6K:SLT)

To support effective communication staff must have some understanding of the concepts being communicated. Tools and in particular TS Q21 and TS Q22 both obtained low scores; 33 TS qualitative feedback comments were coded to this dimension, specifically to the two elements; 'deliberate process' and 'skills development', (Maher *et al.* 2010) other data indicated that although very junior frontline staff saw the structure of their teams as providing all the support they required, clinical staff, and clinical leaders felt that they needed specific tools.

Explicitly staff felt they needed a simple process to access resources that could support taking ideas forward including; funding, governance processes for innovation, and support evaluating impact. Simplifying the process may make access to support easier; it doesn't solve the issue around the ambiguity of language identified (sections 2.2, 2.3.1, Chapter 4.). Addressing national policy concepts is beyond the scope of this research, however, within the mesosystem the lack of an agreed definition for innovation and how it is conceptualised is important, particularly as a lack of clarity and recognition might contribute to safety concerns (Osborne, *et al.* 2011).

The different risks associated with different innovation have been discussed, identifying the nature, type, and stage of innovation is therefore essential if the associated risks are to be considered both by the actors within the microsystem and supported and managed by the system owners and resources supplied. Capturing and classifying innovation is important to understanding both the resource commitment and support required, but another important reason for addressing this robustly is strategic; NHS trusts are increasingly being required to report the innovations within the CQC annual Partner Information Request (PIR).

6.3.4 Prioritisation

'It's hard to be innovative, all I can say is time and resources, because if we, it's a bit like you need to take time to 'sharpen your sword', it's something that [executive] talks about lots, you carry on, you're run ragged, but if you take the time to 'sharpen that sword', it takes off so much of everybody's time, because you stopped to think about it, what actually are we going to do, can we do that, you think it through, you come up with a proper solution, and you put it in place, whereas we all fire fight' (11D:SLT)

Resources have already been covered in a significant topic discussion (section 5.2.3); however, they are also important to how the Trust moves forward with its innovation strategy. Of the 48 CEW discussions 22 of the topics were coded as 'resources, these discussions picked up 26% of the dot-democracy votes (n=90/351). In addition, the qualitative TS data had 27 specific comments around being allowed time and making time.

'Protected time to discuss new ideas and ways to implement new ideas' TS

Time was a significant theme of the interviews, however, the focus was subtly different, this was not just about having time to undertake innovation projects it was also about time to think, recognising the associated value that this created. The Trust had initiated a monthly Senior Leadership Team meeting where SLT staff could come together to discuss pressing issues and sharing information. This was felt to be really positive as it brought together staff from across all services and directorates, creating the opportunity for ideas exchange that was much valued.

'I think and I think having SLT has made a massive difference, having everybody together at SLT is hugely beneficial because you do get to understand what other people are doing within the organisation and what the risks might be' (11D:SLT)

There was acknowledgement by system owners that making time was never going to be easy, but if the Trust was serious about innovation, then there needed to be a systematic process allowing staff the time to stop and think about what could be done differently or better. Indeed, there was some recognition that there might be more risk associated with not stopping, thinking, and doing things differently to the organisation.

'if we, just continue to do what we have been doing, then it may not be enough, and so somewhere we've got to make room for innovation' (4A:SLT)

This coming together to share information and ideas was linked by FLS more generally to the Trust conferences. Several more junior FLS had recently attended a Trust conference on 'Well-being', they stated that this time away from their workplace, meeting other Trust staff was really useful and energising, one commented that she felt ready to take on new challenges as a result. One suggestion of how this could be replicated across the whole Trust was to have some protected 'ideas time' prioritised on the team meeting agendas within the Trust, so that regular discussions were encouraged.

This concern about time has been raised within the wider context. An NHS Confederation blog in anticipation of the NHS Long Term Plan (2019) highlighted the opportunity this presented in ensuring that innovation and research was integrated as part of 21st century healthcare (Griffin, 2018). Although the blog commented on the huge potential for improvement and sustainability of the NHS, it also stated that *'Batteries must be included'*,

indicating that unless ring-fenced time was identified, innovation would just not be possible (Griffin, 2018).

6.4 Chapter summary

The chapter builds on the case descriptor and abducts what is known into theory using both design science and soft system methodology, to present three theories for how innovation might be developed within an NHS Trust. First, there is a need to achieve organisational stability, then conceptualisation of the value that innovation brings needs to be agreed, and finally how innovation should be strategically developed must be articulated. Critically to the success of the last concept are four elements: the need for staff to feel psychologically safe to innovate; the need to develop communication around innovation; the need to develop a clear conceptual understanding of innovation and the need to prioritise the type of innovation within an organisation so that resources, such as time and the funds required to deliver it, can be identified. The next step of this research takes this a stage further; seeking to develop a novel conceptual model of how this might work together to support the creation of an innovative organisation, as a prototype. This is presented in the discussion and conclusion that follows.

Chapter 7. Discussion and conclusions

The aim of this concluding chapter is to present how the purpose of the research has been addressed, the results delivered, and new theory developed (Murray 2002). Pulling the research together in this way creates the closure of the thesis, but also recognises the limitation of a particular piece of research and identifies further actions that still need to be undertaken (Murray 2002). This is discussed in six sections: addressing the study purpose; the essence of organisational innovativeness; contribution to knowledge; implications for practice; areas for further study and the limitations of the research. The chapter concludes with reflections of the researcher's research journey.

7.1 Addressing the study purpose

Two aims were articulated at the outset of this research, the first was to develop theoretical knowledge by providing conceptual clarity on how an NHS Trust functions as an innovative organisation and the second was to provide a solution to the problems faced by those tasked with supporting and developing innovation and innovation strategy within these organisations. A review of the literature identified the use of the word innovation as widespread within macrosystem policy, and the exosystem of UK healthcare; yet, innovation as a concept was not clearly defined or conceptualised. Indeed, although the role of individual clinicians is acknowledged within this literature base (Farr, *et al.* 1990), there is limited recognition of the role of NHS trusts, the mesosystem, as partners in innovation. This has led to some identifying the NHS trust as a '*hidden innovation system*' (Thune, *et al.* 2011) with others identifying the lack of theory available to support the leaders to support this agenda (Williams, 2011).

This thesis acknowledges the complexity of this area and identified three useful theoretical models from the literature to support the structure and exploration of organisational innovativeness: a contextual definition of innovation as a six-stage process (Baregheh, *et al.* 2011)(section 2.3); a model of the 'inner context' in innovation technology adoption, describing an organisations hard and soft antecedents of innovation (Robert, *et al.* 2009) (Table 2.4) and a framework for the measurement and development of organisational Culture for Innovation (Maher, *et al.* 2010) (Figure 2.4). The similarities between these three models was observed (Table 7.1)

Table 7.1 Similarities between three conceptual models

	Baregheh, <i>et al.</i> 2009	Robert, <i>et al.</i> 2009	Maher, <i>et al.</i> 2010
Innovation as a creative process	✓	✓	x
Means/hard antecedents	✓	✓	✓(resources)
Social context	✓	✓	✓
Leadership	x	✓	✓
Strategic vision	✓	✓	✓(goals)

The complexity and inter-relational nature of these elements was identified and explored in the literature review (Chapter 2.). Their importance, in terms of an organisation's innovative performance was corroborated within the business community where Pisano (2019), notes

'Innovative performance is rooted in a combination of strategy, organisational systems, and culture, all of which are shaped by leadership.'

This then framed the three research objectives (Table 7.2).

Table 7.2 Research objectives

1.	How is innovation conceptualised?
2.	How are the antecedents of innovativeness understood?
3.	How can organisational innovativeness be developed?

To explore these objectives the researcher chose a case study approach. As an academic methodology, the case study has been criticised as poorly developed, nevertheless, it was appealing because the healthcare ecosystem was described as a complex system with porous boundaries (Greenhalgh, *et al.* 2005). The case study provided a means to identify the bounds of the case, a single NHS Trust, and the specific time period of exploration (Thomas, 2016). To articulate this approach in a cogent format, Carolan, *et al.*'s (2014) 'DESCARTE' framework was applied and a detailed description of the research design given (section 3.2). The positionality of the researcher and the critical realist lens that the research was conducted through was made explicit from the outset (section 1.5).

In keeping with the case study ethos, the research posed five questions for the research to answer (Yin, 2014) and used mixed-methods of data collection (Section 3.2.6). Two primary data sources were adapted from the Culture for Innovation (CfI) model presented by Maher, *et al.* (2010). This included quantitative measurement of the Trust's CfI at a Collaborative Enquiry Workshop (CEW), and a Trust Survey (TS). The CEW provided a negotiated group score for the organisational CfI, accepted as a proxy for a mesosystem, and the TS allowed wider access to individual scores, identified as a proxy CfI score for the microsystems. The results of both data sets informed the qualitative data collection.

The quantitative data was augmented by qualitative data from 28 Staff Interviews (SI) which included two embedded units, the Trust's Senior Leadership Team (SLT; n=12) and Frontline Staff (FLS; n=16) (Plsek, *et*

al. 2007). These three primary data sources were supported by other secondary data sources including, Trust Documentation and Participant Observation (PO). This generated a lot of data; a significant challenge in terms of data management, presentation, and analysis. Data triangulation was undertaken using Onwuegbuzie, *et al.* (2006) seven-stage model, through a critical realist's lens, informed by reflexive practice and key informant feedback.

A case study is a holistic enquiry method that explores a contemporary phenomenon in-depth within its context (Thomas, 2016); the findings were presented as a case descriptor in chapters four, five, and six with each chapter structured to consecutively address the three research objectives through rich description. This started in Chapter four conceptualising innovation within the Trust; Chapter five addresses the antecedents of innovation through discussion of the social attributes of innovation within the receptive context; Chapter six concluded with how an innovative organisation can be developed through a review for organisational readiness for change. At the level of transformation and abduction the two aims of the research, how the Trust functions as an innovative organisation, and how the researcher, leading in this area can support innovation development within the Trust were met.

7.2 The essence of innovativeness, a new theoretical model

The research aims however, were more ambitious, stating the desire to develop theoretical knowledge by providing conceptual clarity on how NHS trusts function as innovative organisations. The final stage of analysis uses the process of retroduction, where the focus shifts from the empirical generalisation to possible causal mechanism and structures that operate within the real domain (Tsang, 2014). Bhaskar, (1979) considered this moving from:

'the manifest phenomena of social life, as conceptualised in the experiences of the social agents concerned, to the essential relationship that necessitates them'. (Bhaskar, 1979 p32)

The reasoning process behind this stage is by design, *'fluid and recursive'*; moving from the empirical evidence to theoretical model and back again to develop deeper levels of understanding (Fletcher, 2016). In this way, not only is the case able to describe how the findings work together as a whole system, but how in understanding this system, problems can be solved (Thomas, 2016). The third stage of the design science model puts this more simply as modelling, planning, and prototyping (Bevan, *et al.* 2007). This then would be the research's original contribution to theory.

If innovativeness is understood as *'the quality of being innovative'* (Table 2.1), then NHS trusts seeking to develop as outstanding innovative organisations need to be able to articulate this *'essence of organisational innovativeness'*, and the possible casual mechanism and structures that operate within the real domain that contributes to this theory. The complexity of this task however, should not be underestimated, innovation has been identified as a nebulous concept, difficult to conceptualise within complex systems that do not function in predictable ways (section 3.2.4). Indeed, the findings presented (Chapters 4, 5, and 6) cover 27 broad themes and corroborated many of the propositions identified in the literature review (Table 7.3).

Table 7.3 Summary table of findings

Chapter four Conceptualising innovation	Chapter five The receptive context		Chapter six Organisational readiness for change		
4.1 The Trust	5.1 Leadership Matters	5.2 The Culture for Innovation	6.1 The NHS climate of change	6.2 The value proposition	6.3 The accessibility problem
4.2 The strategic position	5.1.1 Articulating the Vision	5.2.1 The complexity of risk-taking		6.2.1 value to customers; 'for you, with you',	6.3.1 Psychological safety
4.3 Conceptualising innovation	5.1.2 leading from the front	5.2.2 The exceptional case of medical staff		6.2.2 Value to the actors; energising the staff	6.3.2 Contagious communication
4.4 Understanding the creativity process	5.1.3 Quantifying innovation leadership	5.2.3 The issue of Resource		6.2.3 Value to the actors; join our team	6.3.3 Demystification
4.5 The hardware of innovation		5.2.4 What we know about Knowledge		6.2.4 Value to the system owners; on the front foot	6.3.4 Prioritisation
		5.2.5 We need the Tools to innovate		6.2.5 Value to the system owners; survival of the fittest	

If these findings are described as a narrative, then Chapter four confirms the propositions that the definition of innovation in the healthcare macrosystem policy is poor with an umbrella conceptualisation directly assimilated into the mesosystem. In the complex environment of the mesosystem the pressure to innovate is accepted, however, the concept of innovation is taken to mean everything (section 4.2). In this situation, it could be hypothesised that the mesosystem suffers from a lack of innovation identity that must be addressed.

In the microsystems, the culture of '*busyness*' dominates, (section 4.3 and 4.4) the majority of healthcare staff implement ideas supported by strong multi-professional communities of practice. Innovation thrives at this level, good ideas, small micro-innovations survive, contributing to a general positive improvement, but may not spread beyond these small communities; other ideas, just wither. The lack of innovation identity appears to have limited significance.

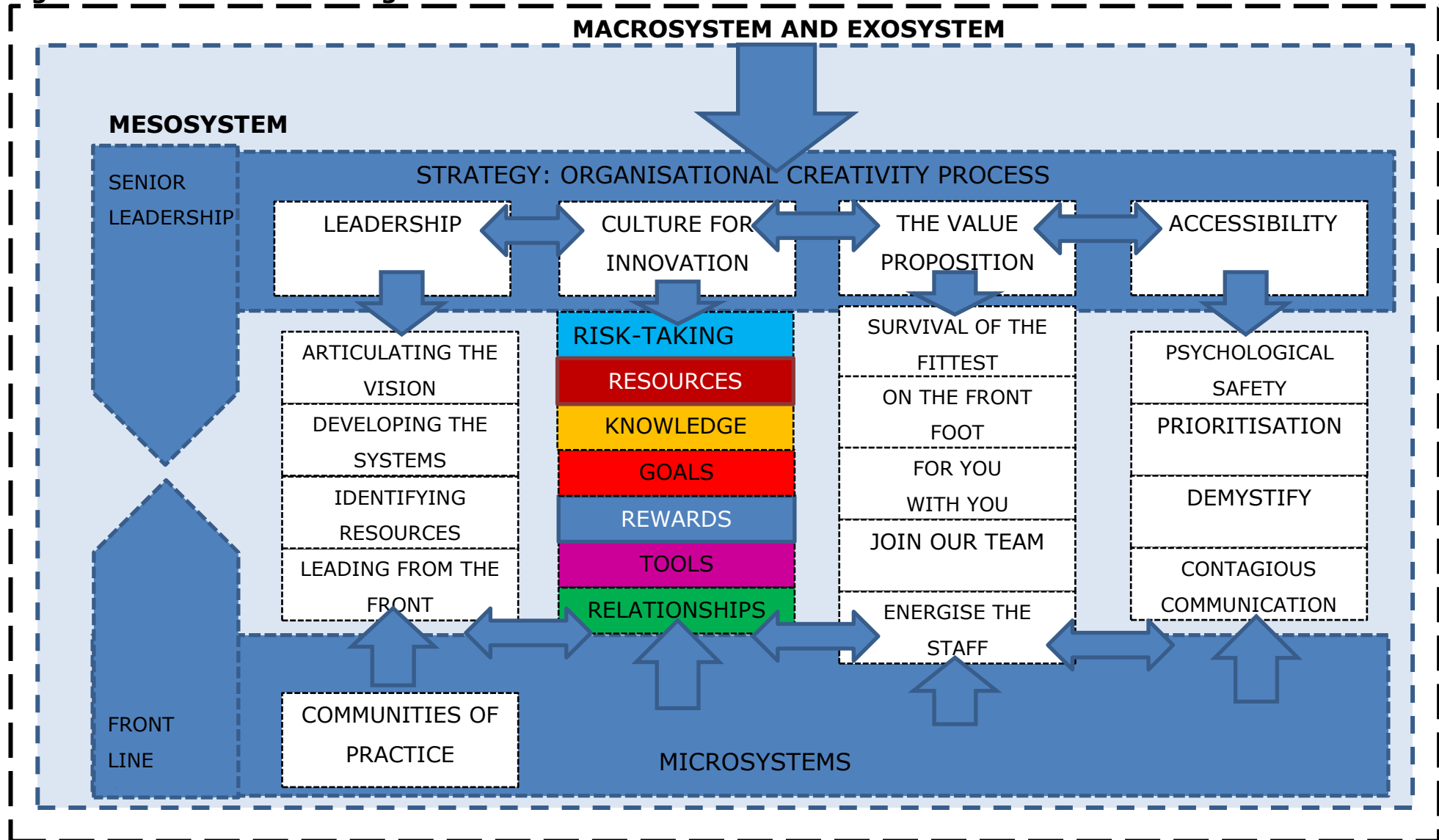
Acceptance of this status quo however, could have significant but hitherto unrecognised implications for the mesosystem. Communities of practice, which only look inwards for solutions by their very nature, impede the free communication across the whole organisation, identified as an important dimension in developing an organisational CfI (Maher, *et al.* 2010). In addition, although a large professional workforce is noted to be positively associated with innovation, a professional community, such as medical staff, who historically work more autonomously, may be isolated from these communities of practice, (section 5.2.2) disabling their ability to contribute (Ferlie, *et al.* 2005). In addition, there are risks associated with conflating quality improvements and innovations which need to be managed (section 2.3.1).

Lastly, organisational change was identified as a particular obstacle to innovation, (section 6.1) and supported by the literature as having a negative and undermining impact on the innovation process (Mueller, *et al.* 2012). In the dynamic healthcare ecosystem, change is unavoidable. If these are conflated with the more overtly recognised barriers to innovation discussed within the data of 'risk-taking' (section 5.2.1), and the lack of specific 'resources', in particular, time, (section 5.2.3), and the impact of organisational change (section 6.1), then the obstacles to developing innovation within the mesosystem can be understood. If these are not articulated and addressed, barriers to innovation will remain, (Collins, 2018), with potentially disastrous consequences for the NHS.

The literature review identified that NHS trusts need to start thinking more like businesses (Youth Health Parliament, 2016). A business's survival is dependent on its understanding of its innovation strategy and supporting organisational innovation systems (Pisano, 2019). If the findings summarised in Table 7.3 are transformed through retroduction to describe the structures and mechanisms within the mesosystem then this might be identified for NHS trusts, with gaps and actions identified.

The 'Essence of Organisational Innovativeness' model (

Figure 7.1 The essence of organisational innovativeness



) provides a diagrammatic representation of a model that might support theory development in this area. It demonstrates the complexity within different levels of the healthcare ecosystem; macrosystem, exosystem, mesosystem, and microsystem separated by dotted lines that represent the porous boundaries between. In the mesosystem, it is essential that innovation is clearly described and understood to ensure it fits with the business imperative. This strategic conceptualisation also ensures that risks are identified and can be managed with appropriate resources allocated. This is supported by four conceptual pillars identified as Leadership, the Culture for Innovation, the Value Proposition, and Accessibility. Each pillar has its own unique elements, but none works in isolation, all work together within the mesosystem, and the microsystem where the communities of practice are located.

The first pillar of leadership needs to be understood at multiple levels across the organisation. Senior leaders and managers take the role articulating the innovation vision across the organisation with the devolved leadership whilst enacting this on the frontline, through a compassionate leadership model (West, *et al.* 2017). All individuals then play their role within their communities of practice.

The second pillar is the Culture for Innovation, demonstrating the need for the seven separate but overlapping dimensions. Together these also capture knowledge and relationships, key elements of absorptive capacity (section 2.5.3). It is here that the impact of different professional groups needs to be understood. In this research the Trust was assessed as having a positive overall CfI, although described as embryonic, maybe even on the verge of development (section 5.3), but where the mesosystem barriers around 'risk-taking' (section 5.2.1), and 'resources' sit (section 5.2.3) and need to be managed. An advantage of the CfI is that an existing theoretical framework (section 2.5.5) means this can be

measured; annual audits undertaken and action plans developed to address specific issues identified.

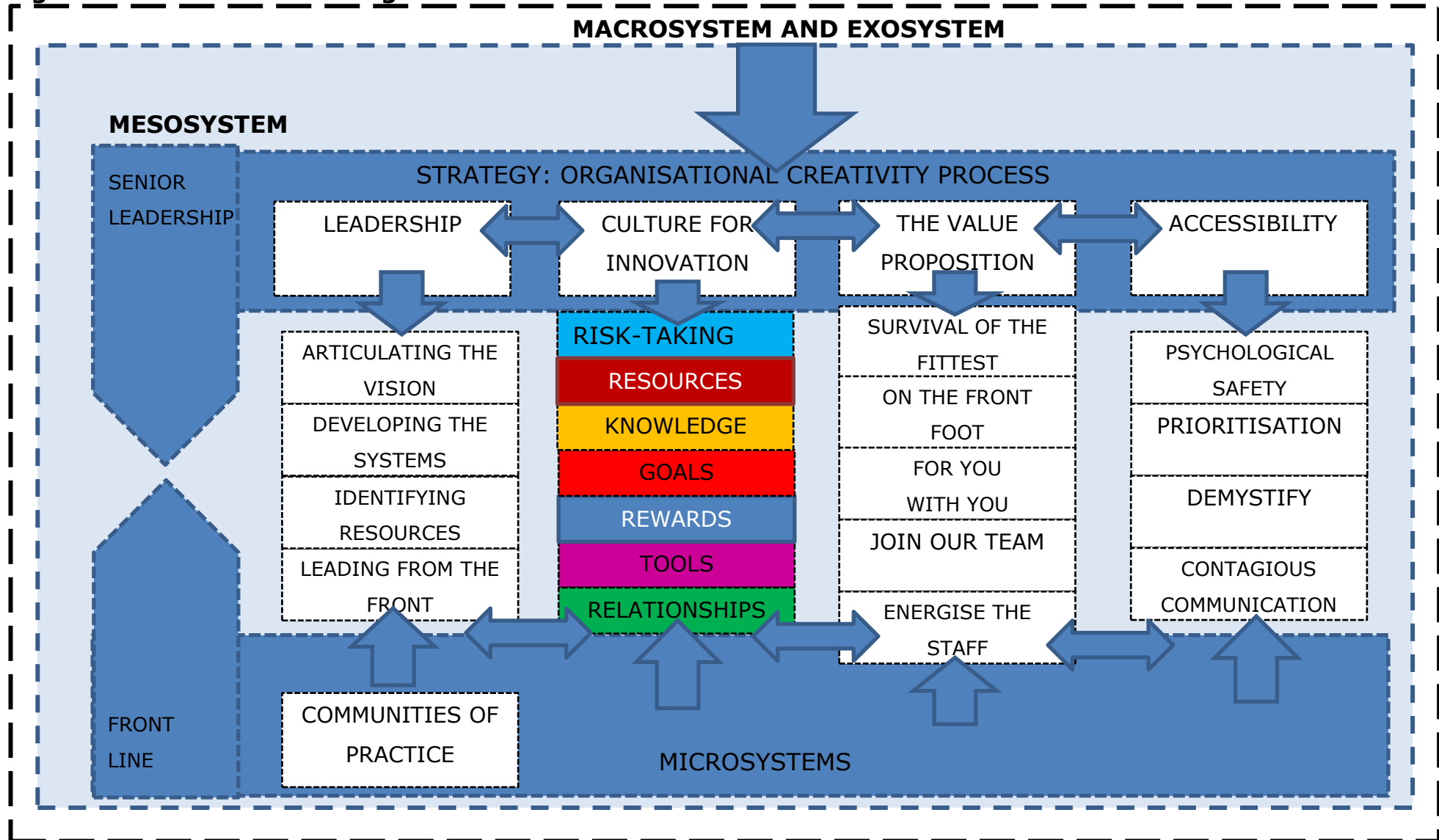
The third pillar has been articulated as the value that innovation brings to the system. This is viewed from the differing perspectives of the customers, actors, and system owners (Thomas, 2016). This is related to the motivation that sits behind an Organisations Readiness for Change (ORC) (section 2.5.7). This noticeably differs across the organisational hierarchy, senior leaders clearly identifying the value innovation could bring to the mesosystem, (sections 6.2.4 and 6.2.5). There was a shared understanding of what innovation brought to patients (section 6.2.1), but a new understanding emerged regarding the value innovation brought to staff (section 6.2.2 and 6.2.3). If this understanding is embraced by the mesosystem, this could deliver a real driver to mobilise ORC and engage individuals to work collectively to achieve a greater impact (Weiner, 2009).

The fourth pillar requires innovation to be conceptually accessible across all levels of the system, mitigating the barriers identified as organisational changes by making the organisation feel a psychologically safe place to innovate. There is a need to create a contagious conversation so that innovation is recognised, shared, and adoption supported. To achieve this, innovation must be demystifying, it must become real, tangible, and achievable. If an organisation is to engage in the thoughtful and careful construction of innovation, then clear priorities must be identified to ensure limited resources can be effectively targeted.

These themes are not just descriptive; they represent a translation of data, distilled from an in-depth exploration of the case and through the process of retroduction encapsulated to address the first aim of the research to develop conceptual clarity and theoretical knowledge of how

NHS trusts function as innovative organisations, and at a theoretical level responds directly to the three study objectives (Section 1.2).

Figure 7.1 The essence of organisational innovativeness



7.3 Delivering Innovation Strategy in the NHS

The second aim of this research was to provide a way forward for those with responsibility for leading innovation strategy within NHS trusts (section 1.2). In case study research, the research questions (section 3.2.6) are posed as 'tools' that helps the researcher to define the evidence and address the study aims (Yin, 2014). The five research questions (Table 3.5) thus supported the researcher, an innovation leader within an NHS trust, to identify the specific areas of exploration required to address the second research aim, which focused on providing solutions for those leading innovation within an NHS trust.

The macrosystem, although keen to establish the UK within a Global Innovation System and build the National Innovation System (Section 2.2.2), has been reproached for confused policies, that do not readily translate to the mesosystem context (Youth Health Parliament, 2016). Conversely, although innovation can be seen to be thriving in the microsystem, the lack of strategic clarity within the mesosystem prevents these innovations spreading at pace and scale (Collins, 2018; Greenhalgh, et al. 2005). This lack of innovation strategy within the mesosystem could be considered a bottleneck in developing the National Innovation System pipeline. To address this NHS trusts need to develop from being mere 'contexts' for innovation, to being true 'partners' of the innovation process (Thune, et al. 2016). This research begins to describe how NHS trusts might start to develop as partners in research, which might be described as three critical elements

A primary principal for developing an NHS trust as an innovative organisation is how the organisation defines and conceptualises innovation (Baregheh, *et al.* 2009). If conceptually innovation within the mesosystem is not clearly defined and understood, conflating anything from quality improvement to disruptive technology under one label, then how can a

message around what the organisation considers as innovation become accessible to the microsystems and the individuals within them? Identifying a definition of innovation and having an understanding of the nature, type, and stage of innovation that will be supported is essential.

The second principal is to have a clear strategy for innovation within the organisation's inner context (Robert, *et al.* 2009). Critical elements for a strategy are included within the Essence of Organisational Innovativeness model, including leadership, the culture for innovation, the value proposition and accessibility. These elements are the glue or theory (Thomas, 2015) through which organisations can develop and promote their innovation ambitions. If this strategy is well-defined, resources can be allocated and clear communications can be promoted through the organisation to the microsystems.

The final principal is that if organisations want to develop their innovativeness they need to know their starting point, identify action plans of how to develop their organisational innovativeness journeys and to be able to measure success. The Culture for Innovation (CfI) framework developed by Maher, *et al.* (2010) has been demonstrated to provide an ease of use, evidence-based tool for this principal. The seven dimensions of the CfI tool collectively have been demonstrated to incorporate many of the other areas key to innovative organisations identified within this research; leadership, organisational readiness for change and goals. It is therefore able to provide baseline assessment, action plan development and impact measurement.

7.4 Contribution to knowledge

In summary this research presents as its product a novel model 'The essence of organisational innovativeness'. This model for the first time conceptualises theoretically how NHS organisations, as complex systems,

might function as innovative organisations, and in doing so identifies the NHS trust as a partner in innovation and not merely a context for innovation.

The research also offers as an output a roadmap to a three-part evidence-based strategy that can be utilised in NHS trusts. This roadmap identifies the need for organisational leaders to define and conceptualise what they understand innovation to mean, they then need to develop a strategy based on the four pillars of 'the essence of organisational innovativeness', acknowledging that this will vary across the differing levels of the organisation. Lastly, the organisation needs to measure the impact of what they are doing and review regularly. Here the evidence based Culture for Innovation model provides an easy to use tool.

The staff in this case study have been both participants in the research and key informants, and in this sense they have become co-investigators in the translation, abduction, and retroduction of the findings, corroborating and developing them conceptually throughout the process. A test of the usefulness of a study is when a co-researcher confronted with an account of the case recognises it as being true, described in more interpretive methodologies as the 'phenomenology nod' (Van Manen, 1990). When presenting these key themes to very senior managers, these findings have been recognised and acknowledged as true by these key informants (PO:18/07/19). This concept of conceptualising innovation, developing organisational strategy and measuring success using the model 'the essence of organisational innovativeness', could be used to shape health innovation understanding in academia, policy and practice and is this thesis's original contribution to research, with the implications for practice described in the next section.

7.5 Implications for practice

The fourth and final stage of the design science approach is action and implementation (Bevan, *et al.* 2007). This research was undertaken within the Trust, as such it is directly relevant to the case and thus recognised as valuable in developing the organisation's innovation journey. At this stage the implications for practice are targeted at the senior leadership level within this organisation. The findings have been shared with the Trust's Executive board, including the director lead for innovation, and other strategic leaders, and will contribute to the strategic conversation within the Trust regarding how to develop its strategic theme to innovate. In addition, the findings will impact on the development of the Innovate theme annual plan, the staff within the Innovation and Research team in the Trust, and the conversations with services managers and Trust staff.

The ambition is to develop the '*essence of organisational innovativeness*' model into a workshop, to be targeted in the first instance at the senior leadership level. The aim of the workshop will be to develop a collective understanding of innovation in order to advance the corporate vision for the future. The workshop will focus on the creativity process, and developing the organisation's vision for innovation, drawing out the barriers to achieving success, and present the understanding offered from the four supporting pillars as a means to overcome these. The outcome of this workshop will feed into the Trust corporate strategy and the Innovate theme development plan. The CfI survey has now been established as an annual audit, this will measure the impact of the actions and over time will allow trends to be analysed, making the implicit understanding of the culture for innovation explicit.

As a single case study, this research makes no attempt at being generalisable. This research, however, will seek to present and publish the findings, and if other NHS trusts and the innovation leadership within

them recognise and understand these, then the analytical theory may be generalisable. The researcher is a member of a regional Innovation and Research Leads group; the regional leaders within this group are aware of this research and have supported the researcher with their curiosity and their desire to know the findings, the results will, with the permission of the Trust, be shared with this group. The ambition would be to work collaboratively with other organisations within the region to build on this foundation of knowledge and support the development of innovation in the region and promote the value it brings to patients, staff, and the trusts themselves.

At this stage there are no immediate policy implications for this work, however, the regional Academic Health Science Network, are aware that this is being undertaken. As the evidence base is established the opportunity to work with this body that supports innovation may develop.

7.6 Areas for further study

The '*essences of organisational innovativeness*' model, is a prototype, untested within the real world setting and therefore its usefulness is not established. The usefulness of this model and thus the impact of this research is still to be established within the Trust. This will be done internally through feedback from the senior leadership and evaluation of the workshop as it develops, corroborated by annual CfI scores. Externally, feedback from the regional innovation leadership and collaborative work that may be taken forward will inform the next stage of development.

In addition, the researcher has been in email discussions with Dr. Lynne Maher, one of the original authors of the CfI framework. It has been noted that there has been limited development in the area of organisational innovation in the NHS since the demise of the Institute of Innovation and

Improvement, no published examples of the CfI framework being used have been identified, and no benchmarking exists. The framework, and in particular the questionnaire, provided a useful, easy to use, evidenced based tool for measuring an organisations' culture for innovation. If NHS trusts are to be recognised as organisational innovation systems, promoting the use of this tool and developing some benchmarking for NHS trusts would be beneficial to innovation leadership. This would be an exciting area of work to develop.

This research used innovative methodologies, such as the collaborative enquiry workshop (CEW) and dotmocracy scoring, where the evidence base within healthcare is not established. The CEW, although time intensive for the researcher to set up, worked well; the resultant data was used as a proxy for a mesosystem CfI score. However, the discussion element of the workshop elicited only broad aims from the senior leaders present, with limited actions that could be implemented. The highest ranked element from these discussions was a desire for more resources, but with no suggestions of where these would come from. This presented a challenge regarding how to manage this data within the research. Plsek, *et al.* (2007), identified similar issues with expert group discussions (section 3.2.4) and suggested augmentation of this data with more focused qualitative enquiry, where people had the opportunity to tell their stories. The data therefore informed the development of the interview schedules, and the CEWg portal chart was used as a physical artefact (Yin, 2014) to aid the development of these discussions.

7.7 Limitations of the research

A thesis is an integrated argument that must stand up to critique, however, all research and all research methodologies have limitations; for each proposition it must be considered that opposing beliefs and perspectives may be held. It is the responsibility of the researcher to

anticipate these and through transparent discussion, present the research limitations (Murray, 2002). This is understood and presented next.

This study was undertaken by a single researcher, around a full-time senior post for an academic qualification. Out of necessity the research was limited in terms of its size and time frame, with data collection taking place over one year at a single site. In addition, the research was also limited by the regulations of the DProf. Prac. thesis module, which had a reduced word limit in comparison to a traditional PhD. This has been problematic for a subject matter as conceptually broad and diverse as 'innovation' and has resulted in the adoption of a purposive writing method, acknowledging that certain aspects are beyond the scope of exploration or development within this research.

The weaknesses of the single case study approach, the lack of comparators and the impact this has on theory development, is highlighted in the literature (Yin, 2014). In addition, the researcher was an emic researcher, a senior manager based within the case; the data used and the interviewees were purposively selected. Although every effort was made to ensure that all staff had the opportunity to participate, and that findings were fairly representative, the accusation of researcher bias is unavoidable. Careful attention has been given to the presentation of the methodology in Chapter 3. and in addressing the quality of the research (section 3.4). In addition, the critical realist perspective (section **Error! Reference source not found.**) acknowledges this. Through this lens these findings are understood to be one interpretation of the data, based on the researcher's critical knowledge and understanding, at a specific point in time. It is recognised that this is empirically messy and the findings contestable, (Gabb, *et al.* 2009; Edgley, *et al.* 2016). It is hoped in making this transparent, the quality of the research can be assessed.

It was beyond the scope of this research to include the patient's voice and this was not asked as a direct question within any of the data collection methods. Including this would have added a unique and different dimension to this research, however, this might have pulled the model in a very different direction. This is something that should be explored in future research.

7.8 The research journey: a personal reflection

All research studies develop as they proceed and this research is no exception. The original concept was conceived from a professional need and a personal interest, but the outcome has developed into something much more. Originally this research sought to explore the Trust culture for innovation, to understand if the implementation of the innovation strategy had indeed impacted on this. The initial data analysis identified the complexity of this area, in particular the lack of conceptualisation of innovation, the confusion with quality improvement, the potential differences between professional groups and the impact of organisational change. If the original proposal had been followed, this rival data might have been disregarded from the analysis, with the focus remaining on the dimensions of the CfI. This might have been a much easier and shorter process.

The researcher however, chose instead to engage with these rival propositions, a process that necessitated a recursive re-immersion in a much broader literature field. This revealed the complexity of the healthcare ecosystem and the subject matter, innovation, itself. There is an acknowledged lack of healthcare innovation theory, but a lot of published material. The literature by necessity draws on a large number of models and theory, not all from within healthcare, the public sector, or the UK. The complexity of structuring a cogent literature review and using it

to support the subsequent cycle of analysis proved demanding, with a real requirement for tenacity.

The multi-method case study approach is not for the faint hearted, managing, and addressing the quantity of data, and its analysis became a personal challenge, which drew on years of NHS research experience. This could not be hurried, although with each stage of the recursive process, reading, thinking, analysis and writing the research became clearer, maturing into cogent thoughts, and structure, epitomised as the so called '*writing in layers*' (Murray, 2002).

Although the researcher was immersed in the case and 'an expert' on subject matter, it became apparent that her knowledge was operational and not theoretical, presenting another personal challenge. A real personal reflexive journey was required to transcend this knowledge base and go beyond the known (Day, 2002). The anguish and frustrations of this process were clearly recorded in the reflective journal, and provides some interesting reading, one such entry simple read, '*HELP! I don't think I can do this*' (PO:23/02/19). If you read on, the layers of development are laid out, exemplified by entries such as '*I think I am progressing in my comprehensions, I am feeling comfortable again with my position as a critical realist*' (PO:06/04/19). Essential to this process was the critical feedback and support from the academic supervisory team. These too were captured within diary entrees, with exclamations such as '*oh no, more comments that are really challenging me to think*' (PO:06/07/19). In addition, the healthcare environment, and innovation are both dynamic and continually evolving areas, bringing this thesis to a conclusion presented the final challenge.

7.9 Conclusion

NHS trusts are complex inter-related healthcare ecosystems, as such, using complex system theory presents a useful tool to understand how they work as an interrelated system. NHS trusts must respond to national policy documents; however, these documents present high-level communications with little operational detail that supports an NHS trust in either understanding or operationalizing these into cogent local strategies. In the climate where there are many competing priorities, certain questions therefore go unasked about what these policies mean operationally. This then means that knowledge gaps do not get identified or addressed.

This research goes some way to identifying and thinking about the knowledge gap in relation to 'innovation' and 'innovativeness' within an NHS Trust, how it is perceived and understood, as well as why this is important to a trust and how it can be developed. To achieve this synthesis, theory has been borrowed from the business sector and applied within an outstanding NHS Trust, committed 'to innovate'. The case study explores why NHS trusts might wish to engage in development of innovation with their organisation and how they may go about achieving this. Pisano (2019) encapsulated the complex and co-dependent relationship between strategy, process, culture, and leadership necessary for business to infuse innovation into their DNA, articulating that these elements do not happen by chance, but require focus, design, and identified resources.

The final word is left to a participant

'if I think back to where we were 5 years ago, I am really encouraged with where we are going to now, it feels like a different organisation, and it feels like we're just on the cusp of really

grasping hold of the future. And I know there's work still to do and I know there's people we need to take along on that journey, but I get the sense that we have far more people now who are aware of and open to the possibility, of using this [innovation] as a vehicle, using this as a strategic tool' (6K:SLT)

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Appendix 2 Research Documents

I. Protocol

Title: A case study to understand how innovation culture within an NHS Trust is shaped at the institutional and individual levels by the introduction of an innovation strategy

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Title: A case study to investigate the innovation culture within one NHS trust following the introduction of an innovation strategy

Introduction

Innovation in health has in the last decade been driven forward through national policy and the development of a national infrastructure. Although an increasing number of National Health Service (NHS) trusts are making 'innovation' part of their strategy, at an organisational level assimilation of innovation into core business, accepted by individual clinicians as part of their role has been ad hoc; understanding of relevance and impact appears poor.

THE TRUST] developed the Trust's five-year strategy in 2014, which included 'Innovation' as a key theme. A recognisable 'Innovation Strategy' was only developed within the Trust in 2017. It is beyond the scope of this study to evidence the impact of Trust's Innovation Strategy; this research seeks to investigate the innovation culture of the organisation, how it is perceived, and how it can be developed.

Background

The National Context

In 2008, the United Kingdom (UK), in common with much of the world, went into the deepest recession since data collection commenced (Allen, 2010). The impact of this, coupled with demand outstripping resources, places the NHS under extreme pressure (Bienkowska-Gibbs, *et al.* 2016). It will not be possible in the future to continue to provide high quality care through existing mechanisms and fiscal envelope; change must happen (NHS, 2014; Sood, *et al.* 2014).

At times of economic crisis, seeking novel solutions and problem solving approaches to facilitate economic growth and improved performance are common (Hogan, *et al.* 2014, Efrat, 2013, Martins, *et al.* 2003). Department of Health (DH) and NHS policy recognises this and presents 'innovation' as the mechanism for delivering the change that must happen (NHS 2014; DH2013; DH2011; DH2015; DH2012).

Economic theory suggests that development of 'National Innovation Systems' (NIS) as a stable platform necessary for supporting innovation (Efrat, 2013). NIS are networks of public bodies, academic institutions and commercial enterprise, that fund research, develop outputs into innovations, ready for market adoption (Efrat, 2013). It is no coincidence that the National Institute for Health Research (NIHR) and Academic Health Science Networks (AHSN) have been established (Young Foundation, 2011). At this 'macro level' (Greenhalgh, *et al.* 2016, Warring, *et al.* 2014), there is increasing recognition by government, commissioners and academic institutions of these structures and acknowledgement of their potential to develop the UK into an internationally recognised health NIS (DH 2011; Bienkowska-Gibbs, *et al.* 2016; AMRC2013; Hunn 2013).

The Local context

It is recognised that creative firms, with high levels of innovation and research, out-perform less innovative firms (Efrat, 2013), with direct links to productivity and efficiency (Duchek, 2013). This concept is now driving the local NHS innovation agenda, with individual organisation, the NHS trust, being made accountable for their contribution to innovation (DH, 2011). This is reinforced through commissioning contracts, monitoring systems and partnership agreements with regional NIS organisations.

Although many trusts are adding 'innovation' to their strategies (Maher, *et al.* 2010), modern healthcare is an increasingly complex and challenging environment, particularly at meso (trust) and micro (individual clinician) level (Greenhalgh, *et al.* 2016, Warring, *et al.* 2014), where the focus is on continuous delivery of high quality, value for money, patient care, often in very challenging circumstances (Shaw, *et al.* 2011). Add local history and transformational change to the mix and individual unexpected microsystems develop, at odds with national policy (Warring, *et al.* 2014, Bienkowska, *et al.* 2016). The resultant pace and scale of change at this level is dangerously slow with serious repercussions for NHS reforms (Bienkowska-Gibbs, *et al.* 2016; Dixon-Woods, *et al.* 2013).

Empirical understanding of the barriers and enablers to innovation adoption are emerging (Greenhalgh, *et al.* 2004; Dixon-Woods, *et al.* 2013; Moullins, *et al.* 2015); however, how NHS trusts should respond to this challenge is not clear. Indeed, confusion exists about the very term 'innovation' in the NHS, let alone how to develop and deliver an innovation strategy (Pisano, 2015; Page, 2014; De Vires, *et al.* 2016; Youth Health Parliament Report, 2016).

Innovation and Research in the NHS

Innovation theory in the NHS is limited, drawn mainly from the commercial sector (Maher, *et al.* 2010), where products or processes are created for commercial gain (Hogan, *et al.* 2014). Idea generation and implementation are overlapping elements of the creativity process (Martins, *et al.* 2003) that can be described in three-phases Efrat, (2013).

- Invention, idea generation, tested within research and development, which may or may not proceed.
- Innovation, development of proven inventions for commercialisation, either internal or external to research and development.

- Adoption, taking a novel innovation out to the market, which to be successful requires support from a wider network, NIS (Efrat, 2013).

In this theoretical model innovation and research are implicitly connected. In medicine, clinical research has a long history (Bhatt, 2010), Evidenced Based Medicine (EBM) is well established (Wieringa, *et al.* 2017), and is currently being driven forward in the UK by the National Institute of Health Research. Research is considered to have high associated clinical risk; it is therefore clearly defined and managed through strict national governance processes (DH 2005; NHS, 2017), with responsibility usually sitting with a Medical Director.

In comparison innovation is a relatively new concept, originating with the invention of the NHS itself, less well defined and understood (Young Foundation, 2011) with no specific governance framework. Recently innovation has been developed through the 'Quality, Innovation, Productivity and Prevention' (QIPP) agenda (DH, 2010), implicitly linked with quality improvement (Maher, *et al.* 2010) and integral efficiency savings (DH2011a). This placed innovation in many trusts under the Directors of Nursing and Finance, disassociated from clinical research.

A recent national shift in 2017 brought innovation and research together under one directorate in NHS England (NHSE, 2017); correspondingly many NHS trusts are now publishing 'Research and Innovation' strategies. Yet, published trust Research and Innovation Strategies appear heavily focused on the research agenda, with little reference to the creativity process. Although national policy describes the connectivity between innovation and research (DH, 2011), at the meso level the system is confused and fragmented, causing barriers and delays (Youth Health Parliament, 2016).

The Role of Culture

Organisational culture has been described as powerful force that must be recognised and understood (Schein, 2004), having a greater impact on desired outcomes than both structure and strategy (Hogan, *et al.* 2014). First associated with scientific inquiry by Pettigrew, (1979), organisational culture is a popular concept within behavioural and management science (Hogan, *et al.* 2014). Emergent theory draws from psychology, sociology and anthropology (Scott, *et al.* 2003) and gives persuasive evidence that changing an organisation's culture has the potential for dynamic impact (Mannion, *et al.* 2008).

The link between organisational culture and creativity is well established (Efrat, 2014; Hogan, 2014; Martins, *et al.* 2003, Harrington, *et al.* 2005). Greenhalgh, *et al.* (2004) present organisational culture as one of the 'system antecedents' which can influence the likelihood of successful assimilation of innovation in the NHS. The risk adverse nature of NHS culture does not lean itself to creativity (Albury, 2005) as Greenhalgh, *et al.* (2004) postulate, the why and how of creating a culture for innovation in the NHS is still to be identified.

The Trust

Although [THE TRUST] adopted 'innovation' into its Trust's five-year strategy in 2014, there was little underpinning documentation as to why this was agreed. In 2016 after a period of extensive organisational change, [THE TRUST]'s executive reengaged Trust senior leaders with the five-year Strategy; feedback from the event criticised the lack of clarity around 'innovation'. In January 2017, [THE TRUST] Research and Development was formally given the task of taking innovation forward within the organisation.

The researcher is Head of Innovation and Research in [THE TRUST] and charged with the responsibility of developing [THE TRUST]'s Innovation Strategy. In undertaking a literature review to support this development, the tension between the macro level need for innovative NHS trusts and the meso and micro level ambiguity surrounding innovation became apparent; as did the lack of resources to address this challenge.

In addition, the literature suggests that writing a strategy alone is not enough to create an innovative organisation, developing the organisations culture for innovation is fundamental to success (Greenhalgh, *et al.* 2004, Maher, *et al.* 2010) and in creating this culture, the behaviours of the organisational leaders is disproportionately influential (Maher, *et al.* 2010, West, *et al.* 2017). It is logical that 'Creating an Innovation Culture' is therefore the first of five objectives of [THE TRUST]'s Innovation Strategy, yet an understanding of what is the trusts innovation culture, or how one might be developed is currently unexplored within health service literature.

This research is being undertaken to fulfil the requirements a Doctorate in Professional Practice thesis module. In keeping with the ethos of Professional Doctorates, the findings will have direct impact on the professional practice of the researcher; provide evidence regarding innovation culture in one NHS trust, how to develop this and contributing to the development of NHS Innovation Theory.

Definitions

Innovation

Definitions of innovation in the NHS are poorly defined and understood (Page, 2014), however, Maher, *et al.* (2010) suggest that there is little to be gained from debating this issue, for clarity for this research the

definition of innovation below will be used as it is straight forward and widely recognised within the NHS having been developed through the NHS Institute for Innovation and Improvement.

'Doing things differently, and doing different things, to create a step change in performance.'

(Maher, et al. 2008)

Organisational Culture

The term 'organisational culture' is nebulous and complex; definitions range from 'the way we do things around here' (Scahill, et al. 2009, Davis, et al. 2000) to 'an anthropological metaphor used to inform research and consultancy to explain organisational environments. (Parmelli, et al. 2011).

A popular definition (Scahill, et al. 2009; Mannion, et al. 2008; Scott, et al. 2003, Parmelli, et al. 2011) appears to be the 'essence of culture' defined by Schein, (2004). As this is a widely cited definition, it will be used for this research.

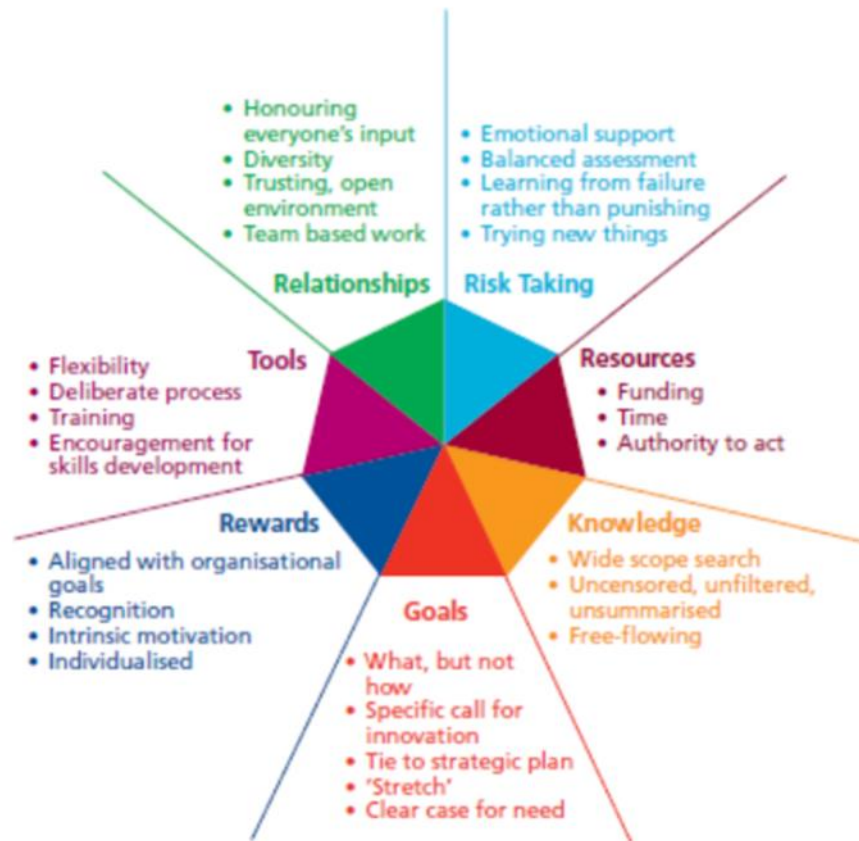
'a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaption and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems'

(Schein, 2004 p17)

Innovation Culture

Maher, et al. (2010) undertook a comprehensive review of the dimensions of an innovation culture, defining them as: Risk taking; resources; knowledge; goals; rewards; tools; relationships. They further describe tools for measurement of innovation culture although no published information can be identified of this having been undertaken within NHS

trusts. This will be used to provide a framework for measuring culture for this study.



(Maher, *et al.* 2010 p9)

Aims

To understand how innovation culture within an NHS Trust is shaped at the institutional and individual levels by the introduction of an Innovation Strategy.

Objectives

- To investigate Innovation Culture from a leadership perspective
- To investigate Innovation Culture from staff within the trust
- To synthesis a framework of innovation culture that merges leadership and staff perspectives.

Methodological Framework

The methodological framework for the study will be a case study approach as described by Yin, (2014)

'A case study is an empirical enquiry that

- investigates a contemporary phenomenon (the 'case') in depth and within its real-world context especially when
- the boundaries between the phenomenon and the context many not be clearly evident

(Yin 2014, P16)

As the 'case' is a single NHS trust, the model will be a single case design; however, the complex, multi-level context of a trust (Waring, *et al.* 2014) will be acknowledged by investigation at both the meso (organisational) and micro (individual clinician) level. The overall methodological framework will therefore be a single case design with multiple embedded units of analysis (Yin, 2014).

In case study methodology, unlike other methods, the research questions are posed to the researcher, as a tool to help define the evidence that is required to address the study aims. At the protocol stage Yin, (2014) identifies these questions as 'level 2' questions i.e. 'questions asked of the individual case', articulating the importance of keeping this in mind for all data collection. Each question should be accompanied by 'likely' sources of evidence; this is summarised in table 1. As analysis is dependent on convergence of evidence, case studies by their nature require multiple sources of evidence, triangulated to reach a conclusion (Yin, 2014).

Data analysis theory in case study methodology is still emerging (Yin, 2014), although a case study methodological framework will be used for this research, to ensure robust analysis of the embedded units, each unit

will independently analysed using an appropriate method before triangulation.

Qualitative data will be informed by ethnography. Ethnography's disciplinary tradition stems from anthropology; as such its primary domain of enquiry is focused on the cultural perspective (Robson, 2015). It can be used to contextualise the behaviour, beliefs and feelings of people from the 'emic' (insider) perspective, whilst remaining removed from their behaviour, retaining an 'anthropological strangeness' (Hammersley and Atkinson, 1995; Hammersley, 2006), and is particularly suited to complex organisation study (Waring, *et al.* 2014). Although ethnography is not without challenges, it is a commonly used social science and health method (Hammersley, *et al.* 1995, Hammersley, 2006; Gray, 2013, Waring, *et al.* 2014; Reeves, *et al.* 2008; Coffey, *et al.* 1996), familiar to the researcher; it is believed it will provide a useful theoretical approach for analysis of the embedded units.

Site Selection

Selection of the site is a critical element of case study research, making a selection based on special arrangements and ease of access is an acceptable arrangement (Yin, 2014). This study will take place in one NHS trust, where the researcher is based, this has several advantages including an in-depth knowledge of the case and easy access (Silverman, 1998) and the findings directly relevant.

The place of the researcher

In keeping with Yin's philosophy for case study, a 'realist' perspective, assuming the existence of a single reality independent of any observer will be taken (Yin, 2014). This will be supported by a position taken by the researcher of 'anthropological strangeness', exploring with new and

possibly alien gaze common in the anthropological roots of ethnography (Hamersley, *et al.* 1995; Hammersley, 2006).

However, this also presents challenges, within data collection the power dynamic of relationships cannot be ignored (Pillow, 2003; Riley, *et al.* 2003). As a senior manager situated within the organisation of study, the researcher position could be hierarchically inferiority to very senior leaders, executives and board members or superior to staff members. This presents ethical tensions that must be acknowledged and managed during data collection (Simmons, 2012). The researcher is familiar with data collection from both perspectives and these elements will remain continually under review and addressed throughout the development of the study with the support of the supervisory team.

Data collection

The researcher acknowledges this proposal draws on theory and literature from outside the familiar healthcare environment and that healthcare itself is a dynamic and evolving field. Development and interpretation of the literature will continue throughout this study, informing data collection, acknowledging the need to stay 'adaptive' and make changes to the design, if they can be appropriately justified (Yin, 2014).

Table 1 Research Questions and method

Research Question	Data Collection Method	Sample size	Data Analysis
<i>How does Trust Leadership score their 'Innovation Culture'?</i>	Collaborative Enquiry Workshop (Parkes 2013) Dotmocracy approach www.dotmocracy.org/	150	Analysis of 'Portal Charts' and Dotmocracy data using qualitative analysis
<i>How do Trust staff score their 'Innovation Culture'?</i>	questionnaire version of the seven dimensions of culture (Maher et al 2010) using SurveyMonkey	1000 @25% response rate	Qualitative analysis

<i>How do the trust leadership understand innovation culture? What has worked and why?</i>	A purposive sample of very senior leaders from within the organisation will be invited to be interviewed (Executives, Deputy Directors, Heads of Department and non-executive directors).	6-8	Qualitative thematic analysis
<i>How do staff who have accessed innovation support understand innovation culture? What has worked and why?</i>	A purposive sample of staff that have developed ideas within the trust will be identified and interviewed to understand their experience of trust culture and the impact this has had on their ideas.	8-12	Qualitative thematic analysis
<i>How can learning from the introduction of the strategy be used to further develop the culture for innovation? What has worked and why</i>	The journey of the research will be captured in a reflective diary and analysed to produce an auto-ethnographical account (Taber, 2010; Pillow, 2003).	1	Reflective account and qualitative thematic analysis

Analysis

All data will be captured electronically and managed using NVivo 10 software or SPSS version 22.

Statically analysis will be undertaken depending on the data collected which may include ANOVAS, cross-tabulations and or correlations as well as simple descriptive statistics.

Each set of qualitative interviews will be analysed using an interpretative qualitative analysis framework. This will involve an iterative process of reading, coding, comparison, elaboration of emerging themes and re-

engaging with wider literature (Waring, *et al.* 2014) to develop an ethnographic account (Hammersley, *et al.* 1995).

Eisenhardt. (1989) describes overlapping of data collection with data analysis, supported by reflexive field notes within and between each case, in a triangulation and comparative process to support theory generation. This constant comparison and triangulation of data in a non-hierarchical approach to examine phenomenon in several different settings and different points in time will be central to the analysis process (Yin, 2009; Reeves, *et al.* 2008; Scott, *et al.* 2003).

Once the embedded units have been analysed, the five specific techniques of case study analysis will be applied of pattern matching, explanation building, time series-analysis, logic models and cross-case analysis to develop a case description (Yin, 2014)

Report Writing and Dissemination

A research report will be written and submitted for the Doctorate of Professional Practice thesis module and defended through oral examination.

The lead researcher Sue Palmer Hill is a member of multiple Innovation and Research forums and will be presented findings to these groups. The national R&D Forum will be specifically targeted, as this will reach a large number of interested stakeholders.

It is anticipated that papers will be written for publication in Qualitative Health Research and Health Service Journal to reach a wide audience.

Timetable and work plan

The timetable for this has been set by the requirements of the Professional Doctorate programme at the University of Northampton. Data collection from staff will not commence until all permissions have been granted. This is anticipated to be early 2018. Data collection will take place over 1 year. (Appendix 2)

Ethics and Governance

All requirements of the Doctorate in Professional Practice programme will be satisfied. As the data collection does not involve any NHS patients an application to for NHS Research Ethics Committee review will not be necessary. As the research will take place in a single site, Health Research Authority permission will not be required. Permission to conduct the study will be formally sought from the host NHS trust prior to commencing.

It is recognised that clinician time is valuable; it is therefore essential to ensure that any time spent on this research by the trust's staff justifies the time away from clinical practice or management duties. The [THE TRUST] Innovation, Research and Clinical Effectiveness Committee will oversee this work within the trust providing an ongoing governance framework.

The researcher works within the trust, Fraser (1997) considers the ethical dilemmas this throws up in 5 areas:

1. Personal values and potential for bias
2. The Researcher's Role Within the Organisation
3. Confidentiality and Anonymity
4. Role Conflict Issues
5. Time Constraints

These are explored and addressed further in Appendix 2.

This study seeks to gain understanding at an organisational level and professional level; it does not seek to elicit any sensitive personal information and not expected to cause any distress. All participants will be volunteers and have full informed consent taken. (Appendix 3, 4 and 5) Although data is not expected to contain any personal identifiers or sensitive information, it will be treated as confidential. Original data will be stored on password protected computers on a secure NHS service, only anonymised data will be shared by the researcher with supervisory staff.

Resources required

The main resource required is researcher's time; this is given freely as part of her study commitment and as part of her paid employment.

All qualitative data will be captured electronically and managed using NVivo 10 and SPSS software, available to the researcher as a student at the university.

Travel commitment outside the researcher's usual place of work is minimal. Recording equipment, printing facilities and IT equipment are available to the researcher through her employment at [THE TRUST].

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Web Resources

AHSN <http://www.ahsnnetwork.com/>

CQC <http://www.cqc.org.uk/>

NIHR

www.nihr.ac.uk

Gantt Chart

Action	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Protocol completion												
Planning and Preparation												
Ethics												
Governance												
Engagement of staff/departments												
Study development												
Data collection												
CEW												
Interview-leaders												
Interviews- staff												
Auto-ethnography												
Data analysis												
Report writing												
Submission												
Dissemination Publication												

II. University of Northampton ethics application

Submitted 10 January 2018

Ethical Considerations for Researcher's for engaging with participants for interviews, questionnaires etc...		
Issues	Strategies	
Preliminary papers and authority	<ul style="list-style-type: none"> The researcher should have documentation to identify him or herself Criminal Records Bureau check must be carried out if dealing with children and/or young persons Permissions from organisations and other authorities to conduct activity (interview/questionnaire/etc.) must be obtained e.g. Home Office for interviewing offenders, Government bodies, local officials as appropriate 	<ul style="list-style-type: none"> Research has an NHS ID badge valid within the organisation of study, no letter of access will be required, for the purposes of this study the student will also carry her student ID badge All DBS checks are current Permission from the organisation is in place No HRA/NHS REC required as a single site study not including NHS patients.
Choice/recruitment of participants	<ul style="list-style-type: none"> Method by which participants are requested to join in the research must be addressed Age of participants must be considered provision for elderly, young, disabled or special needs. The most appropriate method of approaching participants must be used e.g. through associations, advertisement etc. Will any incentives be offered to take part 	<ul style="list-style-type: none"> All participants will be recruited by virtue of their professional roles and their willingness to participate. There will therefore be no issues regarding vulnerability, age or spoken language. In line with the methodology, participants will be targeted as a purposive sample using professional communication routes.
Training and qualifications	<ul style="list-style-type: none"> Training and qualifications may be required to undertake certain types of activity 	<ul style="list-style-type: none"> The individual proposing to undertake this research has been a qualified Nurse for 30 years and working in I&R for 20 years in the NHS. She is also trained in Good Clinical Practice, Informed Consent, ISEB Data Protection and follows the NMC Code of Conduct. She has had the appropriate training to conduct this

		research through her professional practice and as part of the taught modules of the Professional Doctorate programme
Involvement	<ul style="list-style-type: none"> • Each participant must be given the opportunity to positively decide to be involved in the research • There must be no coercion and ample opportunity must be offered to first decide to take part and secondly to withdraw (see Section 8 above) • A participant should be able to have a friend or relative present if he or she wishes and in certain circumstances this may be desirable for the safety of the researcher 	<ul style="list-style-type: none"> • It will be made clear to all individuals that the primary purpose of this study is for an academic qualification and their participation is entirely voluntary and if they choose not to take part in the interviews, this will not affect their future relationship within their clinical team or the Innovation and Research team. • All participants will receive written information pertaining to the aims of the study at least 24 hours in advance ensuring that they know what can be expected if they participate in the process. • It will be made explicit that their participation will be confidential throughout the data collection, analysis and dissemination process of the evaluation.
Rights, safety and wellbeing of participant and researcher	<p>An Assessment of risk to self and participants must be carried out in relation to:</p> <ul style="list-style-type: none"> • Health and safety of premises in which activity takes place for researcher and participant • Health and safety of researcher e.g. interviewing in a penal institution • Health, safety and wellbeing of participant e.g. in relation to the questions asked and their psychological effect • The age mobility etc. of the participant must be considered 	<ul style="list-style-type: none"> • The interviewees as all health care professionals; the issues being explored are related to their professional practice and will not impact on their personal or professional lives. All interviews will take place in the normal workplace of participants, at a time and location convenient to them. • It will be made clear that should the participant wish to withdraw at any time they may do so and withdraw their data without any explanation.

	<ul style="list-style-type: none"> • Questions should not be asked unless they have a value 	
Permission from immediate authorities	<ul style="list-style-type: none"> • If activity conducted on certain premises permission for researcher and participant to be on those premises must be obtained e.g. if in school permission of headmaster 	<ul style="list-style-type: none"> • Permission from the NHS host Trust has been secured
Suitability of premises	<ul style="list-style-type: none"> • Premises must be accessible • Position of furniture etc. to ensure appropriate relationship between interviewer and interviewee is maintained 	<ul style="list-style-type: none"> • The researcher is an employee within the host trust and has full access to the premises as part of this employment.
Method of interview	<p>The most appropriate method interviewing from the participants point of view must be used:</p> <ul style="list-style-type: none"> • Individual or group interview • Questionnaire • Open or closed questions etc. 	<ul style="list-style-type: none"> • Workshops will be run at planned events • Questionnaires will be completed on line via SurveyMonkey, an approved system within the trust • Individual interviews have been chosen to support the most flexibility for busy NHS staff
Method of recording data	<p>The most appropriate method of data collection from the participants point of view must be used:</p> <ul style="list-style-type: none"> • Photographs, video or audio recording • Written notes • Intellectual property rights in data 	<ul style="list-style-type: none"> • Audio recordings of interviews will be taken, with the permission of the interviewees • Captured recording will be via a password protected digital recorder • These will be uploaded to an NHS password protected computer as soon as possible by the researcher and stored on a secure section of the NHS server only the researcher can access.

	<ul style="list-style-type: none"> • Data protection <p>The appropriate consent must be obtained. If the data is to be retained the participant must consent to this. An opportunity must be given to enable a participant to withdraw his or her material from the research (see section 8 above).</p>	<ul style="list-style-type: none"> • Once uploaded onto the computer the digital recorder data will be cleaned. • All other data will be stored on an NHS password protected computer in a secure section of the NHS server only the researcher can access. • Any paper documentation will be stored in a secure filing cabinet in a locked NHS room with limited access to NHS staff.
Interviewers	<ul style="list-style-type: none"> • Who will undertake the interviews? • Will they be paid? 	<ul style="list-style-type: none"> • The researcher will undertake the interviews as part of her paid NHS employment within the host site
Transcribers	<ul style="list-style-type: none"> • Are audio recordings to be transcribed? • Who is to transcribe them? • Are copies of the transcription to be shown to the participant for approval? 	<ul style="list-style-type: none"> • The researcher will transcribe all audio recordings as part of her immersion in the data • Only anonymised versions of the transcriptions will be shared with supervisory team, however as there are only a very small number of very senior leaders within the organisation people may be able to be identified from their roles. Every effort will be made to limit this, but as these people are used to being under this level of public scrutiny and the material is not of a sensitive nature, it is not expected to cause any significant issue
Translators	<ul style="list-style-type: none"> • Are translators to be used if so are they professionally qualified and compliant with the appropriate code of conduct? • How is the problem of interpretation and checking of information to be dealt with? 	<ul style="list-style-type: none"> • N/A

Attendees	<ul style="list-style-type: none"> • Who will be attending the interview e.g. care of disabled participant? • Consent for attendees must be obtained from participant 	<ul style="list-style-type: none"> • All interviewees are professional N/A
Consent	<ul style="list-style-type: none"> • Particular note should be made of the comments in the Institution's code in relation to covert and deceptive research. • Informed consent must be obtained: the participant must receive information, understand it and be able to respond • The information should be written and it should be made clear precisely what the research is, what is being required of the participants whether the identity of the participants will be confidential and/or anonymous • Consents should be clear and unequivocal and also in writing • Consents from all those involved must be obtained e.g. parents as well as children where children involved. Employees as well as employers etc... • Participants must positively agree and must be given the opportunity to withdraw 	<ul style="list-style-type: none"> • Informed consent will be taken; the researcher is a nurse on the NMC registry, trained in Good Clinical Practice and an experienced NHS researcher of 20 years experienced in taking informed consent. • Written information sheet will be given at least 24 hours in advance • A consent form will be used, participants will be made aware that they are under no obligation to participate, that they can withdraw at any time and request that their data be removed; any request of this nature will be honoured if data is identifiable.
Confidentiality and Anonymity	<ul style="list-style-type: none"> • The researcher needs to be clear whether the participants wish to be identified in the research report or thesis. In any event identities need to be confidential until the research is complete in case a participant wishes to withdraw. It must be made clear to participants who have agreed to be identified the point at which publication 	<ul style="list-style-type: none"> • The research is trained to ISEB standards for the Data Protection Act, undertake mandatory annual Data Protection and Information Governance training and as an NMC registrant and an NHS employee is bound professionally and contractually to respect and protect all data. • No patient data will be accessed

	<p>will take place and that it will no longer be possible to withdraw.</p> <ul style="list-style-type: none"> • To ensure confidentiality participants should be allocated codes and their personal details kept separate and secure. • Personal contact details should be destroyed at the end of the research unless permission has been obtained to retain them for further research • Codes or pseudonyms should be used when writing the thesis or report and names of places may be changed or fictionalised to ensure anonymity • Time scales for the keeping of information need to be stated. • The data protection legislation must be followed. 	<ul style="list-style-type: none"> • Only professional data will be requested and used for the research, this will still be safeguarded to the highest standard. Quotes used will be anonymised to ensure confidentiality is maintained. • All information disclosed during interview will be used for the sole purpose of the research, however if the researcher believes a participant to have raised any safeguarding issues or significant risk to organisation, this will be discussed with the participant and reported to the appropriate Trust route. • All raw data will be held on NHS IT systems as this will contain professional, identifiable data pertaining to that organisation. Only anonymised data will be shared outside of the organisation • All data, hard copy and electronic, related to the project will be destroyed 3 years after the conclusion of the project by secure shredding or electronic deletion.
Issues arising from the activity	<ul style="list-style-type: none"> • What provision is in place for participants who may be adversely affected by the activity? • Do medical practitioners, counsellors or others need to be present? • Might the research uncover matters that are of wider concern? (e.g. participant's involvement in criminal offences, illness or condition in respect of which the participant may not have been aware) 	<ul style="list-style-type: none"> • No issue of this kind is expected, however as an employee of the Trust, should any participant feel that there are issues they need to raise against the research they will be able to report these through the Whistleblowing Policy or the Trust Freedom to Speak Up Champion or any appropriate route within the trust. • It will be made clear that if participants do not wish to answer any questions they may defer these questions • If any safeguarding issue or issues of malpractice be highlighted these will be discussed with supervisors and/or managed according to NHS trust policy.

		<ul style="list-style-type: none"> The position of the research as a senior member of the trust staff and ethical issues this raises are acknowledged and explored in more detail in Appendix 3, p30
Feedback	<ul style="list-style-type: none"> Each Participant must receive a summary of the research together with contact details of the researcher should any subsequent issues arise. If there are likely to be matters raised which may trouble the participant sources of advice and assistance must be given. 	<ul style="list-style-type: none"> A draft version of the report will be shared with participants for feedback. The final written report Will be submitted as the thesis for the Doctorate in Professional Practice, UoN
Note	<p>This template is not exhaustive. There may be other issues in relation to interviews appropriate to a particular area of research that should be addressed.</p>	<ul style="list-style-type: none"> Ethical considerations remain ongoing through the whole of a research study, should any new issues be identified, these will be discussed with the supervisory team and address.

University of Northampton ethics committee decision 23 January 2018

Action required

Resubmit application to future REC meeting

Decision

Not approved, candidate is invited to resubmit

Notes

The Committee enjoyed reading this application for full approval – you have developed a good project, have good knowledge of research ethics and have provided lots of detail. The Committee highlighted some areas that needed further consideration before full approval can be given:

- 1) You refer to dissemination of the research to national forums but the ethics application currently does not cover dissemination beyond thesis write up.
- 2) It was felt that some issues might arise from the research setting and dual role of the researcher/professional. The blurring of identity and issues of positionality should be covered in more depth and the participants need to be clear about your role as a postgraduate researcher and as a senior colleague. (e.g. carrying your NHS card and the use of NHS headed paper arguably does not make this distinction clear)
- 3) UoN policy recommends storing data on University systems: storage of data on an NHS computer may not be compliant. You propose using SPSS and/or NVivo and this may require storage on UoN PCs anyway, which is not covered in the application. You should give information about data storage and security in relation to SurveyMonkey as your chosen survey tool. Issues of data destruction and participant withdrawal need more careful thought in practical terms.
- 4) The application says there will be interviews but the consent forms concentrate on focus groups. You need to provide details and documentation in relation to each method.
- 5) Questionnaires should be submitted for full approval.

The Committee looks forward to your resubmission.

Response to University REC Review submitted 21 February 2018

This application was reviewed by the University Ethics Committee on 23 January 2018, the following comments were raised for clarification and a request to resubmit was made prior to approval.

1. You refer to dissemination of the research to national forums but the ethics application currently does not cover dissemination beyond thesis write up.

Reference to dissemination has been removed from the ethics template and Participant Information Sheet, Appendix 3 and 4

2. It was felt that some issues might arise from the research setting and dual role of the researcher/professional. The blurring of identity and issues of positionality should be covered in more depth and the participants need to be clear about your role as a postgraduate researcher and as a senior colleague. (e.g. carrying your NHS card and the use of NHS headed paper arguably does not make this distinction clear).

This was covered in part within the original protocol 'Place of the Research' p13. Further reference is now included in the main body of the proposal in Ethics and Governance section p17. A more detailed exploration is submitted as Appendix 3 p 31. 'The Insider Research: a discussion on ethical dilemmas';

University Headed note paper will now be used, this has been amended in the Ethics Template Appendix 4 p34 and Participant Information Sheet Appendix 5 p40 and consent for Appendix 6 p42.

Student ID will be worn in addition to the NHS ID for all interviews this has been amended in the Ethics Template Appendix 4 p34 and Participant Information Sheet Appendix 5 p40 and consent for Appendix 6 p42.

3. UoN policy recommends storing data on University systems: storage of data on an NHS computer may not be compliant. You propose using SPSS and/or NVivo and this may require storage on UoN PCs anyway, which is not covered in the application. You should give information about data storage and security in relation to SurveyMonkey as your chosen survey tool. Issues of data destruction and participant withdrawal need more careful thought in practical terms.

The student does not have a university laptop and as a mature student in full time employment within the NHS, visits the university sites infrequently, making access to onsite university systems difficult.

Professionally the researcher uses the NHS IT equipment and systems, undertaking annual mandatory training in data protection/information governance; NHS hardware and the software are fully compliant with data security measures required by the Data Protection Act 1998 and will migrate to the General Data Protection Regulation (GDPR) May 2018. All research undertaken within the NHS needs to be fully compliant with the latest guidance from the HRA <https://www.hra.nhs.uk/about-us/news-updates/gdpr-guidance-researchers/> , the researcher is responsible for this compliance within [THE TRUST].

The data will contain profession identifies that the researcher has access to via her employment, keeping this data on the system where it is normally held will minimise breaches of confidentiality through transfer. All Professional Doctorate study to date has been undertaken on NHS computers, there is no issue with downloading programmes such as

student SPSS from UoN onto NHS laptop with the support of NHS IT services. SurveyMonkey is a commonly used survey tool in the NHS and has been approved by the HRA for used within the host trust for several NIHR pieces of research and approved for a number of student research projects. [THE TRUST] holds a platinum licence which allows multiple surveys to be undertaken. The researcher has the support of the trust for this survey. In this case the survey will go out only to NHS staff with all data collected being anonymous, all data returned will be held on a secure server. Approval from the trusts DPA/IG specialists has been sought with no security issues have been identified.

The NHS systems are continually backed up to a secure server. Information gathered for the purposes of the project will be used within the parameters of this project only. Only processed anonymised data will be shared outside of the organisation where it will be collected. All data collected as part of this project will be destroyed 3 years after the conclusion of the evaluation.

4. The application says there will be interviews but the consent forms concentrate on focus groups. You need to provide details and documentation in relation to each method.

This is amended on the Participant Information Sheet and the Consent Form Appendix 5 and Appendix 6

5. Questionnaires should be submitted for full approval.

The Questionnaire to be used are previously validated and published tools for NHS (Maher et al. 2010) and have now been included as Appendix 7 p.

**Response from University of Northampton ethics committee 13
March 2018**

Action required

Resubmit application to future REC meeting

Decision

Not approved, candidate is invited to resubmit

Notes

The Committee received your response but didn't think that you had engaged fully with all of the issues raised.

Comments back from the committee

'On the matter of data storage, you still wish to hold the data on NHS servers and whilst that is not insurmountable in terms of ethics and data management, the university is responsible for the data and must have appropriate assurances in place. The pertinent issues are of access, use and security and propriety of the data both during and after the research project. It is stated that data will be held at the NHS and will be destroyed but there is no rationale given for this. Issues of intellectual property and practical issues if the NHS take ownership of the data you collect should also be explored if the data are to be held in the organisation.

You refer to gaining access to data through NHS systems and you should show that you have permission to use the data and assurance that the data can be used for research purposes.

Clear guidance on this is required

A permission letter or written agreement with the NHS might cover this.

You say you will not share data outside organisation but the consent forms only seek consent for use of the data in the thesis. The consent should be extended to dissemination in professional and academic outputs.

The power dynamic and separation of researcher and manager roles issue isn't yet fully explored. For example, Participants are asked to discuss their participation with their managers but the research is about the relationship with the manager and this could be problematic. Telling

potential participants, you have been approached “as part of your professional role” is coercive” whereas “due to your professional role” is less so.

The right to withdraw at any time should be re-addressed considering the practicalities of extracting data once it has been anonymised and analysed. A cut-off for the withdrawal of data from the study might be more appropriate.

The participant information sheet needs further proof reading and formatting.

The committee wished to offer you and your team an opportunity to discuss the issues and seek a resolution to them. Please contact the Chair, [xx] if you would like to organise a meeting. A further response should be made via Gateway for approval in due course.’

Response to the UoN ethics committee submitted 21 March 2018

1	<p>use of NHS servers and computers to manage data during the project (pp.29-30): please confirm that the approval sought from the NHS Trust's Data Protection / Information Governance specialists (p.30) has been obtained. For the record, please confirm terms and conditions of this approval. Please confirm measures that will be in place to password-protect, encrypt and/or limit access to project data</p>	<p>See attached letter of support from Sarah Ratcliffe, Head of Clinical Systems and Governance, LGSS on behalf of the Trust which confirms the legal basis under which the data is being carried out and the expectation of the trust in terms of data management and security.</p> <p>[THE TRUST] IT policy expects all people's access NHS data to use [THE TRUST] IT equipment to support this as it is compliant with N3 standard required for NHS data security.</p> <p>For this reason all data will be managed through a password protected encrypted NHS lap top. The data will be stored on a ring fenced section of the [THE TRUST] server, compliant to N3 standards for data security. All members of NHS staff have a personal section on the server, only the named person can access this ring fenced section of the server. The server is backed up regularly so can ensure prevention of loss.</p>
2	<p>Please provide a rationale for the destruction of data after three years. If this a requirement or expectation of the NHS Trust, please clarify this.</p>	<p>This has been revised to <u>5 years</u> after careful consideration of NHS guidance</p> <p>In accordance with the Data Protection Act, all data must be held for only as longer as required, then destroyed appropriately. Research data in line with this requirement must only be held for sufficient time to allow any questions about the research to be answered. It is acknowledged that research is a complex activity, every project unique, thus a of records for an individual research project is involves detailed assessment.</p> <p>Although some research sponsors specify requirements for retention of specific</p>

	<p>categories of records, which must be respected, this is not always the case. The Principal Investigator (PI) is, by default, responsible for the accuracy, completeness and security of all the records produced during a research project, this includes being responsible for their destruction. Where there are no external requirements for retention of records for a research project, or when such requirements have already been met, the PI should apply the institution's own records retention policy to the project records.</p> <p>All institutions should establish a policy for managing research records to ensure a consistent approach across all disciplines and all types of research. This policy should be supported by detailed procedures to guide and support staff in fulfilling their responsibilities for managing the records associated with, and arising from, their research activities.</p> <p>NHS organisations have guidance on this matter through Records Management Code of Practice for Health and Social Care 2016, Information Governance Alliance (July 2016), Appendix 3 section 8. HEI guidance is found in HEI Records Management, Guidance on Managing Research Records, JISC / JISC infoNet (January 2007).</p> <p>Depending on the type of research the data may not need to be kept once the purpose has expired. Research data used for passing an academic exam may be destroyed once the exam has been passed and there is no further academic need to hold the data. However, if dissemination through publication is to take place then retention of data for a minimum period of 5 years is recommended. An amendment to this effect will now be included in [THE TRUST] policy CLP 001: Management and Governance of Innovation Research and Clinical Effectiveness</p>
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3	Please clarify the statement that 'The data will contain profession identifies that the researcher has access to via her employment'. If this infers the accessing of information from the NHS Trust systems, please provide evidence that you have permission to use the data and assurance that the data can be used for research purposes.	This will be names of [THE TRUST] staff members names, their [THE TRUST] email address and phone numbers
4	Please amend the consent form to include dissemination in professional and academic outputs, including any dissemination activities within the NHS Trust.	See amended consent form V3.March 2018
5	In the participant information sheet (p.41), please amend "you are being invited to take part in this evaluation as part of your professional role" to "you are being invited to take part in this evaluation	See amended PIS V3 March 18

	because of your professional role”	
7	The right to withdraw their data ‘at any time’ should be re-addressed considering the practicalities of extracting data once it has been anonymised and analysed. A cut-off for the withdrawal of data from the study might be more appropriate	See amended PIS V3 March 18

The Insider Research: a discussion on ethical dilemmas

The researcher is undertaking this study as a student to gain a personal qualification, but also works within the research site as a senior member of staff and has a vested interest in the outcome of the study. This also presents ethical challenges, which require thoughtful consideration prior to the study commencement (Fraser, 1997; Rooney, 2005). Potentially, utilising only an anonymous survey, yielding quantitative data could mitigate this issue? However, this would give only a snapshot in time of the situation and learning from the richness of qualitative data and insights it can yield (Hammersley, *et al.* 1995) would be lost. It is important to therefore acknowledge the issue and develop strategies for sensitively managed, Fraser, (1995) summaries these into 5 areas.

- **Personal values and potential for bias**

As the senior manager within responsibility for the design and implementation of the innovation strategy, a bias towards ascertaining or reporting a positive impact of the strategy might be argued. Fraser (1997), in similar circumstances acknowledges the potential for a 'powerful insider evaluator' to act as gatekeeper, focus on aspects that support personal interpretations or ignore problem areas. She suggests several mitigations, including professional duty, accountability and responsibilities of her substantive post and the value of the external supervisor team to challenge predominate personal biases.

- **The Researcher's Role within the Organisation**

There is hierarchical relationship between the researcher and participants within this study; some will be more senior other more junior and potentially even in a line management relationship. The insider researcher must be mindful of these relationships, careful not to exceed the rights afforded by her position, seeking to ensure mutual respect is maintained

between professional within the work place (Fraser, 1997). This is supported by the process of free giving of information about participation and informed consent to participate.

- **Confidentiality and Anonymity**

Although data collected is not expected to contain any personal identifiers or sensitive information and will be treated as confidential, this needs to be realistic from the outset. In any organisation there is only one chief executive, a pseudonym would have no power to protect identity. Fraser, (1997) suggests a policy of 'honest from the outset' acknowledging that although the principals will be upheld, in some situations only reporting in general terms will be appropriate, in others where anonymity would not be possible, respectful acceptance is acknowledged.

- **Role Conflict Issues**

Fraser, (1997) states she naïvely expected to be able to separate her research role from her professional role, but found unexpected conflicts in this area, which proved challenging. She found the process of continued reflection invaluable to the actions taken. As part of this research methodology a reflective journal is being used, this will capture any challenges as they arise and will also allow supportive discussions with supervisory team.

- **Time Constraints**

The final area Fraser, (1997) highlights is that of time constraints of the full time employed, undertaking research, sighting the impact on personal life as the result. This is acknowledged as a risk of any person in full time employment undertaking additional work. A bigger issue in this study is possible the business of other staff and the commitment of their time, this will need to be carefully negotiated with them and their manager.

Although many of these issues can be anticipated and addressed in advance, there will be some unexpected issues that arise; these will be managed through personal reflection and the support of the supervisory team as they arise.

University of Northampton Ethics approval 17 April 2019

Ethics committee decision

Action required

No action required

Decision

Approved

Notes

Thank you for providing these clarifications and the very helpful covering letter ('Response to Ethics 21-March-2018.V3') and additional supporting documentation. We are happy to confirm that all of the Committee's queries have been addressed. The application is therefore approved.

Congratulations on reaching this stage. We wish you all the best for your project.

Please update the Committee via Gateway if you need to make substantial changes or additions to the approved project.

The Committee also noted the concern raised in the supporting letter from the

The Trust Head of Clinical Systems and Governance/Data Protection Officer regarding information governance and security control requirements for University of Northampton projects. The Chair of the University's Research Ethics Committee has replied directly to this letter to request further information.

III. Trust Approvals

TRUST LOGO

Medical Director: XXXXXXXXXXXX

Address: xx

Tel: xxxxx xxxxxx

Web: [www.\[Trust\].nhs.uk](http://www.[Trust].nhs.uk)

Sue Palmer Hill
Head of Innovation and Research

Date: 19 March 2018

Dear Sue

RE: Professional Doctorate Thesis: A case study to understand how innovation culture within an NHS Trust is shaped at the institutional and individual levels by the introduction of an Innovation Strategy

Thank you for submitting this proposal to the Ideas Forum for review and approval. This was reviewed at the meeting on 27 February in your absence. I am happy to confirm as the director with research responsibility the trust has offered this study its full support.

In supporting this study we acknowledging that not only will this achieve your study ambitions as identified as part of your Personal Development Plan, but also the value to this study will bring to the trust and to the NHS.

Yours sincerely

Dr XXXXX XXXXXXXXXX
Medical Director and Caldicott Guardian

TRUST LOGO

Information Governance Department
[The Trust]
Address: xxxx

Tel: (xxxxxx) xxxxxx

Date: 20/03/2018

Dear Sir/Madam,

I write to confirm my approval of the approach that Sue Palmer-Hill is using to collect and secure data generated during her professional doctorate. A Data Privacy Impact Assessment has been completed to ensure that information governance and information security risks have been considered and mitigated.

Trust laptops are encrypted to 256bit meeting the NHS standard and are more secure than data being held on unencrypted personal devices. The Trust policy IGIS01 clearly states that all information must only be held on Trust equipment/Network.

I would like to raise concerns in regards to other projects reviewed by your Ethics Committee and would like to request that the information governance and security control requirements for University of Northampton projects are reviewed by your organisation to ensure that information generated during students activities is adequately protected.

Yours sincerely,

Head of Clinical Systems and Governance/Data Protection Officer

TRUST LOGO

Xxxx xxxxxxx

Director of Strategy & Business Development

Address:

Web: [xxxxxxxxx](#)

E-mail: xxxx@xxxxxxxx

25 September 2019

To: The University of Northampton
Via Sue Palmer-Hill

Re: *The Case to Innovate: understanding organisational innovativeness in one NHS Trust*, submitted for the Degree of Doctor of Professional Practice at the University of Northampton

I am writing to confirm that having read this draft thesis (version 3 September 9, 2019). I am content that sufficient redactions and other changes have been made that protect the anonymity of the Trust as so as far as is reasonable, given the role that Sue Palmer-Hill holds within our organisation.

Sue will discuss with yourselves how we redact some of the information in the appendices which shows evidence of approvals by our organisation, but clearly includes our address, logos and senior executive signatures that instantly identifies our organisation.

Should this letter also be included in the appendices, this will also require redaction.

Assuming those redactions are made, on behalf of the organisation I am very content to sign up to this thesis and believe it will make a very useful contribution to our work, wider healthcare developments and a good contribution to research in this area.

Yours Sincerely

XXXX XXXXXXXX

IV. Culture for Innovation (CfI) survey questions

Appendix: NHS Institute's Culture for Innovation Survey Statements



Risk Taking

- 1 My direct supervisor supports me if I want to try something new.
- 2 If I suggest a new idea and it fails, I know that I will not be made to feel humiliated.
- 3 In my department the general tendency is to try new things rather than hold on to the status quo.
- 4 Senior leadership is willing to take a risk on new ideas that might make things better.



Resources

- 5 My direct supervisor provides me the time to work on a promising new idea.
- 6 In my department we seem to find the resources we need to fund innovative ideas.
- 7 I feel that I have reasonable authority to try out an innovative new idea.
- 8 Senior leadership makes sure that there is both the availability of time and of money to support innovation.



Knowledge

- 9 If I don't have the information I need, I feel comfortable asking my direct supervisor for it.
- 10 We are generally kept informed of activities in other departments that affect our work.
- 11 There is a lot of information available to me about what other organisations are doing to meet the same sorts of challenges we face.
- 12 Senior leadership openly shares information that is important to me and the work I do.



Goals

- 13 I know what the priorities or goals are in my department.
- 14 My direct supervisor makes it clear that innovative new ideas are highly desirable.
- 15 Priorities come down to me without pre-determined solutions, leaving me plenty of room to contribute my own ideas.
- 16 Senior leadership has made it clear that innovative new thinking is required to meet some of our organisational goals.



Rewards

- 17 I am certain that I would receive recognition or praise from my direct supervisor if I put an innovative idea forward.
- 18 The recognition that we get here for coming up with new ideas does motivate me personally to be more innovative.
- 19 We celebrate and say thanks when someone tries out a new idea, even when it is not successful in the traditional sense.
- 20 Senior leadership actively seeks out and recognises innovative thinking.



Tools

- 21 My organisation has trained me in methods to support creative, new ways of thinking.
- 22 My department uses specific methods to generate creative ideas around the challenges we face.
- 23 I am capable of generating creative ideas.
- 24 Senior leadership actively demonstrates innovative new thinking in its own work.



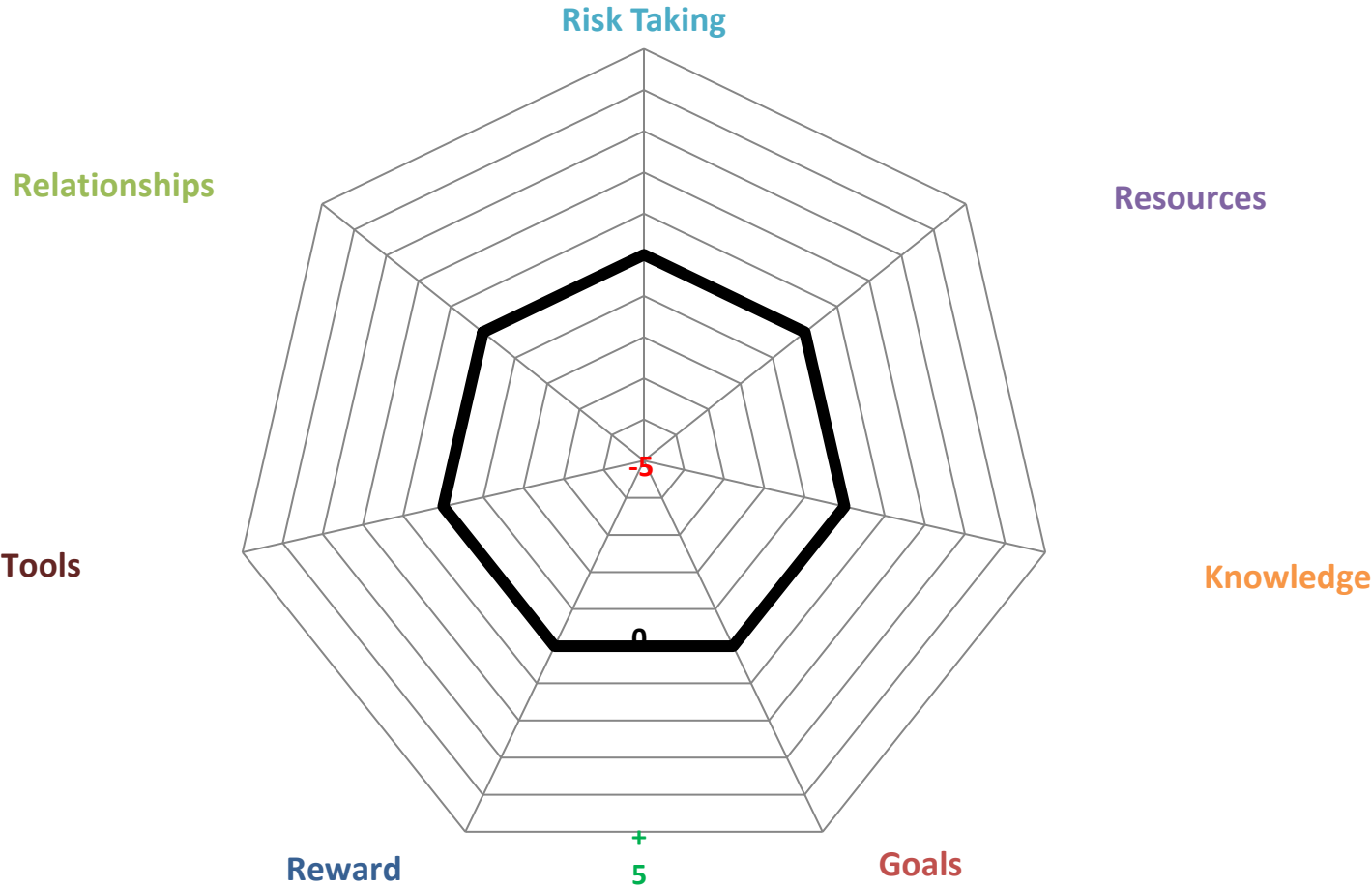
Relationships

- 25 In my organisation, people who think differently are respected for their point of view.
- 26 The teams that I work on tend to have people with a diverse mix of skills and styles.
- 27 In general, there is a high degree of honest and open communication between departments.
- 28 Senior leadership models high levels of cooperation and trust among colleagues.

Overall

- 29 My department has an underlying culture that supports innovation.

V. Culture for Innovation portal chant blank



VI. Participant Information Sheet

V3.March2018 (PIS to be on UoN headed note paper)

Participant Information Sheet

Title: case study to understand how innovation culture within an NHS Trust is shaped at the institutional and individual levels by the introduction of an innovation strategy

Interviewer:

Sue Palmer Hill, RGN, MSc,

Invitation to take part:

You are being invited to take part in an evaluation study. Before you decide to take part, it is important that you understand why this is being done and what it will involve. Please take time to read the following information. If you require further information or are unclear about any aspect related to this project please feel free to speak directly to the interviewer or your manager.

Why is this being done?

This study is being carried out as the thesis module of a Doctorate in Professional Practice at the University of Northampton. The project aims to investigate the innovation culture within one NHS trust following the introduction of an innovation strategy

What will I be asked to do if I agree to take part?

This study will involve taking part in an individual interview to explore your opinion of the innovation culture. The interviewer Sue Palmer Hill will be undertaking these interviews as a student on the Professional Doctorate course at the University of Northampton. The interviewer will

ask the questions attached to this information sheet to help focus the discussion.

The interview will take approximately one hour and probably a lot less time than this and will be at a time and location convenient to you, so as not to interfere with your duties or your personal time.

You will be asked to sign the attached consent form. This confirms that you understand the project and what's involved. This form will remain at the trust and we would like to reassure you that no personal data will leave the site. In addition only first names will be used throughout the interview and any information used in any reports or publication this will be completely anonymised.

For accuracy and ease it would be most beneficial to record the interview with a digital recorder. This is a secure recorder and the digital data will be uploaded into secure IT systems before being transcribed and analysed. All recordings and any notes made during the interview will be securely stored by the interviewer and destroyed when the final evaluation report has been first reviewed by you and then made public.

Are there any risks?

There are no physical risks to you as a person; however you may find that as a result of the discussions that you feel uncomfortable. You will not be expected to answer any questions that you feel uncomfortable with, and if you wish to leave the interview you may without having to justify this to the interviewer and request for your data to be withdrawn.

Will information collected be kept confidential?

All information collected during the process will be anonymised, data will be stored in a secure place, and protected by password if stored on computer.

Am I obliged to take part?

No, you are being invited to take part in this evaluation because of your professional role, but if after reading this you do not want to participate then you do not have to. If you do decide to take part, but then change your mind, you can request you're your data is withdraw. Every effort will be made to identify and remove your data from the study, however this will only be possible before data is anonymised and analysed occurs.

If there are further questions that you wish to ask please contact the Interviewer or your manager/. Only when you feel happy to proceed you will be asked to sign the consent form, even then if you wish to leave at any time you may without having to give a reason.

What will happen to the results?

The draft version of the results of the study will be shared with you. The final report will be submitted as the thesis module for the Doctorate of Professional Practice at the University of Northampton.

Thank you for taking the time to read this information sheet.

Sue Palmer Hill, RGN, MSc

Head of Innovation & Research

Sue.palmer-hill@[the Trust].nhs.uk

VII. Consent form

V3.March2018 (Form to be on UoN headed paper)

Title: A case study to understand how innovation culture within an NHS Trust is shaped at the institutional and individual levels by the introduction of an innovation strategy

Interviewer:

Sue Palmer Hill, RGN, MSc,
Head of Innovation and Research

Please initial box

1. I confirm that I have read and understand the information sheet dated (version.....) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected.

☐

3. I understand that information discussed at the interview will be kept confidential

☐

4. I understand that the interview is being recorded and that some of that I say may appear in an anonymised form within written reports from this project.

☐

5. I understand that the results of this study will be dissemination in professional and academic outputs, including dissemination activities within the NHS Trust

☐

6. I agree to take part in the above study.

☐

Name of Participant

Date _____

Signature _____

Name of person taking consent

Date _____

Signature _____

When completed: 1 for participant; 1 for site file

VIII. Interview Schedule

Confirm reading of the PIS

Discuss and take informed consent

Confirm confidentiality

Request permission to turn on recording equipment

Begin recorder

Introduction

1. Can you briefly introduce yourself and your role in [THE TRUST]

- Can you just explain your duties and responsibilities

•

Micro Level investigation

2. Can you define what innovation means to you

- You just described your role, why is innovation important to this?
- Tell me a little more?

•

Meso level investigation

3. The trust has identified Innovate as a key strategic theme, what do you believe is the value of this to the organisation?

4. If culture is the shared beliefs/values and behaviours, how would you describe the trust's innovation culture?

5. I am showing you a 'portal chart' created by staff in this trust who rated our innovation culture, the more open the portal the more enabled the culture; resources were seen as a slight barrier and risk taking was a weak element. In your opinion, do you feel this is a fair representation?

- From your perspective what if anything would you rate differently?
- Why?

6. Have you seen any change over the last year?

- What would you like to see change?

7. How do you think the organisation can support you to be more innovative in your work?

Leadership

8. Our trust Leadership Behaviours makes embracing change everyone's business, how do you see your role in supporting the development of the innovation culture?

Conclusion

- Are there any other comments you would like to make around our innovation culture?

Thank you for your time

Turn off recorder

Appendix 3 Database of evidence

I. List of evidence sources

Data source	Referencing key in text
Trust Documents	TD (number)
Collaborative Enquiry Workshop	CEW
CEW group scores	CEWg
CEW individual	CEWi
Trust survey	TS (unique identifier code)
Staff Interviews	SI (unique identifier code)
Participant Observation/reflective journal	PO(date)
Sli.do poll	Sli.do
Key Informant Feedback	KIF

II. Chronology of events

Dates in 2018	Event
8 January	Collaborative Enquiry Workshop
8 January	Sli.do poll
26 March– 30 April	Trust Survey
April- September	Staff interviews

III. Trust Document list

Reference in Text	Trust document name
TD1	Corporate Strategy (2016)
TD2	OUR COMMUNICATIONS STRATEGY (2016-2018)
TD3	Leadership Matter's Strategy (2017)
TD4	CQC report (2018)
TD5	Innovate Theme: annual plan (2018)
TD6	Framework for the management and governance of the innovation pathway (2018)
TD7	Risk Management Strategy – CRM001 (July 2018)
TD8	DELIVERING OUR STRATEGY: FOR YOU, WITH YOU. OUR STRATEGIC PLAN: (2018 – 2023)
TD9	Involvement in Innovation plan (2018)
TD10	Workforce strategy (2017-2019)
TD11	OUR LEADERSHIP BEHAVIOURS: leaflet V2.
TD12	Trust Corporate Performance review, headroom discussion (July 2018)

IV. Interviewee log

Unique Identifier Code	SLT/FLS	Clinical Responsibilities Yes ✓/ no x	Management Responsibilities Yes ✓/ no x	Ethnicity White/BME
1B	SLT	X	✓	White
2P	SLT	✓	✓	White
3T	SLT	✓	✓	BME
4A	SLT	✓	✓	White
5G	SLT	X	✓	BME
6K	SLT	X	✓	White
7X	SLT	✓	✓	White
8E	SLT	✓	✓	White
9H	SLT	✓	✓	White
10F	SLT	✓	✓	White
11D	SLT	X	✓	White
12N	SLT	✓	✓	White
1U	FLS	✓	X	BME
2O	FLS	✓	X	BME
3Y	FLS	✓	X	White
4L	FLS	✓	X	White
5W	FLS	✓	X	White
6M	FLS	✓	X	White
7N	FLS	✓	✓	White
8R	FLS	✓	X	BME
9C	FLS	✓	✓	White
10V	FLS	✓	✓	BME
11J	FLS	✓	X	White
12S	FLS	✓	✓	White
13I	FLS	✓	X	BME
14Z	FLS	✓	X	White
15Q	FLS	✓	X	BME
16B	FLS	✓	✓	White

Appendix 4 Chain of evidence

I. Second stage literature review search strategy

<div> <div>HDAS Export</div> <div>Search Strategy Innovation and the NHS</div> <div>01 Mar 19 - 10:43</div> </div>			
Strategy 601998			
#	Database	Search term	Results
1	HMIC	INNOVATIONS/	1491
2	HMIC	NHS/ OR exp "NHS ACUTE TRUSTS"/ OR exp "NHS HOSPITALS"/ OR "NHS COMMUNITY TRUSTS"/	41475
3	HMIC	(1 AND 2)	356
4	HMIC	1 [DT 2010-2019] [Languages English]	652
5	BNI	INNOVATIONS/	1230
6	BNI	(why innovate).ti,ab	5
7	BNI	(NHS OR "national health service").ti,ab	27879
8	BNI	(5 AND 7)	114
9	CINAHL	(innovation).ti,ab	17139
10	CINAHL	"NATIONAL HEALTH PROGRAMS"/	58821
11	CINAHL	exp "GREAT BRITAIN"/	104464
12	CINAHL	(NHS OR "national health service").ti,ab	31388
13	CINAHL	(10 OR 11 OR 12)	159015
14	CINAHL	(9 AND 13)	941
15	CINAHL	14 [DT 2009-2019] [Languages eng]	638
16	CINAHL	(reason* OR purpose OR value*).ti,ab	607973
17	CINAHL	(14 AND 16)	141
18	EMBASE	(innovation).ti,ab	36309
19	EMBASE	"NATIONAL HEALTH SERVICE"/ OR exp "GREAT BRITAIN"/	83749
20	EMBASE	(18 AND 19)	646
21	EMBASE	20 [DT 2009-2019] [English language]	483
22	Medline	*"ORGANIZATIONAL INNOVATION"/	4795
23	Medline	"NATIONAL HEALTH PROGRAMS"/	30712

The Case to Innovate: understanding organisational innovativeness in one NHS Trust

24	Medline	(22 AND 23)	54
25	Medline	(NHS OR "national health service").ti,ab	36924
26	Medline	exp "UNITED KINGDOM"/	350071
27	Medline	22 and (25 or 26)	601
28	Medline	27 [DT 2009-2019] [Languages English]	240

II. Collaborative Enquiry Workshop Data

90 individual and 22 group response were collected. Mean dimensions scores calculated and plotted

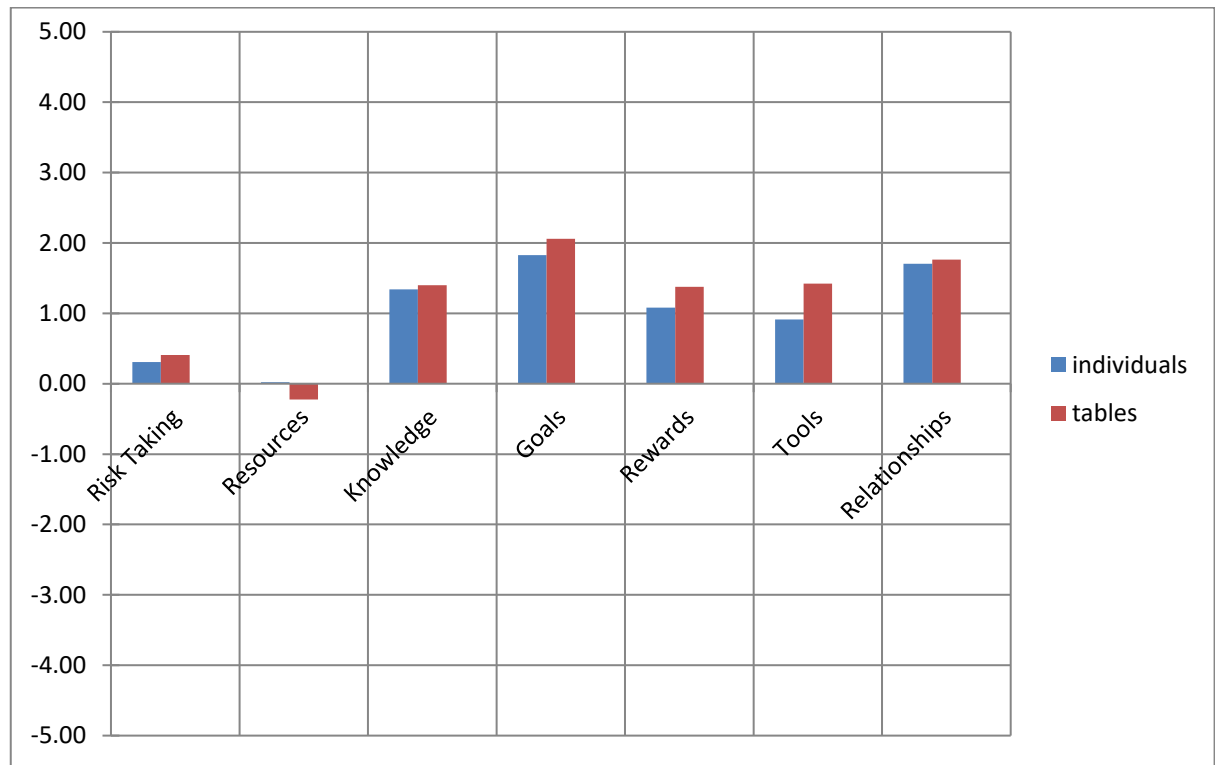


Table discussions with items ranked in order of votes

Dimension identified as being discussed	Comments recorded verbatim	Count
Risk Taking	No longer blame culture: staff need to feel supported when it goes wrong. It needs to be shared widely that it's ok not to be ok	52
Resources	Inspire all levels to have confidence and room/time to generate ideas	40
relationships	Introduce interviews with new starters after 6 months and learn from their perspective	26
Risk taking	Feedback: for bids that are not accepted, or there is no learning	24
Risk taking	Mind set (challenging) challenging negativity, over-estimating the risk. Action: open questioning, be honest with the patient, quality improvement project	18
Resources	We have the resources and encouragement to innovate, not often the opportunity to do- time for innovation within teams. - team meeting - - supervisionmove up the agendas	17
Risk Taking	Promote positive risk taking that benefits patients, staff	17

	and organisation, e.g. suicide strategy, challenge the status quo, use our knowledge	
Risk taking	Change of culture and language- associated with risk to a positive, positive risk taking, encourage learning rather than blame, need to encourage more risk taking + cascading learning + way we talk about this	15
Risk Taking	Neutral Innovation Panel: ideas are presented and challenged, committee decides (instead of finance and 1 or 2 people). How do we take this forward, make it safe for people to share, ensure the right support is in place	14
Resources	Start-up funds for innovation	14
Resources	Simplify the process	14
Risk Taking	From action i learn not failure	9
Resources	Share our limited resources across directorates	9
Resources	Support services to appoint a named person to work with different services to speed up allocation of resources	9
Resources	Protected time for innovation	8
	Involve service users and other stakeholders	8
Rewards	Scored neutral but would like to have scored higher, but we felt recognition is dependent on positive outcome or success, rewards are based on external outward facing success rather than internal attempts as day-to-day innovation	8
Resources	When there is funding staff should be consulted for ideas, all professional groups should get the change to innovate, working together to make better use of funding (across professional groups i.e. OT, nurses	6
Resources	Retention of staff	5
Knowledge	More forums to share knowledge	5
Rewards	When it's don't it is done well... when its missed..... -more feedback on a daily basis (small recognition – big impact) - everyone feeling part of a process of recognition- everyone can give recognition, not just from the top - personal touch in rewards – not generic	5
Resources	Eliminate waste, stop doing things that don't need to be done, give + take, authority to act, enhancing skills to increase output, business development – seek new funding opportunities	5
Knowledge	Need more input from all levels of staff	4
Risk taking	Create a safe test bed to test ideas	4
Resources	Collaborating on knowledge and resources in the trust i.e. Sharing effectiveness before investment; different uses of SystmOne	4
Resources	More space and time to implement ideas	3
Goals	Operational and corporate goals to be clearly aligned and easy to understand	3
Resources	Being able to access resources available	3
Tools	Integrated working across teams- MH, CAMHS, community nursing, OAMH, iAPT etc.	2

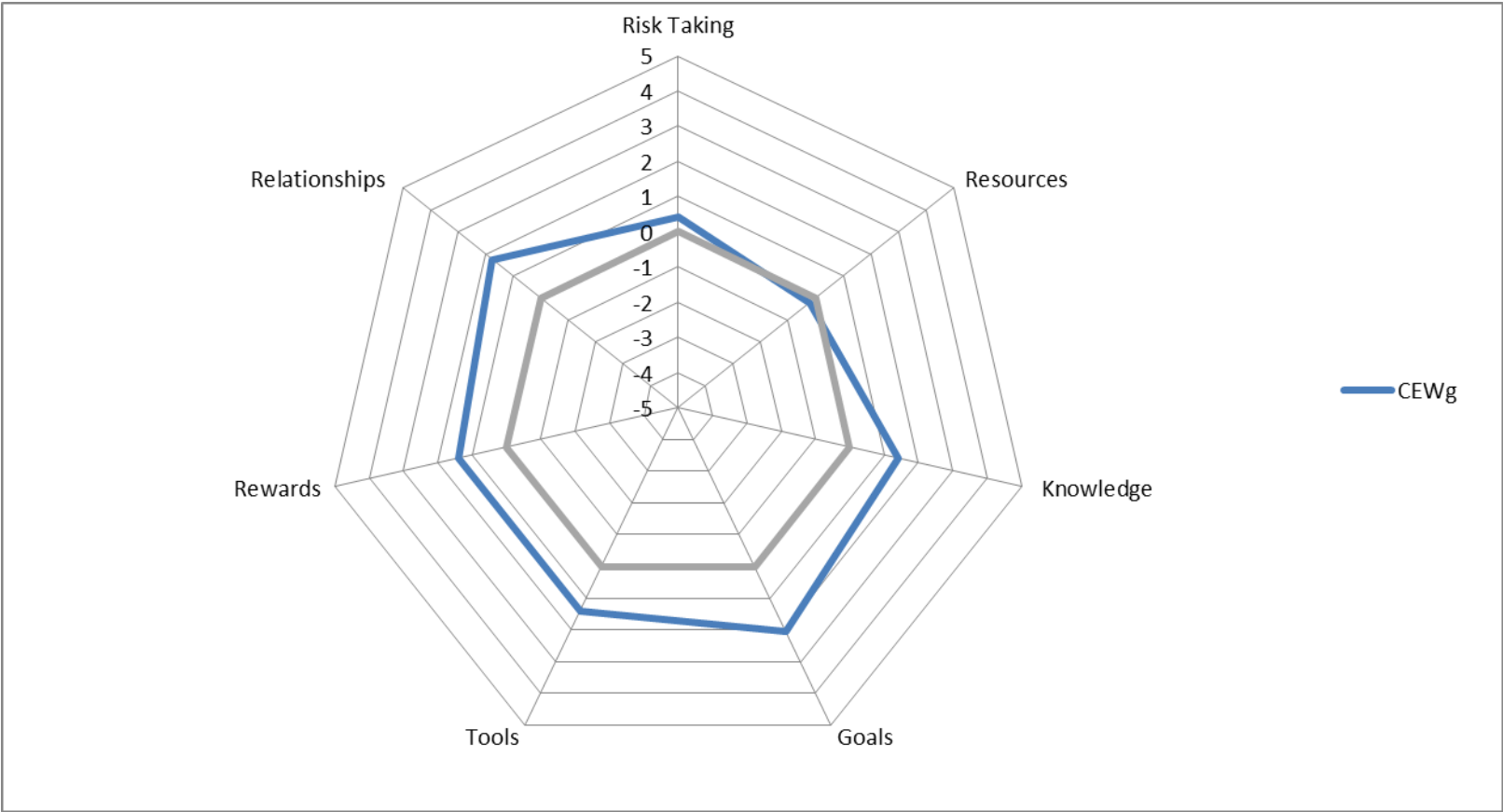
Risk taking	Whilst the board has moved risk towards more risk taking this does not seem to have translated to the ward	2
Risk taking	Create a culture where it is safe to fail	2
Resources	Support of leaders to allow ideas to be put into practice	2
Resources	Improve communication platform	1
Resources	More space and protected time	1
Resources	Encourage discussions within team	1
Resources	Encourage networking both internally and externally	1
Resources	Financial resources identified that would help drive forward the innovation	1
Risk Taking	Supportive culture	1
Tools	Communication- sharing knowledge and skills to improve learning and development in the trust	1
Tools	Focus on induction and orientation to all services across the trust	1
Resources	Create environments	1
Risk taking	Promote autonomy	1
Resource	Create clear easier channels to access resources	1
Knowledge	More sharing of knowledge, more time to talk to people and look onto the wider world e-brief	1
Resources	Skill attraction and retention and development	1
Relationships	Sharing knowledge and innovation of practice - internally and externally- services and trust- should loud and shout proud	1
Risk taking	Making accountability clear within the trust workforce	1
Resources	Publicise more on the innovation space on the staffroom	1

Synthesised into themes

Element	Count	Themes
Risk taking	11	Promote autonomy
		Create safe test beds
		Use our knowledge to promote positive risk taking
		Clear accountability
		Challenge negativity
		No blame culture
		Neutral innovation panel
		Give feedback on ideas
		Understand and manage risk x2
		Supportive culture x2
		Ok to fail
Resources	16	Inspire all levels
		Start-up funds for ideas x2
		Simplify process
		Communication – innovation space x2
		Protected time x4
		Share resources across departments x2
		Discussions within teams x4
		Retention of staff x2
		Leadership

		Creative environments
		Clarity on how to access resources x2
		Stop think act differently
		Named person to lead
Knowledge	3	Share more, talk more, include all levels look wider x3
Goals	1	Operational and corporate goals clearly aligned and easy to understand x1
Rewards	2	Feedback and recognition internally as well as externally, small recognition=big impact x2
Tools	3	Sharing knowledge
		Integrated working
		Induction
Relationships	2	Sharing knowledge; internally and externally
		Talk to new starters, learn from their perspectives
		Involve service users and other stakeholders

III. CEW summary feedback presented to the Trust at conference



(physical artefact used in Staff Interviews)

IV. Trust Survey Results

The Culture for Innovation measurement tool provided an easy to use 29-item survey. These were put into Survey Monkey and promoted with an introduction and an electronic link to the form.

Promotion route

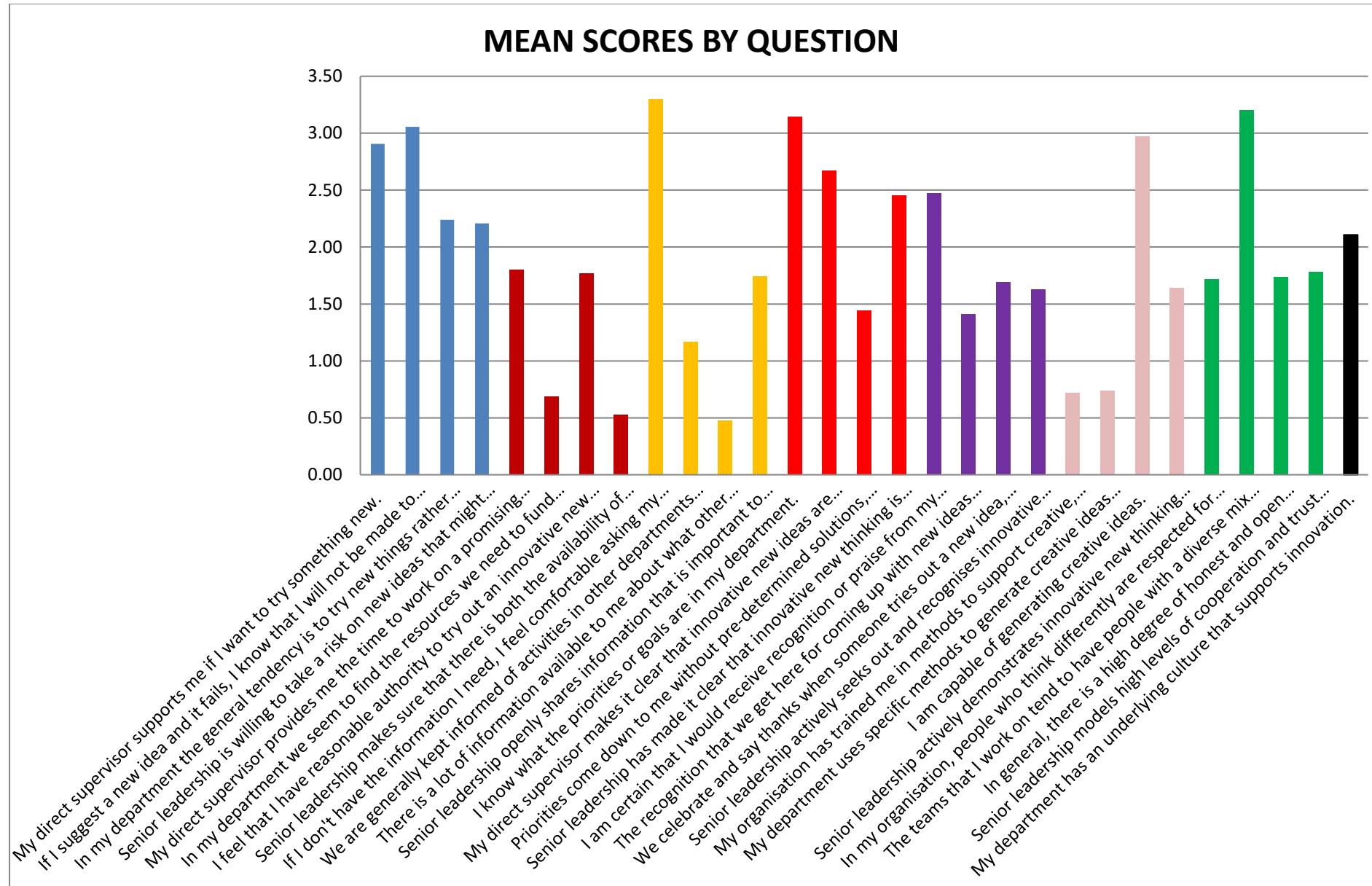
Exec team	Presented at monthly meeting
Senior Leadership Team	Presented at monthly meeting
Governors	Presented at monthly meeting
Innovation office	Out of office response to message and link
	Promoted through email footer
	Promoted at events
Manager need to know – monthly electronic brief to all managers	Promoted month before and during
e-brief – weekly communication to all staff	message and link to survey
Intranet site- promotion on Innovation page	Link to message and survey

Number of permanent staff in the trust 3169 (Trust workforce data 2018); 159 complete responses which represented 5% response rate. Although a disappointing response rate this was still assessed as viable for analysis. Responses were received from 9 different staff groups, although difficult to assess the representative professional, due to wording of this question on the survey. Some groups represented were also identified as too small to support statistical analysis

Staff group declared	Count
Admin and Clerical	31
Allied Health Professional	25
Doctors	5
Not declared	37
Health care Assistants	4
Managers	16
nurses	38
Support staff	3
	159

The minimum and maximum range, median, and mean for each individual survey item and mean Dimension Scores (mDS) were calculated.

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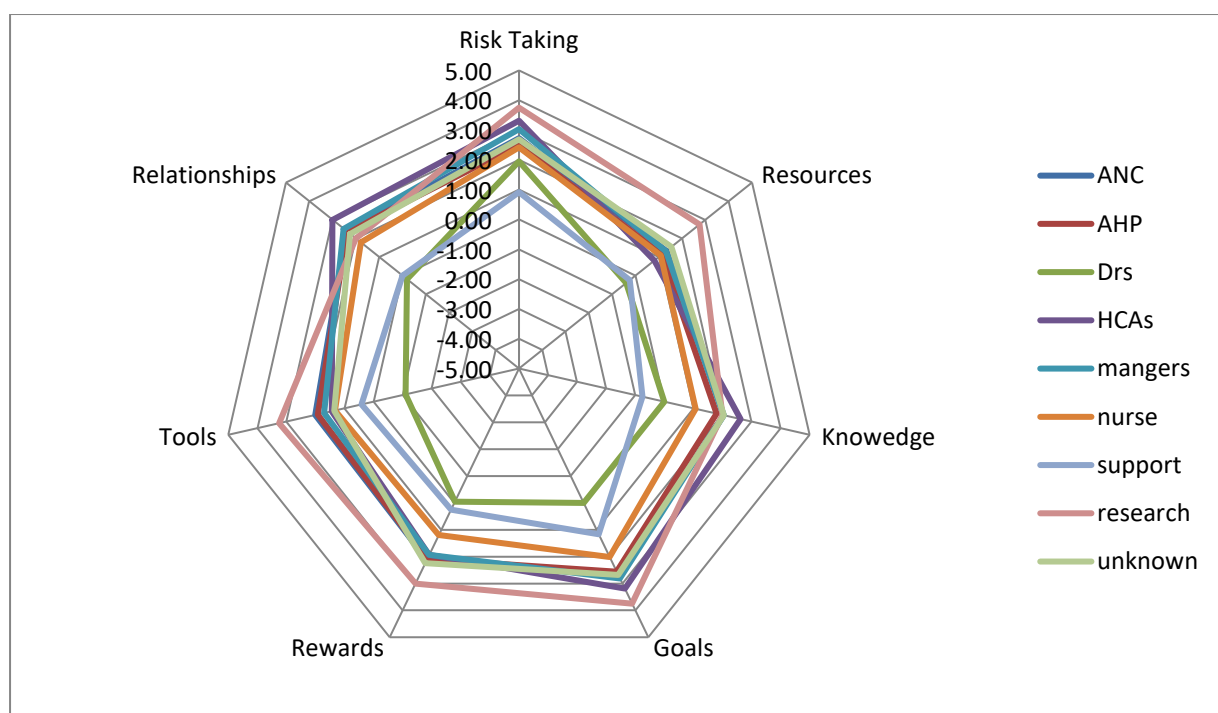


Points noted when comparing survey data with CEW groups and individuals risk and resources scored significantly higher and all other elements were higher.

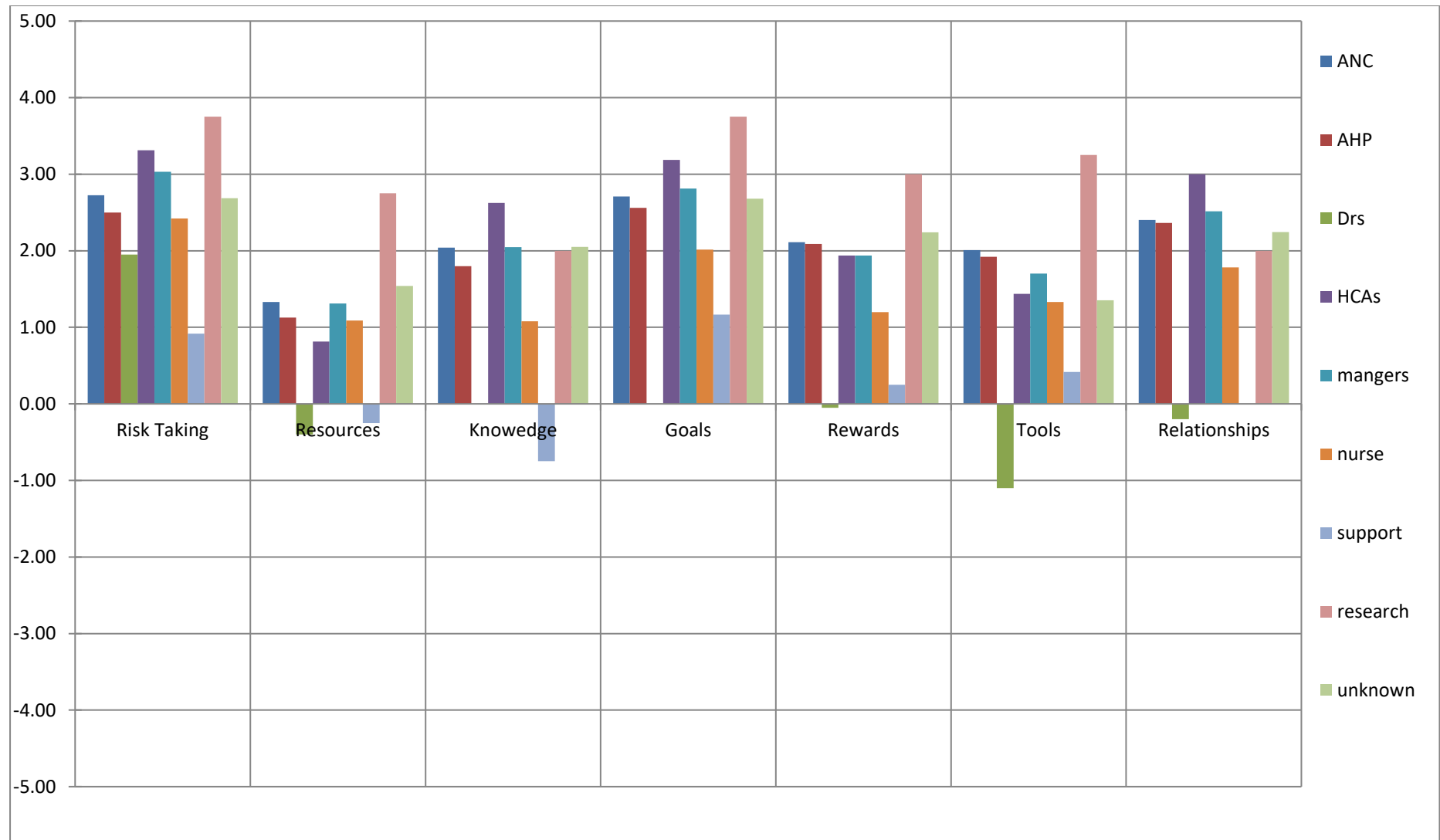
When the overall data is broken down by question, all questions received a positive score, even all the risk-taking and resources. All items in 'risk-taking' section scored above 2. 5. Questions which scored low.

- SQ6. In my department we seem to find the resources we need to fund innovative ideas
- SQ8. Senior leaders makes sure that there is both the availability of time and money to support innovation
- SQ11. There is a lot of information available to me about what other organisations are doing to meet the same sort of challenges
- SQ21. My organisation has trained me in methods to support creativity, new ways of thinking
- SQ22. My department uses specific methods to generate creative ideas around the challenges we face

When explored by staff group, the exception to this were medical staff (n=5) and support staff (n=3). Although medical staff scored 'risk-taking' only slightly lower than other staff groups, all other areas were significantly lower; 4 sections in the negative areas. Support staff also responses scored very low in all areas except risk. However who were describing themselves as 'support staff' was not captured.



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NVivo code book for Trust Survey comments- 82 comments returned

Name	Description	References
positive	Comments that exhibited and overall positive response	1
Negative	comments that exhibited an overall negative response	14
Tools	Flexibility, Deliberate process, Training, Encouragement for skill development	33
Training		6
Flexibility		2
Encouragement for skills development		14
Deliberate process		10
Risk-taking	Emotional Support, Balanced Assessment, Learning from Failure rather than punishing, Trying New Things	24
Trying new things		2
Learning from failure rather than punishment		5
Emotional support		15
Balanced assessment		2
Rewards	Aligned with Organisational goals, Recognition, Intrinsic motivation, Individualised	12
Recognition		6
Intrinsic motivation		1
Individualised		0
Aligned with organisational goals		5
Resources	Funding, Time, Authority To Act	51
Time		27
Funding		9
Authority to act		8
Relationships	Honoring everyone's input, Diversity, Trusting, open environment, Team based work	30
Trusting open environment		9
Team based working		12
Honoring everyone's input		6
Diversity		1
Knowledge	Wide scope search, Uncensored, unfiltered, unsummarised, Free-flowing	24
Wide scope search		2
Uncensored, unfiltered, unsummarised		4
Free-flowing		15
Goals	What, but not how, Specific call for innovation, Tie to strategic plan, 'Stretch', Clear case for need	0

V. NVivo code book for Staff Interview Data

Name	Description	References
Differences between staff Groups		32
staff		0
management		1
front line staff		4
doctors		12
Where do we go from here	What participants feel would support the development of innovation within the organisation	181
Demystify Process		46
measurement of impact		1
funding		3
evaluation and support		15
Time to sharpen your sword		19
Team Agendas		8
Tell us about it		70
Personal Responsibility		7
Grow it like an orchid		36
trust and belief		14
Strategic development		2
stability		6
Involved		8
The Value Proposition	How participants described the value innovation brings	699
Strategy unrecognized		16
Team		137
Team Work		17
Service Specific		2
Professional Responsibility		32
Part of the day job		12
Making a difference		18
impact		33
i care		5
Everybody's business		6

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Energize		136
Value to staff		33
proud		7
optimism		1
motivation		5
good		8
Excitement		21
Empowerment		27
courage		2
Believe in the art of the possible		9
The business imperative		306
Vision		4
Knock on effect		7
Ahead of the game	time to think and change, problem solving, business development, not just doing the minimum to survive as an organisation	173
Trying it ourselves		12
transformation		12
Thinking differently		29
Problem Solving		39
Improvement	Service Improvement, improvement in patient care, improvement to staff, general improvement	5
Service		2
Patient Care		5
Forward thinking	not standing still, not stagnating	44
Fit for the future		7
Can't keep doing the same thing		9
Survival of the Fittest/business need	External Treats, seen to be better, seen to be innovating, transformation of business models	119
staff retention		22
Political, seen to be innovative		28
Grow the business		28
Financial imperative		32

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For you, with you		84
better for staff		10
Invested in the Trust		5
adapting from others		4
Better for patients		57
time to care		11
Quality and safety		20
reduction of errors		4
PPI		7
Patient Choice		1
Dimensions of Innovation Culture	Descriptions of the Culture for Innovation. Categorized using the seven dimensions of an Innovation Culture, Maher et al 2010, with all sub-dimensions included as sub-nodes	329
Recognition and examples		12
sharing and adoption		4
Not Recognised		13
Disruptive Innovation		11
Continuous Innovation		20
Not Invented Here		12
business model		9
How do you feel about our IC		24
Relationships	Honoring everyone's input, Diversity, Trusting, open environment, Team Based work	40
Trusting, open environment		4
Team Based work		5
Honoring Everybody's input		4
Diversity		9
Rewards	Aligned with organizational goals, Recognition, Intrinsic Motivation, Individualized	23
Recognition		4
Intrinsic Motivation		62
don't know we're doing it		32
Individualized		5
Aligned with organizational goals		0
Goals	What, but not how, Specific call for innovation, Tie to strategic plan, 'Stretch', Clear case for need	18
What, but not how		0

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Tie to the strategic plan		0
'Stretch'		0
Specific call for innovation		1
Clear Case for Need		0
Tools	Flexibility, Deliberate Process, Training, Encouragement of skills development	12
Training		0
Flexibility		0
Encouragement for skills development		1
Deliberate process		1
Knowledge	Wide scope search, Uncensored, Unfiltered, Unsummarised, Free-flowing	33
Wide scope search		2
Uncensored, unfiltered. unsummarised		1
Free-flowing		5
Resources	Funding, Tim, Authority to act	98
Time		19
Funding		9
Authority to Act		5
Risk taking	Emotional Support, Balanced Assessment, Learning from Failure rather than punishing, Trying new things	53
Trying new things		6
Learning from failure rather than punishment		3
Emotional Support		2
Balanced Assessment		9
safe		11
Strategy & leadership	General overview of innovation, how it is perceived and understood and how this starts to interplay with the Innovation Culture within the organisation	533
Attitudes		157
positive		78
negative		64
Targets		3
fear		23
Technology		3

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risk		1
academic		3
corporate not clinical		6
Change as a threat		9
challenge and barriers		22
it's hard		14
The place of Leadership		208
Devolved Leadership to all levels		83
Support		28
Team & Peer Support		32
Sharing what we are doing		5
passion		2
creating the environment		19
socializing concept		14
Celebrating		1
Changes through staffing levels		23
leading from the front		12
Facilitators	Clinical leaders as facilitators	2
Appraisal, Supervision, Objectives		0
Senior leadership and vision		83
working together		2
Well led		2
Visibility		1
Risk Appetite and safety		18
Grow innovation		5
External Partnerships		6
Champions		17
Celebrating		3
Ambition		20
Everyone's responsibility		11
Leadership Matter	Leadership Matter document and events	17

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Leadership Behaviors		1
Conferences		3
Changes over time		63
Threat		1
temporal element		12
not changing		14
NHS Context		21
don't stop to think about it		2
Understanding Innovation		44
quality improvement		50
links to research		15
Strategy		16

VI. Sli.do poll Word clouds

Wordcloud poll

In one word describe what innovation means to you?

092



Appendix 5 Ontological and epistemological frame

A case study has no prescribed philosophical position; different seminal authors adopt differing stances (Harrison, et al. 2017). There are long established differences between research philosophies, with purists fundamentally disagreeing on many underpinning principles, thus the particular perspective of a researcher must be articulated (Maxwell, et al. 2010). Positivism is popular in the natural sciences and embraces experiment; individual concepts singled out as variables, manipulated and controlled, developed into predictive models, which establish laws (Thomas, 2016). In complex social systems however, experiments may not be ethical or even feasible (Carolan, et al. 2015). In social sciences the alternative world view of the interpretivists acknowledges the complexity of the social world, where human actors and their behaviour are unpredictable, interacting with each other in a unique social environment, in a time-bound context that must be interpreted subjectively by the researcher (Burke, et al. 2004). If one believes that an ontological position infers epistemological commitment, then quantitative methods are associated with positivism and qualitative methods, interpretivism (Maxwell, et al. 2010). Case studies, commonly accepted to utilise mixed-methods approaches, are therefore confounders. This methodological eclecticism requires a fundamentally different ontological perspective (Carolan, et al. 2015).

Some believe the case study to be a methodology in its own right (Yin, 2014); others believe it is a method that focuses on research choice (Stake, 1995). There is, however, agreement on the purpose of a case study; to explore the case in its wholeness, in depth, from multiple different perspectives, so as to create a unique understanding (Yin, 2014; Thomas, 2016; Stake, 1995; Carolan, et al. 2015). If this is coupled with an epistemological belief that in order to know and understand this moment in time, then philosophical arguments can be disregarded and

methods combined on the basis of their practical application, the philosophical concept of 'pragmatism' can be understood (Maxwell, et al. 2010).

Pragmatism is a popular stance from within mixed-methods research (Maxwell, et al. 2010) within case study methodology described as a philosophical bridge across the qualitative and quantitative epistemologies (Harrison, et al. 2017). Maxwell, et al. (2010) describes this bridge as 'realism', a philosophical perspective that Yin, (2014) identifies within his methodology, promoting the need for objectivity and methodological rigour in order that resultant theories can be generalisable. Although useful in the practical application of knowledge creation (Morgan, 2014), Easton (2010) reflects, that for the novice researcher this approach lacks justification for valid interpretation.

If the nature of reality is dynamic, constantly negotiated, based on what is known at any specific time point, then the nature of being is also transient (Morgan, 2014). Others agree with this, suggesting that pragmatism, which merely discounts philosophical differences, undervalues the role ontological positioning plays as the lens through which the research is conducted, suggesting value is increased through combining these world views (Maxwell, et al. 2010). In this perspective the position of the 'naïve' realist is contested as failing to recognise the role diversity plays within the social world (Maxwell, et al. 2010). The concept of diversity is important to both the complex healthcare context and innovation (Greenhalgh, et al. 2005) and is therefore an important construct in this research. If diversity is accepted, then knowledge must be partial, incomplete, and fallible, if new understandings are to emerge, an interpretative approach is required (Maxwell, et al. 2010).

Critical realism is an ontological approach originating from the philosophical arguments presented by Bhaskar (1978) which, while retaining the ontological perspective of realism, also accepts an epistemology of interpretivism (Maxwell, et al. 2010). The critical realist believes the world is 'theory-laden', but not 'theory-determined' (Fletcher, 2016); where a 'real' domain generates patterns of events, these events may or may not be observed in the 'actual' domain, whilst in the 'empirical' domain events can be studied (Tsang, 2014). Theoretical inferences from the empirical to the real domains can be made through retrodution, thus getting close to reality and identifying causal mechanisms of social phenomena (Fletcher, 2016).

This research acknowledged both the complex world of the NHS ecosystems and diversity as a real phenomenon; in addition, innovation has been identified as having a lack of theoretical underpinning in this environment. If this research is to be useful, then empirical findings will need to be interpreted to create new theories regarding what might occur in the real domain. Although Yin's (2014) definition of case study is useful, his proposition of conducting the case study through the lens of the naïve realist is rejected, in favour of a critical realist approach, acknowledging the impact that this decision has on the conduct of the study, in particular the situation of the researcher.

Edgley, et al. (2016) explores the relationship between this researcher-self and new knowledge creation from within the paradigm of critical realism, articulating that from this perspective the researcher-self becomes a tool that can challenge the value of the current knowledge base, then through interpretation of literature and results in a recursive process, marshal ideas to create new theories to advance knowledge (Edgley, et al. 2016). Crowe, et al. (2011 p103) concur, identifying the 'critical' position as questioning previous held assumptions and

'interpretivists' position as understanding social meaning. This creativity process however, infers 'empirical messiness' with findings subjectively created by the researcher themselves, at the expense of objectivity (Gabb, et al. 2009), thus findings are always contestable (Edgley, et al. 2016). This conceptualisation is coterminous with the belief stated, that the world is theory-laden, where empirical observation of the actual domain allows inferences to be made in the real world (Fletcher, 2016) and embraced within this research.