The Technician Commitment:
its emergence, enactment and impact

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"Nobody can make you feel inferior without your consent."

Eleanor Roosevelt

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Abstract

Technicians, who are often referred to as an 'invisible workforce', are key to research and teaching in universities. Given that a thriving technical workforce is critical to achieving the UK government's post-Brexit ambitions for research and development, including making Britain a science superpower, the UK higher education sector needs improved knowledge and insight of its technical workforce. Historically, roles have been ill-defined and technicians' contributions to the sector have not been well understood. Furthermore, an aging technical workforce means that large numbers of highly-skilled technicians are retiring every year with insufficient attention being paid to attracting a new generation of technicians to the sector. Consequently, recent reports have highlighted a shortage of technicians across all sectors in the UK.

This thesis arises from a sustained programme of research, advocacy and national change leadership in support of the technician workforce in universities. In particular, the thesis explores the emergence, enactment and impact of a sector-wide intervention to improve the culture and environment for technicians working in UK higher education and research – the 'Technician Commitment'. The Commitment was introduced and widely adopted in 2017 with the aims of enhancing visibility, recognition, career development and sustainability for technicians, technologists and skills specialists working in higher education and research. It was hoped that this in turn would help to improve recruitment and retention of younger technicians. I was centrally involved in the genesis, development and launch of this initiative and this thesis offers unique insights into how such initiatives work, reflects on the advantages and disadvantages of being an insider researcher, and considers the challenges of aligning research and practice.

This study syntheses the literatures on technicians working in higher education. It begins with an analysis of literatures that examine technician roles in the history of science, proceeding to the developments in universities through the late 20th century, and then to current trends in an ever changing higher education landscape. The review explores both the international and national literatures on technicians working in higher education and the recent wider sector focus on improving research cultures.

An important contribution of the thesis is an autoethnographic exploration of the events and experiences that led to the emergence of the Technician Commitment. This account draws on years of personal records, reflective journals and research notebooks maintained through my doctoral journal, which itself coincided with the timeframe of the Commitment. The remainder of the research design is based on a series of in-depth semi-structured interviews in seven institutions implementing the Commitment, selected because of their different starting points, position in the sector and approach to implementation. The interviews explore the lived experiences of the Technician Commitment leads who are quite differently positioned, supported and empowered in their organisations.

The thesis examines the positioning of technicians within universities prior to the introduction of the Technician Commitment and explores the institutional motivations for engagement. The research explores the initial impact of the Commitment and analyses how various enabling factors and practices have led to some positive change for the technical community. My professional and scholarly work is rooted in pragmatist ontological traditions that do not align strongly with a particular philosophical tradition and understanding of reality. Therefore my approach to this research analysis is inspired by the principles of grounded theory, in particular constructivist grounded theory (CGT).

The thesis culminates in a novel conceptual framework for understanding the implementation of the Commitment. This framework resonates with theory of change models that have becoming increasingly common in the design and evaluation of large scale organisational and system change over recent years. Although the Technician Commitment intervention was not designed on the basis of a theory of change, I have come to understand that this approach is particularly relevant and so use my conceptual framework to develop a logic model.

The thesis concludes by identifying issues for future research and policymaking, and also draws parallels between the Technician Commitment and other UK higher education sector initiatives that are attempting to drive positive change, such as the UK Concordat to Support the Career Development of Researchers and the Athena Swan and Race Equality Charters. I consider how the analytical framework could be

used more widely to explain how institutions experience and enact such sector wide concordats, charters and commitments, and to demonstrate some of the key drivers and enablers for influencing change in higher education institutions.

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Glossary of terms

Athena SWAN	A charter used to support and transform gender equality within higher education and research
BBSRC	Biotechnology and Biological Sciences Research Council
BERA	British Educational Research Association
BSc (Hons)	Bachelor of Science degree with honours
CGT	Constructivist Grounded Theory
CSci	Chartered Scientist
DORA	Declaration on Research Assessment
EDI	Equality, Diversity and Inclusion
EPSRC	Engineering and Physical Sciences Research Council
HE	Higher Education
HEA Fellowship	Higher Education Academy Fellowship
HEaTED	Higher Education and Technician Educational Development – a training organisation for technicians in UK higher education
HEFCE	Higher Education Funding Council for England
HEI(s)	Higher Education Institution(s)
HESA	Higher Education Statistics Agency
IT	Information Technology
MA	Master of Arts degree

Midlands Innovation	A collaboration between the eight research intensive universities in the Midlands
NIHR	National Institute for Health Research
NSS	National Student Survey
PhD	Doctor of Philosophy
Post '92	A former polytechnic institution in the UK that gained university status through the Further and Higher Education Act 1992, or an institution that has been granted university status since 1992 without receiving a royal charter.
R&D	Research and Development
REF	Research Excellence Framework
RSci	Registered Scientist
RSciTech	Registered Science Technician
Russell Group	A group representing 24 UK research intensive universities
STEMM	Science, Technology, Engineering, Mathematics and Medicine
SOC	Standard Occupational Classification
TALENT	A Research England funded research programme to advance status and opportunity for the technical community in UK higher education and research
UK	United Kingdom
UUK	Universities UK

Chapter 1: Introducing the research

1.1 Introduction

> "Science and technology are, perhaps more than ever, transforming people's lives"
>
> Sir Patrick Vallance FRS FMedSci FRCP (Vallance 2022)

The coronavirus pandemic has brought science and technology to the fore like never before. This is a clear priority area for the current government who have ambitions for the UK to be a "global science superpower" and plan to increase investment in research and development (R&D) to 2.4% of GDP (Johnson 2021). There is a strong desire to further "develop the UK's science capability and to invest in critical and emerging technologies" (ibid.).

Frequently in our sector we talk about emerging technologies and the 'shiny kit' we need to drive innovation, but rarely do we consider the people, the expert technical skills, roles and careers required to enable the use of these technologies. It is crucial that we consider the technical capability required to fulfil the government's ambition to increase investment in R&D. The UK can only be a science superpower if we effectively understand and then invest in the technical talent, expertise and know-how to meet this ambition.

Technical expertise is critical to the success of UK research, innovation and higher education, and in turn vital to the growth of the UK economy. Technical colleagues across our sector underpin the primary activities of universities and research institutes, providing the technical excellence to underpin research, teaching, knowledge exchange and innovation. Many technicians are researchers and teachers in their own right, teaching and training students at every level. Despite their vital role, the technical community has frequently been described as an "invisible workforce" (Shapin 1989) and is a relatively understudied occupational group in higher education and research, both here in the UK and globally. As a consequence, the UK higher education and research sector lacks an effective understanding of the

technical workforce – roles are ill-defined, and little is known about future technical skills requirements.

This research focuses on the technical community working in the higher education sector in the United Kingdom. Current data, whilst limited, suggests that there are over 30,000 technicians working in universities in the United Kingdom, across a wide range of subject disciplines to encompass medicine, science, engineering and the arts (Midlands Innovation 2022). The technical community has a vast range of job titles – technicians, skills specialists, technologists, experimental officers, laboratory managers to name a few. They are normally classified by human resource departments as 'support staff', in post to support the research and teaching work of academic members of staff and the learning of students in higher education. They are not typically regarded as university teachers or researchers (Lewis and Gospel 2011) and, despite the crucial nature of their contributions (Royal Society 1998, Smith, Adams et al. 2004, Lewis and Gospel 2011), technicians wrestle with a lack of status in comparison with academic colleagues (Vere and Murphy 2012).

The United Kingdom faces an identified shortage of technicians across all industries and sectors. This poses a serious threat to the country's global competitiveness. Indeed, some estimates suggest that as many as 700,000 more technicians are needed in the next decade in the United Kingdom to keep up with demand across industry (Gatsby Foundation 2016) and proposed reforms in technical education in England aim to address this shortage of technical talent (Sainsbury, Blagden et al. 2016).

In this chapter I describe who technicians are and the roles and duties they undertake before explaining my entry into the technical profession in order to position myself in this study. I then introduce work that is underway in the higher education sector to improve visibility, recognition, development and sustainability of technical roles. After this I describe the focus for my research and finally, I outline the structure of the remainder of this thesis.

1.2 Who are technicians?

Technicians in universities have a variety of job titles and descriptions and range from entry level apprentice or junior technician to internationally renowned specialised technical experts or senior strategic managers. Technicians are based in a

variety of subject disciplines including science, medicine, engineering and arts. Technical roles have a wide range of responsibilities depending on the individual technician's role. Their duties may involve carrying out experiments, analysing data, assisting in teaching practical classes, designing new pieces of equipment, managing staff, taking responsibility for apparatus and managing health and safety requirements for their area of work.

There is no such thing as a 'typical' technician with many technical members of staff working in highly specialised areas. There are several different types of technician working in higher education including, for example: research technicians, who provide technical support to specific research projects; teaching technicians, who support teaching activities (i.e. through technical support in practical classes), and service technicians, who may be part of a central facility providing specialised services. Whilst it may be simple to classify technicians into their respective categories it is important to note that many technicians have mixed roles and that cross over between their activities does occur. For example, the research technician may supervise postgraduate and undergraduate project students in the laboratory or workshop and the teaching technician may spend time in research areas outside of term time (Lewis and Gospel 2011).

Given the breadth and depth of technical roles in universities, it is challenging to define the term technician in the context of higher education and research. An added complication is that technical roles do not always include the term 'technician' in their job title or description. There have been a number of suggested definitions for the technical community. Common to them all is an emphasis on practical skills, knowledge and experience:

> "A person who is skilled in the use of particular techniques and procedures to solve practical problems, often in ways that require considerable ingenuity and creativity. Technicians typically work with complex instruments and equipment, and require specialised training, as well as considerable practical experience, in order to do their job effectively."

Barley and Orr (1997): 12-15; OECD (2002): 92-94; Technician
Council (2011) as cited in Lewis and Gospel (2011)

"A person who is trained and/or skilled in the techniques, tools and
technology of their subject, who provides the practical application of
knowledge, including hands-on support in directly contributing to
teaching and learning, research and enterprise activities."

(HEaTED https://heated.org.uk/technician-definition-suggestion/)

In 2018, Research Councils UK (now UK Research & Innovation (UKRI)) provided
the following definition of 'technology/skills specialists':

"Technology/skills specialists maintain and develop new and improved
approaches to implement technologies and methodologies to better
address research questions. Technology/skills specialists have specialist
knowledge and expertise and they often work as part of coordinated
teams spanning different disciplines and geographical centres, which
work together to tackle contemporary research questions. May include,
but not limited to: data scientists, data engineers, archivists,
informaticians, statisticians, software developers, audio-visual
technologists, technical professional staff and individuals staffing core
facilities, across all disciplines."

Research Councils UK (2018)

This definition conveys the range of disciplines and roles that make up the technical
community in research. However, technicians also make considerable contributions
to the education and training of students and staff across higher education and
research. Alongside this, technical staff are also involved in health and safety,
sustainability, maintenance, infrastructure, people management and much more.

There are varying routes to becoming a university technician. In the past, technicians
tended to be recruited at school leaver age onto trainee schemes or apprenticeships.
On the job training was provided along with the opportunity to gain an academic or
vocational qualification on a day release scheme with a local college. The number of

employees recruited on these types of schemes has, however, declined with many universities no longer offering this traditional route into technical roles (Hooper 1983, Royal Society 1998, Smith, Adams et al. 2004). Aside from cuts in funding, one possible explanation for this is that universities, which had invested time and resources into training individuals, found that once qualified, some technicians left to pursue a career in industry, perhaps because of the better earnings on offer (Lewis and Gospel 2011). Nowadays, the majority of technicians are recruited from industry, from other university departments or are recent graduates fresh from university (ibid). This is perhaps unsurprising given the increasing numbers of school leavers attending universities.

1.2.3 Size and composition of technician workforce in UK higher education

There is limited data on the number of technicians working in UK higher education, in part because the definition of a technician is contested and varies across institutions, and because higher education institutions 'code' their technicians in staff data in different ways. This makes determining the number of technical staff in UK universities challenging. A report considering equality, diversity and inclusion in the technician workforce, published in 2019, explored the size and composition of the technician workforce through secondary analysis of Higher Education Statistics Agency (HESA) data (University of Nottingham 2019). Utilising Standard Occupational Classification (SOC) codes to identify technician roles, this work provided an insight into the profile of the technical community working in UK universities including age, mode of working, sex, ethnicity, disability, career level and subject discipline.

The analysis focused on five SOC codes; 311: Science and Engineering Technicians; 312: Architectural Technicians; 321: Medical Technicians; 355: Environmental Technicians and 613: Animal Technicians. It did not include staff categorised as SOC code 313 (Information Technology Technicians).

SOC code analysis showed there to be 14,375 Full Time Equivalent (FTE: the equivalent of a standard full-time, full-year employment contract), 'technician' roles in UK universities in the academic year 2017/18. The majority of technicians working in UK HE are male (58%) but when examining specific subject disciplines,

equality, diversity and inclusion challenges become apparent, for example, in both Physics and Engineering, only 11% of technicians are female.

Medicine, Dentistry and Health, Biosciences and Engineering are the three largest subject disciplines where technicians are employed in UK HE with 59% of technicians working in these subject areas.

30% of all technicians are over 51 years of age and the largest proportion of male technicians are over the age of 56. This reflects reports that the technical community is aging leading to large numbers of highly skilled technicians retiring every year, taking their knowledge and experience with them (Lewis and Gospel 2011). 11.4% of technicians are under the age of 25. This demonstrates that there is more work to be done by the sector to ensure appropriate succession planning to ensure retention of technical skills. This is particularly prevalent in Physics and Engineering where 45% of technicians are over the age of 51.

The data shows that 84% of technicians are white. It is likely that the number of technicians who are of white ethnicity is larger given the proportion of unknown information.

10% of technicians are Black, Asian and Minority Ethnic. When analysed by age group, the same proportion of those under the age of 25 are Black, Asian and Minority Ethnic, suggesting limited or non- effective measures are underway to increase diversity in recruitment.

The lack of diversity in the technical workforce in UK higher education presents a significant challenge, and also a significant opportunity. Reports cite a need for greater numbers of technicians across Science, Technology, Engineering and Mathematics (STEM) in the UK across all sectors (Lewis and Gospel 2011, Gatsby Foundation 2016,). Recruiting from diverse communities presents an opportunity to grow the UK's technician community and enhance the skills base (University of Nottingham 2019).

The work to identify technician roles in UK universities was continued and advanced by the TALENT Commission (Midlands Innovation 2022). The range of SOC codes utilised to identify technicians was expanded to include 313: Information Technology Technicians; 342: Design Occupations; 522: Metal Machining, Fitting and Instrument Making Trades; 544: Other Skilled Trades; 542: Printing Trades; 521: Metal Forming, Welding and Related Trades and 541: Textiles and Garments Trades. This analysis showed that the 2018/19 technical workforce comprised of 22,925 FTE which was made up of 35,410 individual contracts and part-contracts held by part- and full-time staff who worked as technicians for at least part of that academic year. Patterns in age profile, ethnicity, sex and subject discipline aligned with the work of the 2019 equality, diversity and inclusion report. Further information on the characteristics of the UK higher education technician workforce identified by the TALENT Commission, including regional distribution, nationality, salary and employment type, can be found via their report (Midlands Innovation 2022).

1.3 Situating the self and motivation for the study

In 1999, I was 18 years old, fresh out of A-levels and looking for a job that would fund higher education in a new era of tuition fees and the replacement of maintenance grants with loans for student living expenses following the implementation of the Teaching and Higher Education Act in 1998. Whilst I was determined to further my education in the belief that I needed to obtain a degree to secure a 'good job', I would be a first-generation student with no-one in my family having attended university beforehand. The university world was an unfamiliar one and acquiring a role that would fund higher education felt like a safer option. I set about searching for jobs that would offer me support and funding to work towards a degree whilst concurrently gaining work experience. This led me to an advertisement in the local paper for a Junior Medical Technician at the University of Nottingham in the Division of Immunology. Having not taken A-levels in the traditional sciences this role was something of a mystery to me. I did not know what a university technician did but crucially the job offered funding to advance the successful applicant's education. To my surprise, I was shortlisted and then offered the job and in November 1999 I began my career as the Division of Immunology's new Junior Medical Technician.

In those first few months there was a lot to learn, but I vividly remember being struck by something in particular. The senior technician in the laboratory was the font of all knowledge. Everybody went to her for everything – whether they were a professor, undergraduate student, post-doctoral researcher or a junior medical technician. She appeared to know everything, every technique, protocol, piece of equipment, risk assessment, order number, chemical molecular weight etc. It was clear that without her the whole research environment would fall apart. I had never heard of the roles of technicians in universities before. Until working in one I, like many others, had naively presumed universities to be full of students and professors alone. Moreover, whilst my senior technician colleague was well respected in the immediate research group, when I began to look beyond the initial group and department and to the wider faculty, university and indeed the higher education sector as a whole, it was clear that technicians were pretty much an invisible community, both inside and outside the sector. I found this concerning. How could a group of people so essential to research and teaching in universities experience such a lack of visibility and recognition? I came to the view that there was a clear need for collective action across the sector to improve the status and profile of technicians and to ensure the sustainability of the technical workforce in academia and research. These early experiences, which I reflect on further in chapter 4, led me on a professional journey of advocation for the skills, roles and careers of technicians across the sector where I have made a number of contributions. These include the publication of several sector reports on the technical community and successful grant applications for research funding to further progress the working environment and culture for technicians. These activities, coupled with government activity in this area are summarised in Figure A. One of the most significant of these interventions was in 2017 when I created a new higher education sector wide initiative called the Technician Commitment.

2012

Publish first article on technicians in higher education following research from Masters dissertation.

2013

Commence EdD – taught element

2015

Establish the biennial UK Higher Education Technicians Summit (HETS) and Papin Prizes which recognise technical excellence in academia

2016

Commence EdD – research phase

Begin part time secondment with the Science Council.

2017

Technician Commitment

Establish the Technician Commitment. It launches with 36 founding signatory institutions.

2018

Publish sector report:

Technician Commitment: One Year In

2019

Publish sector reports:

Technicians: Providing frontline and vital support for student health and wellbeing.

Equality, Diversity & Inclusion: A Technician Lens.

2020

Awarded Research England funding for TALENT – a £5M programme to advance status and opportunity for the technical community in UK higher education and research

Publish sector report: COVID-19: The Impact on Technicians in UK Higher Education & Research.

The government's UK Research and Development Roadmap launches, setting out the UK's vision and ambition for science, research and innovation (references Technician Commitment).

2021

Publish sector reports:

Equality, Diversity and Inclusion: UK Technicians' Experiences During the Covid-19 Pandemic.

Funding Technical Staff in Research

The Role of Technicians in Knowledge Exchange: An explorative study

Technician Commitment: Progress and Impact

UKRI publish their Technician Commitment Action Plan

The government launch its R&D People and Culture Strategy, a vision and call to action to ensure people are recognised as being at the core of R&D.

2022

Publish sector report:

The TALENT Commission

Figure A: A timeline of my doctoral journey and professional practice

1.4 The Technician Commitment

In 2017, with support from the Science Council and the Gatsby Foundation, I launched the Technician Commitment (Gatsby Charitable Foundation 2017). The Technician Commitment is a university and research institute initiative, led by a steering board of sector bodies. It aims to ensure visibility, recognition, career development and sustainability for technicians, technologists and skills specialists working in higher education and research, across all disciplines. Universities and research institutes are invited to become signatories of the Technician Commitment and pledge action against the key challenges affecting their technical staff.

The Technician Commitment has four key themes that aim to help universities and research institutes initiate and drive positive practice to ensure that their technical communities experience increased *visibility*; *recognition*; *career development* and *sustainability*. A fifth theme, *evaluating impact*, takes the form of an institutional self-assessment and action plan; an evaluator process co-created with the sector to ensure that signatory institutions can drive and monitor progress against each of the key themes (Technician Commitment 2018). Signatory institutions nominate a lead to take the Commitment forward on behalf of the institution and are supported with a dedicated online resource and national events where they can share experiences and best practice.

Two fundamental aspects of the Technician Commitment are the requirement for sign-off by institutional leadership, to encourage senior level endorsement and full organisational support, and the nomination of the institutional lead. Historically, perhaps due to the diverse nature of their skills and the depth and breadth of the technician community, a technical lead rarely existed at an institutional level. In order to drive change and build a national community of practice in this area, the nomination of an institutional lead by each signatory was seen to be key (Technician Commitment 2018). In March 2022, the Technician Commitment stood at 96 signatory institutions (Table A).

Anglia Ruskin University	Aston University	Babraham Institute	Belfast Metropolitan College	Brunel University	Buckinghamshire New University
Canterbury Christchurch University	Cardiff Metropolitan University	Cardiff University	Coventry University	Cranfield University	De Montfort University
Durham University	Falmouth University	Francis Crick Institute	Harper Adams University	Health Data Research UK	Heriot-Watt University
Imperial College London	Institute of Cancer Research	John Innes Centre	Keele University	King's College London	Lancaster University
Liverpool John Moores University	Liverpool School of Tropical Medicine	London South Bank University	Loughborough University	Manchester Metropolitan University	Medical Research Council Laboratory of Medical Science (MRC LMS)
Middlesex University	MRC Harwell Institute	Newcastle University	Northumbria University	Nottingham Trent University	Open University
Oxford Brookes University	Queen Mary University London	Queen's University Belfast	Royal Holloway, University of London	Science and Technology Facilities Council (STFC)	Sheffield Hallam University
Staffordshire University	Swansea University	The James Hutton Institute	The Sainsbury Laboratory	UK Research and Innovation (UKRI)	Ulster University
University College Birmingham	University College London (UCL)	University for the Creative Arts (UCA)	University of Aberdeen	University of Bath	University of Birmingham
University of Bradford	University of Brighton	University of Bristol	University of Cambridge	University of Central Lancashire (UCLan)	University of Chester
University of Derby	University of Dundee	University of East Anglia	University of Edinburgh	University of Essex	University of Exeter
University of Glasgow	University of Greenwich	University of Hertfordshire	University of Huddersfield	University of Hull	University of Kent
University of Leeds	University of Leicester	University of Lincoln	University of Liverpool	University of Manchester	University of Nottingham
University of Oxford	University of Plymouth	University of Reading	University of Roehampton	University of Salford	University of Sheffield
University of Southampton	University of St Andrews	University of Stirling	University of Strathclyde	University of Surrey	University of Sussex
University of the West of England [UWE]	University of Warwick	University of York	Wellcome Trust Sanger Institute	Writtle University College	York St John University

Table A: Technician Commitment Signatory Institutions as of March 2022

1.5 Researching technicians and the Technician Commitment

While research has been undertaken on the roles of academic, administrative and managerial staff in higher education, there is a distinct lack of research on the roles of technical staff working in universities and research institutes: "A detailed review confirmed that literature on technicians' work and roles is extremely sparse" (Smith, Adams et al. 2004, p79). Although that work was published nearly twenty years ago, little has changed.

The technical role in today's universities is not fully understood, both within and beyond the academy, and I began this EdD programme with the intention of addressing the paucity of literature and limited sector understanding of technicians and their contributions. Originally, back in 2016, I set out with a number of research ideas for my study but then the Technician Commitment came into being. This presented me with an opportunity to explore the positioning of technicians in universities, both before the introduction of a national change initiative (the Technician Commitment), and afterwards. Through interviews with Technician Commitment leads at seven individual institutions, I explore the enactment of the Technician Commitment and the perceived impact of the initiative on the positioning of technicians at that institution.

This research explores the following research questions:

- RQ1: How were technicians 'positioned' in higher education organisations prior to the advent of the Technician Commitment?
- RQ2: What were the perceived motivations for signing the Technician Commitment and how do these differ across the sector?
- RQ3: How is the Technician Commitment perceived to be being enacted in institutions in their own contexts?
- RQ4: How is the Technician Commitment beginning to make an impact on technicians in universities and is this impacting the positioning of the technicians in higher education?

Given my background and role, I consider myself an insider researcher (Saidin 2016) and I discuss the strengths and limitations of this later in this thesis. Insider research within the technical community is unusual but allows me to get inside the complex

issues. To answer my questions I use the following methods (see chapter 3 for more details):

1) Autoethnographic enquiry to explore the events and experiences that led to the emergence, development and leadership of a sector wide intervention to change the culture and environment for technicians in UK higher education and research - the Technician Commitment.

2) Semi-structured interviews with Technician Commitment institutional leads are used to examine:
   a. the perceived positioning of technicians within universities prior to the introduction of the Technician Commitment
   b. the institutional motivations for engaging with the initiative
   c. the unfolding of how the Technician Commitment was enacted, including the identification and analysis of key enabling factors
   d. the perceived impact of the Technician Commitment and its influence on the positioning of technicians in academic work environments

These approaches lead to the proposal of a novel conceptual framework for the implementation of the Technician Commitment. This also is potentially useful for explaining how institutions experience and enact sector wide concordats, charters and commitments, and demonstrates the key drivers for influencing culture change in higher education institutions. It also contributes to a gap in the literature by providing the perspectives of individuals tasked with leading culture change interventions.

1.6 Thesis structure

This thesis is presented in nine chapters. Following this introduction, **(Chapter 1),** which articulates my positionality and research questions, I now describe the chapters that follow.

Chapter 2 provides the review of the literature. It discusses the history of technical roles in higher education, explores the international and national literature on technicians and examines the recent increase in more normative literatures pertaining to technical staff working in higher education and the recent wider sector focus on improving research culture.

Chapter 3 outlines the methodological approach of this study and discusses the reasoning behind the research design, methods and concepts chosen for this enquiry.

The findings are presented in chapters 4 to 7.

Chapter 4 presents an autoethnographic account/narration of my early experiences as a technician working in the higher education sector. These experiences are reflected upon and analysed to provide insight into the origins and development of a sector wide intervention to create a positive change in culture and environment for technicians.

In **Chapter 5** I explore the perceived positioning of technicians prior to the advent of the Technician Commitment in relation to academic staff, students and senior leaders within the institution. My analysis presents an emerging typology/spectrum of organisational belonging experienced by technical staff in universities.

Chapter 6 explores the institutional motivations for engaging with the Technician Commitment and explores how the initiative was enacted within the institution. My analysis identifies key motivators and enabling factors.

Chapter 7 examines the perceived impact of the Technician Commitment within institutions.

Chapter 8 draws together the evidence outlined in the findings chapters. I propose a novel conceptual framework that decodes how institutions experience and enact the Technician Commitment. I also explore theory of change and propose a retrospective logic model to aid further understanding and evaluation of the Technician Commitment as a change intervention.

Chapter 9 provides a conclusion to the study. Here I present the limitations of the study and identify potential areas for future research, particularly the proposed applicability of the framework proposed in chapter 8 to other sector wide concordats, charters and commitments, and demonstrate the key drivers for influencing culture change through these interventions in higher education institutions.

Chapter 2: Review of literatures

2.1 Introduction

In this chapter, I present an overview of the literature associated with technicians in university settings. I adopt a chronological approach and begin by looking at the origins and history of the technical role before examining literature on technicians in higher education both internationally and in the United Kingdom up to 2015. I then move to discuss a recent increase in normative literature on technicians in UK higher education from 2016 onwards, much of which is associated with, or led by the Technician Commitment initiative before considering literature on 'para-professionals' in UK higher education. I conclude by presenting the gaps in knowledge that justify the approach and focus of this research.

In order to identify publications on technicians in higher education a literature search was undertaken using the key words "technician", "university", "laboratory" and "higher education". With the exception of three empirical studies, some 'grey' literature and a handful of normative pieces there was little available on the technician specifically in the higher education setting; much of the (still limited) literature on technical staff is based on technicians working in industry in the United States and includes a number of theoretical and empirical studies. Historical papers on university technical staff are also somewhat scarce with three key pieces available to draw on to create a historical picture of technical work; two descriptive pieces and one empirical. The majority of technical staff in universities reside in the STEMM disciplines (science, technology, engineering, mathematics and medicine) and work in research and/or teaching support roles (Lewis and Gospel 2011). The search was therefore expanded to include the work of technicians in scientific research.

2.2 History of the technical role

In 1989, the sociologist Stephen Shapin identified technicians as an almost invisible part of the workforce (Shapin 1989). Shapin's paper was a historical analysis of the role of technical staff in the production of scientific knowledge and was largely based on the writings of Robert Boyle, the 17th century scientist famed for discovering "Boyle's Law" and attributed as one of the founding fathers of modern

chemistry. Shapin illuminates life in Boyle's laboratories and describes the range of support staff employed by Boyle (for example amanuenses, laborants, operators and artificers). Support staff in this setting were commonly known as "chemical assistants"; the terms "technician" and "scientist" did not come into common use until the 20th Century (Shapin 1989).

The 17th century "technician" is defined as a male servant who was "remuneratively engaged", dependant on the commands of his master and skilled in the operations he was paid to carry out. The twofold invisibility of Boyle's chemical assistants is discussed: they appear to be almost absent in Boyle's academic papers to the point where one might believe Boyle worked alone in his laboratories and, perhaps more crucially, they are absent from the literature on the sociology and history of science (Shapin 1989). An interesting observation is made regarding the pictorial representation of technical work; in drawings from the 17th century, technicians are either faceless or non-human (cherubs or *"puttis"*) (Shapin 1989). Shapin identifies a need for the work of technicians to be documented alongside a need to understand the significance of technical work and why they appear to be invisible to those that employed them.

The role of a technician in 17th century Britain appears to be at two extremes. At one extreme, technicians are described as being merely a source of physical energy – the kind of work that is regarded, both in the 17th century and possibly still today, as of little importance to the production of science knowledge as it is deemed that anyone could do it. At the other extreme, an example is given of a technician who designed, constructed and operated an instrument, designed a set of experiments to be undertaken and recorded and wrote up subsequent results for publication. Boyle was the author of the aforementioned work and Shapin discusses the ethics of this and concludes that, as Boyle had authority, he had authorship. There is no record that this was deemed unfair by any party. Boyle, with the authoritative power, defined the boundaries between laboratory skills and scientific knowledge. As servants, a technician's political integrity was compromised within the "community of science and [this] affected their credibility…servants might make machines work, but they might not make knowledge" (Shapin 1989 p562).

Coupled with this, 17th century science deemed manual work inferior to and removed from scientific philosophy and the subsequent production of science knowledge. Shapin moves on to contrast the work of modern day technical staff (late 1980s) to the work of technicians in the 1600s. He identifies links between the two in that they are both defined by the distinction between skill and knowledge: "if the distinct role of technician and scientist exist, it is the scientist who is in a position to define the nature, scope and meaning of technicians" (Shapin 1989 p562).

The modern day scientist is usually defined by their academic qualifications. Shapin draws on some literature (Hooper 1983, Roberts 1983) that comments on the rising numbers of technicians with PhDs and remarks on the blurring of lines between the technician and scientist as technicians increasingly gain academic knowledge alongside practical experience. He goes some way to offering an explanation for the invisibility of technical staff by discussing a cultural bias to think of scientific discoveries as individual endeavours and "flashes of insight" (i.e. *thought)* rather than the combined efforts of many (i.e. collective *work*). He concludes by warning that "the price of technicians' continued invisibility is an impoverished understanding of the nature of scientific practice" (Shapin 1989 p562).

Whilst Shapin gives a fascinating insight into life as a technician in the 17th century, it is important to note that this work is based on the writings of Boyle himself and not the accounts of those that worked for him. It would have been interesting to see varying accounts of technical work from a number of scientists to offer a more complete picture of the nature of technical work in this era.

The tensions between manual and mental knowledge and the value, or lack thereof, placed on differing contributions are clear and Shapin relates them to technicians in modern day science laboratories, suggesting that the technical contribution to science is still somewhat invisible today. It is, however, unclear as to where the author sought information on life as a modern day technician given the lack of literature in this area (with the exception of the normative pieces referenced). He laments the invisibility of the technician but does not appear to have himself engaged with scientific technical staff in order to offer them greater visibility, instead he takes an authoritative voice on their behalf which is a step towards visibility but effectively

still renders them invisible as the technicians' voice is absent and their stories are told through the eyes of Boyle and Shapin himself.

Tansey (2008) offers a detailed study of the careers of laboratory technicians in British medical research; mainly those who worked at the London based Medical Research Council's National Institute for Medical Research from 1913 to the mid-1960s (Tansey 2008). In contrast to Shapin's work, technicians are the main source of information with data obtained by oral history interviews. The author traces an evolvement of the technical role from before World War I, when "Lab Boys" were employed as personal laboratory servants, to post World War II when the term technician came into effect and "normal training courses and recognised qualifications were developed, and in some circumstances the technician became a collaborator and partner in research" (Tansey 2008 p78).

The distinction in status between scientist and technician is highlighted in the varying accounts discussed. These include that for many years technicians were required to wear brown lab coats to distinguish them from their scientific colleagues who wore white, and that technicians were not expected to go to the library. Tansey credits World War II with providing a wider acknowledgement of the importance of medical technical work and states that it was after the conflict that divisions between scientists and technicians started to break down with some technicians given permission to publish in their own right. The long term status of a technician in a laboratory is acknowledged; as researchers come and go, technicians provided stability which "maintained the very culture of the laboratory" (Tansey 2008 p78).

Tansey comments on the difficulties of tracing technicians through history and says that, although by the 1960s technicians were not completely invisible, there are still obstacles to overcome in terms of recording the experiences of technical staff. It is useful to note that this study is based on the experiences of technicians working at a single UK institution in the field of medicine and would not necessarily reflect the experiences of technical staff in other disciplines or organisations.

Whilst Shapin related his observations to the work of modern day technical staff, Tansey makes only a fleeting comment about how the modern day technician has further transformed, referencing two articles which at the time of publication were

25 years old (Hooper 1983, Roberts 1983). Further work of interest would be to relate the findings of this study to present day technical staff employed by the MRC in order to continue the story of how the technical role has evolved and the implications of this for British medical research.

Shapin (1989) and Tansey (2008) provide rich descriptions of the roles of technicians in British scientific and medical research from the 1600s up to the 1960s and a common theme between the two is the invisibility of technical work in these settings. Locating historical literature on the role of technicians specifically in a university setting is challenging. Whitehead (1952) provides what appears to be the earliest paper associated with technicians in higher education. Whitehead acknowledges the need for "skilled assistants" or technicians in both medicine and electrical engineering and describes them as "a man skilled in routine work not requiring the complete professional training of the doctor or electrical engineer" (p390). Universities are identified as having "special responsibilities" concerning technicians and Whitehead offers a review of the problems associated with technicians that universities face. He draws two conclusions; firstly, that the "educational problems" of a technician are the same across disciplines/professions, and secondly, that universities can learn from industry experience in training and managing young people.

The paper focused on medical laboratory technicians, perhaps not surprisingly given that the author was a reader in pathology. The trainee/apprentice schemes for these technicians are discussed in some detail and many comparisons are made between those technicians that work in universities and those that work in hospitals. For example, Whitehead observes that hospital technicians are more highly paid and are given complete training across a range of specialities whereas university technicians are usually trained to a high level of skill in one speciality but have to "learn the others the best they can". A number of recommendations are made to improve the training of university technical apprentices, including regional placements with other employers and the appointment of a pathologist to act as education officer for medical laboratory technician trainees. Whitehead also discusses the relevance of academic qualifications to technical staff and states that "since the essential qualification of a technician is practical skill, the taking of a degree would not

necessarily be an advantage" (Whitehead 1952 p393). Despite being based on technical staff three centuries later, this presents interesting parallels with Shapin's discussion on manual work being viewed as very distinct from academic theory or philosophy. Whitehead concludes by suggesting that the "importance of adequate technical assistance is still seriously underestimated" (p397), a point echoed by Shapin and Tansey in their respective papers.

Whitehead's paper claimed to discuss "Technicians and the Universities" and yet it focused more on the requirements of a specialised group of medical technicians in higher education at one institution. It seems a sweeping claim to suggest that the needs of medical laboratory technicians are the same for all other technicians working in universities; there is no evidence that staff were consulted from other disciplines, for example. Do the requirements of a technical role vary by discipline? Interestingly, there is no evidence or previous work referenced for the claims made other than the author's views and anecdotal experience, despite the piece being in a peer reviewed journal.

In sum, the work of Shapin, Tansey and Whitehead present a number of common themes concerning technicians in science and medicine, from the 17th to the 20th centuries. Invisibility, lack of recognition, and clear boundaries and hierarchies between technical "manual work" and academic "mental work" all feature. I now move on to discuss more recent literature specifically on technicians working in higher education and explore whether these themes are still apparent.

2.3 International literature on the role of technical staff in higher education

This section discusses the literature available on the role of technical staff in higher education internationally. There are two key international studies (Barley and Bechky 1994, Hong 2008) which examine the work of technicians in a university setting, however, research on technicians in different occupational groups is drawn on to identify common themes.

The technical role is an essential component of many industries (Whalley and Barley 1997) and the work of technicians increased significantly during the second half of

the 20th century (Smith, Adams et al. 2004). Data from the USA showed that professional and technical jobs were increasing more than all others and similar growth patterns were observed in the UK and Canada (Barley and Orr 1997). Towards the end of the 20th century, researchers argued that a proper appreciation of the role of technicians was essential to understanding the shifts in the post-industrial or service economy (Barley and Bechky 1994, Barley 1996, Barley and Orr 1997, Whalley and Barley 1997).

Technicians are a relatively understudied group and it is only since the end of the 20th century that sociologists have begun to look at the social origin, diversity and development of the technical role. The majority of this work was undertaken in the USA by the sociologist Barley and colleagues (Barley and Bechky 1994, Barley 1996, Zabusky and Barley 1996, Barley and Orr 1997, Whalley and Barley 1997). A number of different occupational groups of technicians were studied to include emergency medical technicians, engineering technicians, microcomputer support specialists and science technicians.

Whilst not focusing on technicians in a higher education setting *per se*, it was Barley who undertook the first research study associated with university technicians in 1994 (Barley and Bechky 1994). They proposed a concept for understanding technical work in a professional division of labour. Based on previous work, and following a workshop with academic colleagues, they proposed a model that categorised technical staff as "brokers" or "buffers" (Barley and Bechky 1994). The role of the "buffer" technician is to link empirical work to the "symbolic realm"; the theory or language used by the professional occupational groups they facilitate. University technicians provide a buffer between the empirical data required to inform the theories or concepts that rely on such information. The output of the technician is the input for other professions. A "broker" technician is a technician whose work is less relevant to other professions. Brokers are responsible for creating the environment that other occupations need for their work to proceed, an IT technician for example (Zabusky and Barley 1996).

The authors contextualised the model by undertaking a one year ethnographic study of the work of science technicians working in two differing science laboratories at an American university. They suggest that technicians possess a laboratory's contextual

knowledge and that technical staff are crucial in the production of scientific knowledge (Barley and Bechky 1994). Like Shapin (1989), they highlight that contextual knowledge carries less status than academic, formal knowledge and that technical staff regularly experience "status inconsistencies", as described by the technical staff in Tansey's study (Barley and Bechky 1994, Tansey 2008). The invisibility of the role of the technician is acknowledged and a further layer of invisibility is identified in that sociologists, when studying the production of scientific knowledge, have neglected to study the contribution of technicians to the advancement of science. The authors conclude that undervaluing contextual knowledge will create barriers, in the form of unnecessary academic credentials, to entering the areas of work where technicians are needed and "to which young people need to be lured" (Barley and Bechky 1994 p32).

Hong (2008) advances this work by applying Bourdieu's theory of the scientific field to the laboratory setting (Bourdieu 1977). Hong undertook a seven month study consisting of participant observation and semi-structured interviews of the group dynamics of technical staff working in a geoscience laboratory in a Chinese university. She introduces two competing categories of scientific capital: technological capital and theoretical capital and explores whether technological capital is less valued than theoretical capital in a specific scientific setting and which capital was given social authority. Whilst both were used by technical staff within the laboratory setting, theoretical capital was observed to be associated with scientific authority and experimental work was deemed to be manual work which was inferior to mental work. Hong concludes by calling for an improved recognition of the technicians' contribution but acknowledges that this would not necessarily change the "hierarchy of science capital" (Hong 2008).

Both studies have obvious limitations. For example, due to the research methodology employed, very small samples were used; both studies examined technicians at one institution in one discipline. Claims made regarding the status inconsistencies and invisibility may, although unlikely, be attributed to personal relationships within those settings. It is also problematic to presume that other technicians in other disciplines or other universities have the same experiences although studies in sectors beyond higher education cited above do highlight similar issues.

Interestingly, this research shows that theoretical knowledge is present in the work of higher education technicians, albeit unacknowledged. In comparison to accounts of earlier technical work where theory was deemed to be missing from the majority of technical work, (Whitehead 1952, Shapin 1989, Tansey 2008), in these studies it seems commonplace. Is this just in universities? Apparently not, as research shows that technicians in other sectors possess and use theoretical knowledge; for example, emergency medical technicians must be familiar with theories of disease to make diagnoses (Nelson 1997) and photocopier repair technicians must understand engineering schematics in order to repair malfunctioning equipment (Barley and Bechky 1994).

Today's scientific advances are regarded as the product of experimentation and yet the experimental work of the technician is often positioned as inferior, manual work (Whalley and Barley 1997) with many modern day technicians receiving little credit for their research contributions, despite their essential roles and possession of an increasing body of theoretical knowledge (Barley and Bechky 1994, Hong 2008).

This international literature suggests that the technical role, in universities and beyond, has evolved to begin blurring the distinctions between scientists and craftspersons. I now proceed to consider whether the same is true for technical staff in UK higher education.

2.4 UK literature on the role of technical staff in higher education

Literature associated with technical staff in UK higher education is mostly limited to 'grey' policy documents and reports, one research study and various pieces debating the roles of technicians in universities. Two key policy documents regarding technicians in universities were published by the Royal Society in 1998 and Evidence Ltd on behalf of HEFCE in 2004 (Royal Society 1998, Smith, Adams et al. 2004).

The Royal Society's 1998 report, "Technical and Research Support in the Modern Laboratory", was based on analysis of statistics available at the time, individual interviews across universities, Research Council institutes and other relevant organisations, and a workshop. Key points include an acknowledgement that technicians play a vital part in research teams and yet there is little focus on them

when it comes to research policy. It notes that technicians' roles have changed over the previous twenty years as has the mechanism for how technical support is provided and the report expresses concern over the substantial decline in the number of core technical support staff. The changes identified are due to pressure on levels of science base research funding, a move towards short-term project funding, an increase in student numbers along with pressures arising from the Research Assessment Exercise and an increase in the complexity of experimental methods (Royal Society 1998).

The report urges universities and Research Councils to ensure that continuity of technical skills is maintained and identifies several skills which it deems essential to university departments: specialised design and manual skills required to construct research equipment that is not commercially available; the advanced technical skills required to operate and maintain large items of equipment; knowledge of local set-ups; the ability to evaluate products and services; the skills required to provide effective laboratory management and safety. The authors acknowledge the increasing role that technicians make to teaching, which is an example of a blurring of academic and technical activities in UK higher education. They also recommend that a more integrated approach to career opportunities and training should be required in line with research staff to ensure that technical staff are "enabled to contribute fully to the research effort" (Royal Society 1998 p3). The report concludes that there should be no further reduction in technical support as any decline in the numbers of technical staff would be detrimental to the quality of UK research and teaching (Royal Society 1998).

The 2004 Evidence Ltd Report to HEFCE entitled "Highly Skilled Technicians in Higher Education" focuses on the way in which skilled technical work is organised and delivered in English universities (Smith, Adams et al. 2004). It also acknowledges the importance of highly skilled technical support to a university's research activities. The authors identify three models to describe technical staff in higher education. Model A is a process based role; it is research focused with some teaching responsibilities and requires the ability to relate theoretical knowledge to laboratory results. Role holders are identified as younger graduates on fixed term contracts. Model B is an equipment based role involving the design, modification,

development and operation of equipment. Role holders are identified as experienced and mature with vocational and academic qualifications and are also predominantly on fixed term contracts. Model C is a support role requiring less specialised knowledge and is predominantly a teaching or demonstration role with additional general laboratory support. Holders of model C roles are described as typically possessing vocational qualifications or experimental learning and are generally on permanent contracts (Smith, Adams et al. 2004). This report, like the Royal Society report, also recognises the lack of career opportunities available to technical staff in UK universities and acknowledges that the traditional trainee technician scheme is now redundant in many universities. Due to the increasing number of young people going to university, who might otherwise have taken up an apprentice role in a skilled craft, it is likely to be university graduates who are applying for junior technical posts and a lack of career structure in the technician role map will deter them. The report relates the problems of recruiting and retaining highly skilled technicians to other skilled workers in the UK economy whose positions are also held in low social esteem (for example the plumbing industry) and proposes that, in order to attract people to take up technical posts in universities "that provide the critical underpinning for the research process", a serious "overhaul in both career structures and employment attitudes" is required (Smith, Adams et al. 2004 p27).

Both of the above reports identify problems in the provision of professional development and career opportunities for university technicians. Problems with recruitment and retention are highlighted and attributed to the perceived low social status of technical staff as previously described.

The HEFCE commissioned report appears to be based on case studies yet the methodology is unclear. Describing technical staff as an overlooked staff group in higher education, it is not obvious if authors spoke to technical staff during the formation of the report. The staff interviewed included registry, finance, human resources and research grants personnel who arguably may not have a full understanding of the technical role. Whilst the research contribution of technicians was explored, the teaching contribution of technicians alluded to in previous studies was not.

The shortage of research on technical staff in general, and specifically in UK higher education, is cited as a primary factor underpinning a 2011 Gatsby Foundation commissioned study on the skills and training of university technicians led by the economist Paul Lewis (Lewis and Gospel 2011). Their study examined the tasks that university technicians undertake and how they are organised, the type and level of skills required to undertake these tasks and how universities set about fulfilling their need for suitably qualified and skilled technical staff. The methodology employed was an analysis of existing data and literature followed by a series of case studies of 18 universities consisting of semi-structured interviews with individuals. (14 of these universities were pre 1992 and four were post 1992). Four disciplines were covered (engineering, physics, chemistry and biosciences). Interviews were undertaken with academic staff, managers and technicians which were coded for themes (Lewis and Gospel 2011).

Six classifications of university technicians were identified: stores/infrastructure technicians, workshop technicians, analytical facilities technicians, research technicians, teaching technicians and technical officers. Following other studies, the authors note the lack of career opportunities and professional development available to technicians in universities and acknowledge that the invisibility of the role of the technician can lead to a neglect by academic institutions when future strategies and policies are being devised. A key recommendation is the development of a professional registration scheme to enhance the esteem in which the role of the technician is held by focussing attention on the high skills base that university technicians provide (Lewis and Gospel 2011). Arguably this report is the most comprehensive study of the work of technical staff in UK universities to date, yet limitations include that technical staff were not observed 'in action' and the majority of interviews were with academic staff or managers who could possibly present a different account of the realities of technical work in comparison to those 'on the ground'.

There are contested views around the extent to which technical staff contribute to teaching. There is evidence in the literature that technical staff teach students the practical skills required to become a scientist and that this training is an essential part of doctoral training (Pole 2000, Delamont and Atkinson 2001). Previous work

around staff in higher education presented evidence that technicians were increasingly involved in the teaching of theory alongside practical skills: "The technician role is increasingly growing to include the demonstration of concepts and theory and is ultimately moving towards an active teaching role, away from 'pure technician's role" (PA Consulting Group for HEFCE 2010 p29). Lewis and Gospel (2011) found little evidence to support this claim stating that, although technicians contribute to the education of university students, they lack either the knowledge or time to be able to teach students "concepts and theories" (Lewis and Gospel 2011).

The extent to which technical staff teach is an interesting example of the blurring of the academic and technical roles and the conflicts between a technician's 'mental' and 'manual' contribution to university activities. This is evidenced by debate in the literature (Hooper 1983, Roberts 1983, Vere and Murphy 2012, Vere 2013) with pieces varying from labelling a technician with a PhD "a qualified failure" (Roberts 1983) to technical staff arguing that today's technicians bring more than "trollies of equipment" to their institutions through rising teaching responsibilities and an increased contribution to cutting edge research (Hooper 1983, Vere and Murphy 2012, Vere 2013).

The literature suggests that the roles university technicians perform have diversified over the years to make an increasingly crucial contribution to a university's activities. It is also clear that the role of technicians in higher education is not fully understood with varying typologies on offer and limited opportunities for professional development and career pathways. Technicians experience invisibility and exclusion from opportunities available to their colleagues and there is deliberation over whether their contribution is based solely on their contextual knowledge or whether theoretical knowledge is an increased requirement for technicians in this sector.

2.5 Recent Literature

Over the last seven years more research has been published on the need for increased visibility, recognition and career development opportunities for technicians. This is mostly grey literature. In 2016, the UK Biotechnology and Biological Sciences Research Council (BBSRC) surveyed more than 800 technicians and laboratory assistants about their roles, careers and professional recognition (Ball, Hardwick et

al. 2016). Results demonstrated a blurring between technical and academic roles with 40% of respondents reporting that they taught students and 60% of them responding to say that they supervised students. BBSRC called for increased recognition of technical careers and signalled that they would work with Science Council to support technical career development. This is the first example of a UK Research Council engaging directly with the technical community in higher education and research. In a blog, the BBSRC's Chief Executive outlined the challenge that they had faced in identifying technical staff, given the diversity of roles across the sector (BBSRC 2016).

In 2017 a new sector wide initiative to support technicians across UK higher education and research was created. The Technician Commitment invited universities and research institutes to pledge to support their technical staff by advancing visibility, recognition, career development and sustainability and it launched with 36 founding signatory institutions (Elmes 2017, Gatsby Charitable Foundation 2017). By September 2017, it had hosted its first collaboration event and grown to 61 signatories (Technician Commitment 2018). A report, written by myself as lead of the Technician Commitment and published in 2018, charted the development of the initiative since its inception (Technician Commitment 2018). Featuring evidence from individuals and case study organisations across the sector, it discussed the impact of the initiative in its first year.

One of the areas that saw increased visibility was the role of technicians in teaching. In 2018, Advance HE published a blog that signalled inclusivity of technical staff in their HEA fellowship programme (Bradley 2018). HEA fellowship accredits the teaching practice of individuals and Advance HE noted the emergence of the Technician Commitment and how institutions were supporting professional recognition of the teaching of technical staff. This presented a shift in how universities were beginning to think about technical roles.

The Technician Commitment has published several collaborative sector reports since its inception on different aspects of the technician role in higher education and research. One of these examines the role technicians play in supporting student mental health and well-being, concluding that technicians play an active role in supporting students but that this is not always recognised and therefore technicians

do not receive appropriate training and development in this area (Technician Commitment et al 2019). A further report considers equality, diversity and inclusion in the technician workforce in UK higher education. Utilising secondary analysis of HESA data, the report presents an overview of the demographics of the technician workforce and argues that EDI data collection and intervention initiatives have focussed on the academic community in universities and that attention for the technical workforce is needed. It calls for greater awareness, further data collection and specific interventions to advance EDI challenges amongst the technical community, citing a lack of senior female technical leaders, an aging population of technicians and a lack of technicians from minority ethnic backgrounds (University of Nottingham 2019).

2020 saw the onset of the coronavirus pandemic and the Technician Commitment responded with a report that explored the role of technicians in the response to Covid-19. A survey of technicians across universities and research institutes across the UK showed the key, yet often under recognised roles that technicians undertook in the shutdown and reopening of campuses alongside the contributions technical staff made to the civic response to the pandemic, for example the national testing effort, the design and manufacture of ventilator parts and the making of hand sanitiser (Technician Commitment et al 2019). A further report utilised research interviews with technical staff to explore the impact of the pandemic on equality, diversity and inclusion for the technical workforce in universities. It argued that technicians needed to be considered in institutional EDI policies and made a number of recommendations to advance EDI in institutions (University of Nottingham 2021).

The need to be inclusive of technical staff in institutional policies was also the theme of a paper led by the University of Auckland in 2021. The two authors, leaders of technical and ICT services at the institution, argued that the contributions that technical staff make to research should be more transparent, quantified and built into workflow processes (McLaren and Dent 2021).

In 2021, the Technician Commitment worked with a Research England funded project, 'TALENT', based at the Midlands Innovation consortium of universities (Midlands Innovation 2020) to study the role of technicians in knowledge exchange. Through interviews with various stakeholders, the resulting report collated views

from technical and academic staff, and senior leaders across universities, research institutes and funders with case studies which demonstrated the influence that technicians' expertise, knowledge and capability has on knowledge exchange. It argued that the contributions that technical staff make to knowledge exchange were often hidden or implicit and called on institutions to make these contributions visible, recognised, and to offer development opportunities to ensure technical staff were equipped with the appropriate skills and training to maximise knowledge exchange potential (Midlands Innovation 2021). This lack of training and development aligned with the findings of a wider literature review of technicians in innovation across all sectors published in 2019 (Lewis 2019) which argued that industry was not doing enough to train the next generation of technicians for the very technologies it was creating, terming it a 'systems failure'.

The TALENT project, together with UKRI also examined the ways in which technical staff are funded in research, publishing a sector explainer report in 2021 (Midlands Innovation 2021). They recognised that institutions were inconsistent in how they costed research technicians on grants and that clear, transparent guidance was needed to ensure the future sustainability of technical roles in research.

July 2020 saw the publication of the UK government's Research and Development (R&D) Roadmap (BEIS 2020). The roadmap stated an aim to revitalise the UK's whole system of science, research and innovation to release its potential – to unlock and embrace talent, diversity, resilience and adaptability, and to tackle society's biggest challenges. It is inclusive of the technical community and states:

> "The technical workforce is essential to research and innovation – from contributing new knowledge and developing and maintaining equipment and vital national infrastructures, to training future researchers and innovators. Their role in research and innovation has been undervalued for too long, but this is beginning to change."
>
> (BEIS 2020, p21)

A key element of the R&D Roadmap is the People and Culture Strategy, published in July 2021 (BEIS 2021). The People and Culture Strategy has three overarching

areas for action: People, Culture and Talent. Its actions and planned activities are inclusive of technical staff.

UK Research and Innovation (UKRI) became a signatory of the Technician Commitment in 2020 and published their Technician Commitment action plan in February 2021 (UKRI 2021). Together with the launch of the government's R&D roadmap, and the action plan to support technicians from UK's largest funding body, this represented a shift in how technical staff working in higher education and research were considered in policy making and funder strategies. A further example of how funders were beginning to explore the roles of technicians was evident in a small scale study by Wellcome on the contributions of the technical workforce to research culture (Wellcome 2021). This drew on the work of the Technician Commitment and identified four challenges impacting the technical workforce; a) that the technician's role in research was not clearly defined, b) that the technical workforce is not routinely engaged in decision making in research funding nor acknowledged in research outputs, c) that there is a lack of diversity in the technical workforce and d) that career progression is unclear.

An independent evaluation of the Technician Commitment took place in 2021 (Technician Commitment 2021). Through surveys of the technician community and signatory institutions, analysis of institutional action plans and four case studies it showed that the initiative had stimulated positive progress in institutions against the key pillars of visibility and recognition and more limited progress against the key pillars of career development and sustainability. For example, more than 1 in 3 technicians surveyed agreed that they felt technicians were more visible internally at their institution and 1 in 3 technicians surveyed agreed that technicians were more recognised within their institutions because of the Technician Commitment. 1 in 5 technicians surveyed agreed that career development for technicians had improved within their institutions and 1 in 5 technicians agreed that sustainability of technical skills and expertise of technicians had improved within their institutions because of the Technician Commitment. The Technician Commitment recognised that progress and impact was evident but that there was still more work to be done (ibid).

In early 2022, the TALENT project published 'The TALENT Commission' (Vere 2021, Midlands Innovation 2022). The TALENT Commission was the outcome of

almost two years of research, stakeholder engagement and evidence gathering across the sector on the roles of technicians. Chaired by Professor Sir John Holman, the commission aimed to provide a strategic foundational understanding of the role of technicians in higher education and research. It set out a vision for the future of the UK's technical staff and included 16 overarching recommendations to guide the delivery of that vision. The Commission conducted the largest-ever national survey of technical staff in UK higher education and research, analysed a range of sector data and hosted focus groups, interviews and roundtable discussions with a range of stakeholders. Recommendations included a call to ensure that technical staff were considered strategically, both at a sector level and within individual institutions, for greater inclusion of technicians in decision making and for clear career progression pathways.

The reports outlined above demonstrate an increase in attention and study of the technical community in higher education and research. These reports have been accompanied by a number of articles and blogs to raise awareness of the varying roles and contributions of technicians in the sector, and to challenge perceptions. (Sams 2016, Ganderton 2018, McAllister 2019, Vere 2020, Dixon, Ali Salik et al. 2021, Vere 2021, Vere 2021).

A common thread through these reports and blogs, and the literature that came before it, are the boundaries between technicians and 'the academy,' the positioning of technical staff within the academy and the lack of visibility and recognition for technical skills, roles and careers in UK higher education and research.

The literature suggests that technicians have experienced an increase in the types of roles and responsibilities that they undertake which has resulted in a perceived blurring of lines between academic staff member and technician. Other occupational groups within higher education have experienced transitions such as this and the following section will explore the literature around the emergence of para-professionals or "third space" professionals within UK higher education.

2.6 Para-professionals in UK higher education

Having explained that the literature focused on technical staff in universities is limited, I want to now turn briefly to a more general discussion about the literature

on para-professionals. University activities are traditionally viewed in "binary terms: of an academic domain and an administrative or management domain that supports this" (Whitchurch 2008 p378). Perhaps unsurprisingly, the majority of research on staff and occupation groups within higher education focuses predominantly on academic teaching staff (e.g. Delamont 1996, Edwards 2001, Hockey and Allen-Collinson 2009) with groups traditionally referred to as 'support staff' having been "overlooked by academic analysis" (Hockey and Allen-Collinson 2009). In recent years, there has been increased research interest in the knowledge and practice of administrative and managerial staff groups in higher education, particularly the crossover of activities between the academic and administrative divide (Rhoades 1996, Rhoades 1998, Gornitzka and Larsen 2004, Gornitzka, Kyvik et al. 2005, Whitchurch 2006, Rhoades 2008, Whitchurch 2008, Hockey and Allen-Collinson 2009).

In his work on the academic profession, Rhoades (2008) recognises that in the past academic staff were seen as the only professional staff group at universities adding that nowadays "although they may not realise nor acknowledge it, professors are not the only professionals on campus" (p129). Over time, many of the occupational groups at universities have become professionalised and Rhoades cites staff in areas such as human resources, IT and student services as examples. These support staff are termed "managed professionals" and the author recognises that it is this group that bridges the gap between academics and management. The managed professional does not receive the same 'perks' as an academic staff member with restrictions on working hours, a lack of academic freedom and intellectual property rights and a review system managed by supervisors rather than colleagues but they are professional nonetheless (Rhoades 2008). University technicians are not included in the description of staff that make up the managed professional profile but it would seem that they fit the description through their contribution to building the bridge between academics and other groups such as students, research staff and managers.

Whitchurch described the "third space professional" in UK higher education following a study that examined the roles of professional staff in universities (Whitchurch 2008). The author has a professional services background in higher education and defines professional staff as individuals with management roles but

not academic contracts. The study consisted of two stages; stage one comprised interviews with 24 respondents across three universities (research intensive, green field and post 1992) and stage two was a set of interviews with professional managers who were performing quasi academic roles (i.e. managing research partnerships). Further data were obtained via interviews with staff at Australian and American universities. Findings revealed three categories of professional staff identity, those with either bounded, cross-boundary or unbounded characteristics (Whitchurch 2008). The author argues that, as higher education institutions have expanded and diversified in response to change, so in turn have their staff. An increased crossover between the academic and managerial/administrative domains has resulted in what is described as a "third space;" a territory that is emerging between the professional and academic domains. The third space is said to be inhabited by the less bounded professional and Whitchurch theorises that its existence may reconcile professional and academic agendas. The views of the individual participants in this study were used to categorise their own professional identities, not the views of their colleagues or managers. Another limitation is that the third space, as described in Whitchurch's study, only comprises of professional administrative or managerial staff despite the varying types of roles in higher education (for example, technicians, librarians, IT specialists etc.), although the author suggests that further third space professionals will emerge in time (Whitchurch 2008).

Savage (2018) suggests that technicians in arts based universities, who he argues play an active role in teaching are situated in this third space and inhabit a place that is in-between service and academic. Savage (2019) recognised the increasing teaching role of technical staff, particularly in the arts based subjects. He looked at how technicians, given their increasing teaching responsibilities were transitioning to academic careers. He describes a boundary of two disparate camps, academic and technical and aligned the roles of arts technicians who teach to the concept of third space as identified by Whitchurch (Whitchurch 2008, Savage 2018).

Distinctions between the "professional" and the "managed professional" have been made in other sectors. The term "paraprofessional" has been used to describe teachers, youth workers, and nurses. They are described as performing similar work

to those deemed to be professionals but without the equivalent power and status (Parsons 1954).

2.7 Summary

There is limited literature on the roles of technical staff in UK higher education and research. A running theme throughout the literature is the concept of a boundary between technicians and academia, whether that be academic staff or senior leaders/the institution itself. This boundary takes many forms, for example, a boundary defined by the type of knowledge technicians are thought to possess or a boundary built on a lack of status attributed to technical roles. These boundaries have meant that technicians experience different positioning in comparison to their academic colleagues, often resulting in them experiencing lower levels of visibility and recognition.

The recent literature demonstrates that there have been efforts across the sector to recognise the importance of technicians and to increase visibility and opportunity for this staff group, thereby shifting its positioning. This has mainly taken the form of the Technician Commitment and related reports and research. Whilst the Technician Commitment itself had commissioned an independent review of its progress, and was able to demonstrate impact, there are no studies that examine why and how initiatives such as these are enacted in individual institutions.

Chapter 3: Research design and methods

3.1 Introduction

This chapter sets out the methodological approach to the research and the methods used. I explain the analytical approaches utilised and discuss the ethical considerations involved in the research. The challenges of being an insider researcher are discussed as is the evolution of the study alongside the changing national context in which I was working. Being an insider researcher is typical for professional doctorate candidates but this has presented me with particular challenges, not only in the way that my context has been changing quickly through my doctoral studies, but also due to my expanding leadership role in the very change process that I am seeking to research.

3.2 Research aims and questions

A professional doctorate takes a long time and much has changed since I started the programme, as I explained in Chapter 1. My original motivations for starting the doctorate remain, but since I completed the taught phase of the programme, some of my ambitions for the research itself have found a new outlet in the form of the Technician Commitment. The Technician Commitment has also provided me with a new object of study, albeit one that I have been closely involved with. As a result, my research plan has developed through various twists and turns, for example when parts of what I had planned for my doctorate (e.g. secondary data analysis) were reported in national reports relating to the emerging Technician Commitment agenda. In a sense, the research presented in this thesis is only part of the research and impact plan I started with all of those years ago. Making sense of these entangled professional and scholarly processes has regularly baffled me, and so the first aim of the study (see below) focuses on making sense of this. It is also a theme that I return to at the end of the thesis.

As explained above, the sector-wide Technician Commitment was established in 2017. Between 2017 and 2019, the Commitment grew from thirty-six original signatory institutions to eighty-eight institutions across the UK higher education sector. As a leading figure in this development process I was concerned, from a professional perspective, that it achieved its objectives and I remain an enthusiastic

advocate for the initiative. However, as a scholar, the Technician Commitment raises a slightly different set of questions and so this research allows me to dig into the process in a more analytical, critical way.

The research has a chronological set of aims in which I set out to understand:

- how my personal experiences influenced the emergence and creation of the Technician Commitment;
- the culture and environment in universities for technical staff before the advent of the Technician Commitment initiative;
- institutions' motivations to sign the Technician Commitment and how it was enacted;
- the initial impact of the Technician Commitment and the cultural and operational factors that enable progress.

I took a broadly pragmatic approach to the research as this reflected the nature of the wider professional change project, the initial research design and my own epistemological stance. Organisations enact policy and change processes in different ways depending upon the particular circumstances, mission, history, culture and people. In order to dig into these differences, my initial plan was to develop institutional case studies but, as I explain later in this chapter, disentangling the EdD research from the Technician Commitment initiative was not easy and so in the end the qualitative analysis was based on in-depth interviews and autoethnographic enquiry.

My original plan had been to provide a macro, meso and micro level analysis of each institution through secondary analysis of HESA data (macro), content analysis of their institutional Technician Commitment action plans (meso) and individual interviews with the institutional Technician Commitment lead (micro). This would have formed an institutional case study which I could then compare and contrast with others across the sector. As explained later in this chapter, as my EdD research progressed, my professional context provided an opportunity to initiate and subsequently publish the macro and meso aspects of my planned work, which is why I came to reject the planned case study approach. My insider researcher status, and my unusual position of being present at the genesis of what came to be a sector

adopted concordat, provided an opportunity to take an autoethnographic approach to complement in depth interviews with Technician Commitment leads to learn about the emergence, enactment and impact of the Technician Commitment initiative. My original plan had been to provide a macro, meso and micro level analysis of each institution through secondary analysis of HESA data (macro), content analysis of their institutional Technician Commitment action plans (meso) and individual interviews with the institutional Technician Commitment lead (micro). This would have formed an institutional case study which I could then compare and contrast with others across the sector. As explained later in this chapter, as my EdD research progressed, my professional context provided an opportunity to initiate and subsequently publish the macro and meso aspects of my planned work, which is why I came to reject the planned case study approach. My insider researcher status, and my unusual position of being present at the genesis of what came to be a sector adopted concordat, provided an opportunity to take an autoethnographic approach to complement in depth interviews with Technician Commitment leads to learn about the emergence, enactment and impact of the Technician Commitment initiative.

The study set out to answer the following research questions (RQs):

- RQ1: How were technicians 'positioned' in higher education organisations prior to the advent of the Technician Commitment?
- RQ2: What were the motivations for signing the Technician Commitment and how do these differ across the sector?
- RQ3: How was the Technician Commitment enacted in different universities?
- RQ4: How did the Technician Commitment begin to impact on technicians in these universities and more generally in higher education?

Whilst the general 'needs and wants' for my research have not changed, the object of the research – the Technician Commitment – has changed considerably during my doctoral studies and my methodological approach has needed to evolve accordingly. This responsive design has strengths and weaknesses and I discuss these later in this chapter.

3.3 Insider research and the genesis of the Technician Commitment

3.3.1 Being an insider researcher

My own position as someone with a technical background in higher education brings both strengths and weaknesses to the research study. I have worked as a university technician since 1999 and have recently been involved in a number of strategic national projects which aim to increase the professional recognition of technical staff in higher education. My view is that the roles of university technicians are misunderstood, both within and beyond higher education and as a consequence, career and development opportunities are limited.

I am an insider researcher on several levels. Firstly, because I have been a technician, albeit in a different institution to those included in this study. Secondly, I created, developed and lead to this day the national intervention that I am researching. Thirdly, the Technician Commitment leads that I interviewed all know me through my professional context as the lead of the Technician Commitment. It could be argued that all research in higher education is a form of insider research. Clegg and Stevenson (2013) state that the majority of research on higher education is: "produced by academics who, by virtue of their position, have insider knowledge of the systems they are researching. This holds true whether or not the research is confined to the researcher's immediate environment – we are, as it were, studying ourselves" (p7). This research has particular insider researcher challenges.

Being an insider researcher allows me to bring to the research process knowledge and expertise about the interviewees, institutions and sector that goes well beyond my role as a researcher. Yet I have had to continually try to be critically reflexive in order to ensure that I surface biases and ensure sound judgement as a researcher; this is not easy. An additional strength is that participants may be likely to see me as an insider and 'one of them' which might in turn promote honest and open conversations in the interviews. That said, it could of course have quite the opposite effect if I was seen as part of the system, or in any way untrustworthy.

Close collaboration between the participants and the researcher typically allows participants to tell their stories and describe their own views of reality (Crabtree and Miller 1999). It was my firm belief that my role as an insider, and champion for

technicians, would facilitate effective dialogue between me and the participants, though I cannot say whether the responses to my questions were biased as a result of my receptiveness and support, or by virtue of the fact that the Technician Commitment was closely associated with me. For example, interviewees may have wanted to present a positive and polished response to my questions for fear that they would think their institution would suffer in some way. My perception, however, in all of the interviews was that this was not the case. My professional insight, and the existing relationships I had with interviewees, arguably produced more frank and authentic accounts.

Throughout, I had to remain keenly aware of how my assumptions and views would impact on the research process and remember that I myself am an instrument in the research process (Ball 1990), and part of the object of study itself. It would be impossible (and dishonest) to assume a neutral position in the research given my own background and experience.

To facilitate greater reflexivity I used a research diary to record my thoughts (and thoughts on thoughts) throughout the research process. It was challenging to maintain the habit of a research diary amidst the busyness of my day job and expanding national role, but I managed to maintain a dedicated notebook and record field notes or memos after each interview on my immediate observations.

3.3.2 An autoethnographic approach

My diverse professional experiences, personal values and sense of mission led me to create the Technician Commitment initiative and as such there is a need to understand how those experiences and values have become embedded in the very object of study that forms the basis for this thesis. There is every chance of bias or blind spots in my research on the Commitment, so being reflexive throughout the research process was highly important. An autoethnographic approach helped me to do this. Autoethnography is a combination of autobiography and ethnography. It "seeks to describe and systematically analyse (graphy) personal experience (auto) in order to understand cultural experience (ethno)" (Ellis, Adams et al. 2011, p273).

It has been asserted that autoethnography can be a particularly useful tool for the professional doctoral candidate (Hayes and Fulton 2014). It offers a way to provide

an overview of the student's career journey; it ascertains authenticity and it provides an "insight for the reader of the professional doctoral thesis, which describes phenomena they might never have before experienced or might never anticipate experiencing again in the future, or perhaps where a sense of meaningfulness in sharing the experience with others from the same community of practice has not yet happened" (Hayes and Fulton 2014, p12).

Rather than adopting autoethnography as a research method and generating a traditional research findings chapter, instead I take an autoethnographic approach in Chapter 4 and provide an in depth account of my career trajectory from 1999 onwards and analyse the experiences that led to the creation of the Technician Commitment in 2017. This provides a rigorous and reflexive approach to ensuring transparency of my centrality and presence in the research. I did consider including this material in an earlier chapter but on balance think it is better placed here, as part of my insider research account of the genesis, enactment and impact of the Technician Commitment.

3.4 Understanding the enactment of the Technician Commitment

The Technician Commitment has four key themes that aim to help universities and research institutes initiate and drive positive practice to ensure that their technical communities experience increased visibility, recognition, career development and sustainability. These are complemented by a fifth theme - evaluating impact. Signatory institutions nominate a lead to take the Commitment forward on behalf of the institution and are supported with a dedicated online resource and national events where they can share experiences and best practice. Two fundamental aspects of the Technician Commitment are the requirement for sign-off by institutional leadership and the nomination of the institutional lead.

This research sets out to evaluate the early stages of the implementation of the UK-wide Technician Commitment through interviews with Technician Commitment leads in a sample of institutions, informed in particular by the type of institutions and the role characteristics of the institutional lead.

3.4.1 Developing a research approach

My original intent when commencing this study was to address the lack of sector insight, knowledge and understanding of the technical community in two ways. Firstly, through a survey to university technicians across the UK which aimed to investigate the work and roles of technicians in higher education. A second aim was to address the high-level knowledge gap on the sector's technical community through analysis of a bespoke data set procured from the Higher Education Statistics Agency (HESA). This was of particular interest given the lack of data generally, for example, there was no data set on technicians specifically at this time and consequently there was no research on the diversity of the technician workforce. These two strands of work got drawn from my EdD plan and into initial work on the Technician Commitment and its evaluation. I needed to refocus.

Upon the advent of the Technician Commitment (2017), a third possible direction for my research emerged. The Technician Commitment required signatory institutions to submit a 24-month action plan on how the institution planned to advance the four key pillars of the initiative: visibility, recognition, career development and sustainability. Signatories were required to publish these on externally facing websites. Content analysis of these public documents could generate understanding as to the range and types of activity that signatory institutions were committing to undertaking and build insight into the types of interventions that the Technician Commitment was unlocking in institutions. On further consideration, I decided that I was less interested in this public portrayal of how and what the Technician Commitment was purporting to deliver in institutions and more interested in the 'under the bonnet' perceptions of those tasked with leading the Technician Commitment in institutions. In addition, as I explain below, some of the work on the analysis of those statements which was undertaken as part of my doctoral journey was used to inform outputs in a different high-status project. Despite this change of focus, I was of course very familiar with those public position statements. I began to develop an interview study with Technician Commitment institutional leads to understand their lived experience of implementing a new change initiative and their perceptions on the impact that the Technician Commitment had had, if any, in their respective universities. This design allowed me to build on my thorough and broad

understanding of the Technician Commitment-inspired change in the sector with in-depth interviews with key stakeholders.

My original research ideas were more at a system level, aiming to understand the roles of technicians in universities and explore the starting conditions. This pivot that resulted from the introduction of the Technician Commitment moved me to investigate local variation in the implementation of the Commitment. This meant a shift from more quantitative, pattern-spotting methods to qualitative investigations of institutional enactment. My initial mixed-methods design (secondary analysis of data and a survey) assumed a pragmatic approach to research design, and this sense of pragmatism continues to guide both my professional and scholarly work. Pragmatism is practical rather than idealistic (Denscombe 2008). It argues "that there may be both singular and multiple versions of the truth and reality, sometimes subjective and sometimes objective, sometimes scientific and sometimes humanistic" (Cohen, Manion et al. 2000 p23).

What is reported in this study is not the intended secondary analysis and survey, but the interview study that emerged following the Technician Commitment launch. The changes of direction seemed right at the time, but they did have considerable impact on the EdD research. That said, a professional doctorate has to acknowledge the fluidity between professional and scholarly roles, and my research is no exception. With the rapid development of the Technician Commitment early in the research phase of my doctoral studies, it became clear that some of the research I had proposed as part of my doctorate needed to be in the public domain to accelerate the national developments. The slow timescales of the EdD (at least in the way I was able to manage mine alongside a demanding professional role) did not align well with the urgency of the national developments. I was successful in receiving research funding as a co-investigator through the Engineering and Physical Sciences Research Council (EPSRC) in 2018 (STEMM-CHANGE) and as a principal investigator from Research England in 2019 for the TALENT programme (see https://www.mitalent.ac.uk/). Both projects enabled me to accelerate aspects of the research originally proposed as part of the EdD to impact national practice. The secondary analysis of HESA data was incorporated into the STEMM-CHANGE project. Using quantitative data and additional qualitative findings from national

workshops and presentations, the resulting report provided an overview of the demographics of the technician workforce in UK universities and identified key equality, diversity and inclusion challenges affecting the technical community (University of Nottingham 2019). The national survey of technicians across UK higher education and research was delivered as part of the TALENT Commission, and its resulting report provided sector wide insight and knowledge of the technical community (Midlands Innovation 2022).

In 2018, I authored a report on the Technician Commitment entitled "One Year In". In my capacity as a doctoral researcher, I had begun to develop a conceptual framework to analyse the content of the founding signatory Technician Commitment action plans which comprised four high-level themes: visibility and culture, sustainability and professionalisation, recognition and value, and collaboration. These were incorporated into the final report as it was both timely and there was greater potential for the ideas to have impact in a sector report in the present than in an EdD thesis that was still several years away from completion (Technician Commitment 2018).

I provide these examples as they illustrate how my professional practice and research have entwined across my doctoral journey – with each being disrupted or complemented by the other at various stages. They also convey my pragmatic approach and my attraction to a mixed method approach. However, this resulting research study does not utilise mixed methods.

As my professional practice progressed, and the Technician Commitment grew in profile, I began to become involved with other sector initiatives to improve culture. The goal of exploring in greater depth the lived experiences of those tasked with implementing culture change within universities through tools such as the Technician Commitment came to the fore. It was becoming clearer that such initiatives get enacted differently between institutions and these differences offered an opportunity to generate new knowledge about motivations for, variations in and the impacts of, implementing the Commitment.

3.5 Final research design

3.5.1 Ontological and epistemological stance

My research design is an exploratory enquiry using in-depth semi-structured interviews to explore the lived experience of the Technician Commitment leads and wider changes within their institutions. As described above, both my professional and scholarly work is very much rooted in pragmatist ontological traditions that do not look to align strongly with a particular philosophical tradition and understanding of reality. I assume that participants are constructing their own understandings of reality. My data comprises those constructed understandings and meanings, developed socially by individuals, as opposed to some objective truth where they can be assumed to be reporting 'facts' that are independent of their consciousness (Guba and Lincoln 1994, Crotty 1998). The reality is the product of individual processes "by which social actors together negotiate the meanings for actions and situations" (Blaikie 2007).

Crotty (1998) explains that it is difficult to separate the notions of ontology and epistemology when discussing research as the two are mutually dependent on each other: "to talk about the construction of meaning (epistemology) is to talk of a construction of a meaningful reality (ontology)" (Crotty 1998:10). The epistemological stance of this research is social constructivist, whereby knowledge is created through interactions between the participants and the researcher. The nature of the relationship between the researcher and the participants will be interactive – this is key to unearthing experiences, perceptions and viewpoints of the Technician Commitment leads and new knowledge will be created together and built as a consequence of these interactions. This approach is endorsed by Guba and Lincoln (1994) who suggest that the epistemology of constructivist research is transactional and subjectivist – the investigator and investigated are linked in such a way that new knowledge is literally co-created as the investigation proceeds. The distinction between ontology and epistemology blurs in a constructivism paradigm (ibid) as the knowledge being sought is not already present and waiting to be found, it will be constructed together by researcher and researched. Reality will be constructed by the participants who will provide personal accounts of their truths. When combined, these accounts will provide an insight into the collective phenomena (Mertens 2005)

and enable a joint collaborative reconstruction from the multiple realities that have been uncovered (Guba and Lincoln 1994). Analysis of these reconstructions will aim to illuminate what enables and constrains the enactment and impact of the Technician Commitment within institutions.

3.5.2 Grounded Theory

In keeping with my epistemological position, my approach to analysis is inspired by the principles of grounded theory – particularly constructivist grounded theory (CGT) (Mills, Bonner et al. 2006). I did not have a preconceived theory or conceptual framework that I wanted to bring to my analysis and whilst I had my own experiences and views, particularly those associated with the historical positioning of technical staff, I was not sure what would emerge from the analysis. Grounded theory appealed to me because of the emergent process of generating concepts. Constructivist grounded theory aligned with my ontological and epistemological approach.

Rather than creating a hypothesis before the collection of data, grounded theory constructs new concepts and theories from the data as they emerge (Strauss 1987). Charmaz (2000) was the first to describe constructivist grounded theory. She builds on the origins of grounded theory from the work of Straus (1987) and Strauss and Corbin (1990) to develop a grounded theory methodology that takes a constructivist approach. Strauss (1987) asserts that the researcher "constructs theory as an outcome of their interpretation of the participants' stories" (Mills, Bonner et al. 2006, p32). Rather than the researcher being a neutral observer, as suggested by Strauss, Charmaz argues that the participants must be visible in the constructed concepts or theories and that they are co-creators of it. It is about "making meaning from the data and rendering participants' experiences into readable theoretical interpretations" (Mills, Bonner et al. 2006, p32). As an insider researcher this feels like a sensible fit as a methodology to address my research questions.

3.5.3 Data collection - interviews with Technician Commitment institution leads

On becoming a signatory of the Technician Commitment, an organisation nominates a lead individual to progress action on behalf of the university/research institution. In order to build an understanding of the positions of technicians in universities, and the

experiences and perceived impact of the Technician Commitment, semi-structured interviews with a sample of institutional signatory leads were undertaken. Seven institutions/leads from across the UK were interviewed between April – December 2019.

Institutions, and therefore, interviewees were selected based on a number of factors to ensure 'maximal variation'. All institutions were early adopters of the Technician Commitment and were announced as signatories in either the first or second phase (May 2017 and September 2017 respectively). There was diversity of institutions involved in terms of their size, 'type', geography and the position of the role holder of the Technician Commitment lead (e.g. Technical Manager, Organisation Development, Professional Development staff).

Research participants were invited by e-mail on a sequential basis to contribute to a research study on the impact of the Technician Commitment across UK institutions. Following a positive response, an information and consent form (Appendix 1) was then shared with them. Initially I utilised purposive sampling by approaching my first interviewee Andy, who worked at an institution I believed had made positive progress with the implementation of their Technician Commitment.

Purposive sampling is defined as the "selection of participants based on the researchers' judgment about what potential participants will be most informative" (Moser and Korstjens 2018 pp10). A fundamental component of grounded theory research is theoretical sampling – defined as the "selection of participants based on the emerging findings to ensure adequate representation of theoretical concepts" (ibid). This requires data to be collected and analysed prior to taking a theoretical sampling approach, hence the initial use of purposive sampling.

I wrote notes after the interview and then undertook some preliminary analysis which produced some initial themes of the historical positioning of technicians at Andy's university and some key elements about how the Technician Commitment had been enacted at his institution. As per the grounded theory approach, I then utilised theoretical sampling and approached a lead who I knew has experienced some challenges in enacting the Technician Commitment (Barbara).

I repeated the process outlined above and my coding began to build on those initial key themes and elements of enactment. Data collection, analysis and the building of a conceptual framework happened concurrently. This approach was important as I wanted to try and make sense of a phenomenon that had not been explored before, in this case, the enactment of the Technician Commitment. I was mindful that Andy and Barbara were both based at large institutions and so next approached a Technician Commitment lead from a smaller institution. This process continued, for example, the first three interviewees all had technical backgrounds and so I repeated the process to include staff in different roles (i.e., staff and organisational development). I also ensured that I spoke to leads from different types of institutions and in different geographical locations. Every participant I approached agreed to be interviewed. My interviewees provided in depth accounts of their experiences which gave me rich data to code and construct a conceptual framework. Key concepts that were grounded in my data began to appear again and again. I felt confident that my achieved sample provided a diverse range of viewpoints and experiences, and importantly, gave me an institutional perspective which I could triangulate with my professional knowledge as lead of the Technician Commitment.

In total seven interviews of around an hour were conducted over a period of 9 months between April – December 2019. I visited institutions across the UK. Interviews took place in cafes, centrally bookable meeting rooms at the respective institutions or via Skype. The semi-structured interviews were conducting using an interview schedule with 4 broad themes (Appendix 2) to ensure flow of discussion (Seidman 2006). It began with a discussion on the individual's personal journey and the historical conditions for technicians at their institution. It then moved on to explore the institutional engagement with the Technician Commitment, its implementation and impact.

Table B provides some basic information on the seven interviewees. Each interviewee has been given a pseudonym with names from A-G to ensure anonymity. In order to provide the reader with a feel for the interviewees, their range of experiences and viewpoints, and something of their institutional context, I present a vignette of each of the interviewees in Chapter 5. The vignettes are my interpretive

portraits of both interviewee and institution and provide a lens through which to view my analysis.

This group has more women than men. It is notable that the majority are technicians or technical managers (4) and the others are from staff/organisational development. This reflects two broad approaches to leadership of the Technician Commitment implementation.

Interviewee	Gender	Technician Commitment Lead (role)	Type of Institution
Andy 29.4.19	Male	Technician	Large research intensive university in the south east of the UK.
Barbara 21.5.19	Female	Technician	Large research intensive university in the north of the UK
Charlie 11.7.19	Male	Technical Manager	Medium research intensive university in the south west of the UK
Denise 10/10/19	Female	Organisational Development	Medium research intensive university in the south east of the UK
Emma 29.10.19	Female	Staff Development	Medium sized university in the Midlands
Fiona 6/11/19	Female	Technical Manager	Large teaching focussed university in the north west of the UK
Grace 13.12.19	Female	Staff Development	Large research intensive university in the south west of the UK

Table B – Interviewee and institution information

My role in the Technician Commitment meant that all interviewees knew me in a professional capacity. To provide some clarity and separation between my professional role and my role as a researcher, at the beginning of each interview I established some boundaries, explaining that I was there as 'Kelly the researcher', not 'Kelly the Technician Commitment'. Despite this, on a number of occasions, the interviews did stray into my professional role. This seemed both natural and inevitable and it gave me confidence that the interviewees felt at ease with me as the interviewer.

3.5.4 Coding and thematic analysis

Coding is a vital component of grounded theory. My interview transcripts provided a large amount of data and it was key to reduce this data to something that was manageable and meaningful. Coding was used to achieve this. Coding is a well-established technique in the analysis of qualitative research. Transcripts were analysed for emerging themes and concepts which were in turn coded. Three levels of coding were used: open coding, axial coding and selective coding (Strauss and Corbin 1990) and an example is provided in Table C below.

The first stage of coding is open coding. Open coding is "simply a new label that the researcher attaches to a piece of text to describe and categorise that piece of text" (Cohen, Manion et al 2000:561). Transcripts were examined line by line and labelled with code words informed by what was being described. Code words were then grouped into categories. The second stage of coding, axial coding was then applied. Links were made between the open coded category labels and categories were grouped into broader categories with common meaning. These links could be based on causal conditions, phenomena, contexts, intervening conditions, actions and interactions and consequences (Cohen, Manion et al. 2000).

Selective coding was the final stage of coding. Core categories were integrated to form my resulting concepts and to develop a new conceptual framework as discussed in Chapter 8. This theory emerged through the open and axial coding processes and is the central phenomena from which all other categories relate (Strauss and Corbin 1990). Chapters 5-7 discuss the findings of this research and chapter 8 describes my resulting analysis.

Open coding	Axial coding	Selective coding
Academics and Technicians: • Perceptions • Interactions • Relationships	• Boundaries • Status • Hierarchies	Organisational belonging: • Alienation • Affiliation • Alliance
Institutional motivations	• Reputation and competition • A desire to show technicians they cared • A belief that this could cause real change	• External signalling • Internal signalling • Agenda setting

Table C: Example of coding process

3.6 Ethical Considerations

This research adheres to the University of Nottingham's Code of Research Conduct and Research Ethics and the British Education Research Association (BERA) Ethical Guidelines for Educational Research (BERA 1992). Full consideration has been given to the ethical implications and responsibilities the research process has on the participants, sponsors, policy makers and general public.

Ethics applications for this research were made to the University of Nottingham's School of Education Ethics Committee prior to any data collection taking place. Interview responses were anonymous and responses treated confidentially. Prior to participation in the interviews, participants were asked to give informed consent. In order to ensure this, prospective participants were provided with information on the purpose of the interview, sponsor information and details of who can access the data generated as per the General Data Protection Regulation (EU 2018). Participants were made aware that they are able to withdraw their consent at any stage in the research process. Interview responses and the associated data generated have been stored in a secure manner.

3.7 Summary

In this chapter I have outlined my research design, the methods used and the approach to analysis including the development of coding frameworks. I have also set out the journey that I have taken in my epistemological approach – from a starting point of pragmatism to a resulting interpretivism/constructivism research design. The challenge of being an insider researcher is common to any practitioner researcher but arguably, as a national leader of the very intervention that I am seeking to research, this 'insider-ness' is multi-layered and requires considerable reflexivity. Ethical considerations have been discussed and the challenge of maintaining anonymity within a relatively small field of HEIs. The following analysis chapters are organised into four main sections as a reflection of the four strands discussed earlier in this chapter.

Chapter 4: The view out

4.1 Introduction

This chapter presents a reflective critique in an autoethnographic style on the process I went through to establish and develop the Technician Commitment to advance a positive culture for technicians in higher education and research. It focuses on the period of time from when I became a technician up until 6 months after the launch of the Technician Commitment in May 2017.

4.2 Becoming a technician

I became a technician in 1999 at the age of 18 years old. As described previously, I discovered this career quite accidentally, applying for any job that would fund a part-time degree alongside full time work. I quickly came to love the role but soon discovered that the culture around the technical workforce was not always that positive. Since that realisation I have tried to drive action to progress a more positive culture for the technical community in higher education and research.

As a research technician, a key part of your work is the careful recording of notes - details of experiments, methods and results in a laboratory notebook. This practice has stayed with me as my role has developed over the past 22 years beyond the laboratory setting. I have a series of notebooks that chronicle several years of my work, including notes on a daily basis of conversations and discussions that have taken place, things I have felt and thoughts that have come to me. Alongside this I have kept a detailed diary, documenting every meeting I've initiated and/or attended, and since 2012, I have recorded key moments in my journey to ensure status and recognition for the technical community through social media, in a bid to raise visibility of my work, but to also to create a timeline of key moments in this endeavour. This chapter describes my personal experiences with a focus on my early experiences as a technician and the journey that led me to create the Technician Commitment in 2017. It uses those experiences as a set of data, analysing and critiquing them in order to provide further understanding on the cultural experiences of the technical community – and providing insights into key moments and factors

that have helped to build a more positive environment for technical staff across higher education and research.

I categorise these experiences into two periods of time: a) 1999-2016 - where I discuss the experiences and events that led up to me creating the initiative and b) the year of 2017, where I discuss the process of creating the initiative.

4.3 Before the Technician Commitment 1999 – 2016

There are two key memories or moments which provoked me to begin to pursue a change agenda for the technical community. The first of these is more of a collection of memories and it is a phrase that I heard used time and time again: "just the technician". As a junior technician I heard this many times, either about myself or about my technical colleagues. It was frequently said by senior staff, usually academic colleagues and on occasion managers and students too. It was never said unkindly, and I don't believe it was ever meant to cause offence. It was just a given that we were "just" the technicians. I became so used to hearing it that it got to the point where I found myself using it as a way to describe myself. I can distinctively recall saying on a number of occasions, "oh, me? I'm just the technician", almost as an apology for being so low down the academic hierarchy that has been the mainstay of the culture in higher education for centuries.

The second example is an encounter with a postdoctoral colleague five years into my career as a technician. This colleague was a woman who was a similar age to me. She had recently joined the research group I worked in as a postdoctoral researcher on a large interdisciplinary research grant. On discovering I was a technician, and that I played a leading part in the project, she told me that where "she came from" (which was another Russell Group university where she has studied for her PhD), she "wouldn't have even wiped her shoes on the likes of me". I can remember exactly where I was standing - the building, the room, the time of day in that career defining moment. Despite being confident in my contributions, and being aware of the support and respect I had from colleagues on the project at the time, that comment made me feel small and inferior.

On the whole, I have worked in positive environments and with wonderful colleagues. My working life has however, been frequently punctuated with slight

barbs, reminders to me of my place in the system and that perhaps I was not quite as good as the rest. This feeling is no doubt due to a combination of factors, both the impact of the remarks made to me and technical colleagues in my early years as a technician, but also my own insecurities about working in academia. I come from a working-class family; my parents were market traders, no one in the family had been to university and affording university fees was just not an option for me and my family back in 1999. Entering a university environment as a staff member at the age of 18 was a fascinating experience but intimidating at times, given my perceptions of the academic 'glitterati' that I was surrounded by and those occasional comments that reminded me of my place in the university hierarchy. What I remembered being struck by back then, is that whilst I was aware and proud to be working class, I had never really perceived it as a barrier or a challenge; it was just me. It had made accessing a traditional university education more challenging for me, but it was not until entering university life at 18, albeit as a staff member, that I realised that it made me a little different from some of my colleagues. Whilst this has had its challenges, it has also had advantages.

It feels strange to write about my early career experiences and how they made me feel about my profession. The process makes me feel a little vulnerable, knowing that someone may read this, and perhaps even a bit foolish. This is because as I progressed in my career, and grew in confidence in my role, I began to realise that there was no reason that I, or my technical colleagues should feel inferior to our academic colleagues. We were vital to enabling research, we actively participated in teaching and we made a huge contribution to the student experience. University staff are ultimately all working towards the same goals - to provide excellent teaching, to research, innovate and create new knowledge that improves people's lives. My belief was, and is, that whilst we may be in different job families and have different job titles, and in some cases have different terms and conditions in our terms of employment, we are all part of the same team, ultimately striving for those same goals. From that point in my career, around 5 years in, the continued occasional comment or joke that inferred that technical staff somehow had less value than academic colleagues became rather tiresome and I decided that I needed to do something about it.

In 2003, I secured a new role in a different research group. This was still in the same building where I was previously based, a medical school integrated into a large hospital. In 2005, the group relocated to the leafy university park campus across a footbridge over a busy major road. This was a matter of metres away from where I had spent the first 5-6 years of my working life but it may as well have been miles. It was a completely different environment, physically but also in terms of culture and community. I can remember that feeling of transition distinctively, and it really was as simple as walking across a bridge. Whilst I had seen myself as part of a small research group that was part of a medium sized department, I now realised that I was part of something much bigger – a large university that was alive in every sense of the word.

Something else also happened in 2005 that changed my outlook on the organisation. I participated in a leadership programme for women at certain grades across the institution. The programme enabled me to see the variety of roles and contributions across the organisation and I was able to build a network beyond my immediate department and job family.

These two things, the realisation of the size and scale of the institution and the creation of a wider, institutional network were key. I think they gave me confidence. I made friends with colleagues of all levels, from all job families and I think that for the first time, I felt like their peer, not their subordinate. It was a game changer.

In 2014, the programme celebrated its 10th anniversary. I recall being asked to contribute to an article to celebrate the success of the programme:

"I participated in the APPLE programme in 2005/06 and it was a huge eye opener. I'd been working here for six years as a technician. In a technical role it can often feel like you exist in your own laboratory bubble — you can lose sight of the bigger picture.

"APPLE opened my eyes to the vastness of our university and the diversity of roles. I built some fantastically useful networks and made some good friends. The courses

gave me the tools and motivation to push on with my career and work towards making a positive difference to the technical community in higher education.

"I've since achieved things I never would have thought possible and I will always be grateful to APPLE for giving me the confidence to create and pursue these opportunities. I encourage all colleagues to sign up!"

https://exchange.nottingham.ac.uk/blog/for-me-apple-was-totally-career-changing/

Over my first five years at the university, I had noticed that technical staff lacked visibility at all kinds of levels, and in turn it felt as though technical staff were not considered part of the university community. I felt sure that if you asked senior leaders if this was the case they would say that it was not, but nonetheless there were constant implicit, subtle examples of technical staff being excluded or not considered. For example, technicians were rarely mentioned in the university's newsletters, something that was very simple and may seem minor, but something that to me felt really symbolic – what did it say about how our university valued all its staff if we did not report on them and include them in our own news. The course which I have highlighted above is another example. It was called the APPLE course which stood for "Academics' and Administrators' Professional, Personal and Leadership Experience". I was neither an academic nor an administrator. On the first day of the course we were asked to stand on either the academic side of the room or the administrator side of the room. I lingered somewhat awkwardly in the middle not knowing quite where I belonged. I was permitted to join the course, which demonstrated to me that we were inclusive of technical staff, but in an implicit way, not an explicit way.

Over the course of my technical career, and given the scientific technical support I provided to numerous research projects, from the years between 2005 and 2010, I was regularly encouraged by the professor who I worked with to undertake a PhD part time alongside my work. I was advised that this would help my career development as a PhD would "open doors for me". I understood this, as I recognised my positioning within the university felt weaker than my research and academic colleagues given that I did not have a doctorate qualification. I did consider studying

towards a PhD on numerous occasions, but concluded that I didn't 'eat, sleep, breath' the science, which I felt you needed to in order to study towards a PhD in a scientific discipline. I enjoyed my job, and I was passionate about the applications of our work, but I realised that I was not as passionate about the intricacies of the science. However, I think I have always been conscious about my relative lack of academic credentials in comparison to colleagues and it has been important for me to try and 'earn my place' or position by achieving higher academic qualifications.

In 2008, an opportunity was advertised across the university for fully funded scholarships for staff members to undertake a part time MA in Higher Education. I had gained a BSc (Hons) in Biomedical Sciences through part time study earlier in my career and, whilst this was a change in discipline, I saw it as an opportunity to further expand my academic knowledge. I applied and was successful in gaining a place. Once again, this provided an opportunity to meet with other colleagues across the institution and broaden my network. I was the only member of technical staff on the course with participants being a mixture of academic and administrative staff.

Alongside my desire to achieve higher academic qualifications, I saw the MA as an opportunity to help to begin to address the gap of information about technicians in universities. I had become increasingly aware of the lack of research and literature on the role of technicians in higher education. Furthermore, I had noticed that technicians were rarely mentioned in terms of current affairs in higher education. When I commenced the MA in Higher Education, I began a weekly subscription to Times Higher Education and it was apparent that technical staff, despite being a significant staff group within most higher education institutions, were rarely discussed. This raised questions for me as to the importance that academia places on its technical staff, and the extent to which academia engages with its technical workforce. My MA resulted in a dissertation: "University Technicians – Undervalued, Misused & Misunderstood?" which, through existing literature and a new set of interviews, explored the roles of university technicians, looked at how their roles had changed over recent years and the effects these changes have had on the individuals, the workforce and the higher education sector as a whole. My dissertation concluded that proper recognition, support and a sense of identity were

required for this increasingly vital part of the UK higher education workforce. This perhaps was not surprising, given that my personal experiences also pointed to this.

I was proud of my dissertation and I remember that having a bound copy of the dissertation in the traditional black cloth with gold lettering was really important to me. On reflection, that feels very superficial now but at the time, I think I saw it as a symbol of academic currency of sorts. Whilst it was not a doctoral level qualification, I felt like I had verified myself in some way, and it meant a lot to me to graduate from the university that was also my employer. I was beginning to feel an increased sense of belonging and be more comfortable with my self-perceived positioning at my institution.

Following the completion of my MA, it was important to me to do something with the wider findings of my dissertation, particularly as my research had confirmed to me that I was not alone in my experiences of being a technician in academia. Given my previous frustration that Times Higher Education, a weekly sector publication, never discussed technicians, I jointly authored a piece on the importance of professional identity for university technicians with my dissertation supervisor and we submitted it to them for publication. In November 2012, it was published.

I did not realise it at the time but, looking back, this was a key turning point in my career. The publication of the article meant that I had inadvertently put my head above the parapet and as a consequence, shortly afterwards I was asked to deliver a thirty minute keynote talk to approximately 200 delegates at a national conference ran by HEaTED – an initiative led by the National STEM Learning Centre in York. (HEaTED offer a subscription-based service to universities and provided professional development courses for technicians). This presented me with a conundrum; on the one hand I had written an article calling for increased visibility for technical staff but on the other, I had never delivered a talk like this, nor at this scale, and I was incredibly nervous about public speaking. My only experience of presenting at that point was presenting data and experimental results to my research group. On reflection, I thought that keynote conference talks were the territory of my academic colleagues and it came back to that feeling of not feeling good enough to inhabit that space. I appreciated the irony of turning down an opportunity to raise the profile of technicians, particularly when I had personally argued for it and therefore

accepted the invitation. Despite my anxiety, it went well and I left with further invitations to speak at other organisations about the role of technicians in higher education.

Following that first presentation, events spiralled. I was invited to speak at an increasing number of events which provided an opportunity for me to raise the profile of technicians across the sector. Whilst I was pleased that there was appetite from various organisations to hear more about the roles of university technicians, this type of activity remained very much outside of my comfort zone. What it had done however, was give me a bit more confidence to find my voice and in August 2013, I wrote a piece for the Guardian's Higher Education website about the need for increased visibility and recognition for the sector's technical community. This was an important step for me as it was just me, off my own initiative. I was thrilled when it was accepted for publication and even more thrilled when members of the technical and academic community contacted me, either directly through e-mail or through engagement on social media with broad support.

At my own institution, I reached out to our senior leadership team for support to raise the profile of our technical community. I sought to be positive in my communications and highlight the opportunities to the university as I was conscious that technical staff were sometimes, and in my view unfairly, labelled as "always complaining", perhaps because communications between technicians and senior leaders had traditionally been through the unions when discussing terms and conditions of employment.

I recall being nervous about writing to our Vice-Chancellor and subsequently, additional members of our University Executive Board. Despite having worked for the university for over a decade at this point, I had never met or had conversations with the leaders of our institution and this higher level of the university felt quite alien to me. The conversations were positive and together with technical colleagues I began to build a university wide technician network and sought opportunities for our technical community to gain increased visibility and development across the institution. Activities to give us voice and visibility including a Technical Seminar Series, a new newsletter specifically designed for the university's technical staff detailing news and development opportunities and a Professional Registration Fund

which provided pump prime funding for a new registration scheme that had recently been introduced for technicians by the Science Council.

Through these activities what had traditionally been a very siloed technical workforce came together to begin to form a university technical community. Issues affecting technical staff that had been overlooked (i.e. succession planning, career pathways) began to be brought to the attention of university management and awareness of the scope of technical skills and roles was raised. In 2014, we held the first university wide conference for technicians in the 130+ year history of our institution. This was not without difficulty. I had support from members of our University Executive Board which was good and I was confident that they could see the value in what I was trying to achieve. However, I still received the occasional barbed comment from a small number of academic colleagues in the university. One described me as "nothing but a party planner" in reference to the events that we had been putting on for the technical community. Another suggested that I should "get off my soapbox" and enquired why I was "allowed" to give external talks when I was "just a technician". Another suggested that "if I thought being a technician was so great, why did I do everything I could to not be one". These were hurtful and they still sting a little now as I revisit them. I enjoyed being a technician and the advocacy work that I had undertaken over the previous two years was not an attempt from me to not be one – indeed, the activities that I had undertaken had been well outside of my comfort zone – but I felt strongly about the need for us, the university, and the wider sector, to recognise the roles and contributions of technicians in both education and research.

The attempts to belittle my work, and the associated lack of respect for the fact that technical staff deserved visibility, recognition and professional development opportunities angered me. That feels like a strong word to use but I think it is the right one. I could not understand the motivations for these comments, but perhaps the idea that I was challenging the status quo, and the positioning of technicians, albeit in a soft and positive way, was threatening in some way to a minority of academic colleagues. On reflection I think it hardened me a bit too and reaffirmed my commitment to ensuring a more positive culture and environment for the technical community.

My advocacy work continued with renewed vigour and this activity brought the university and myself some profile. We won awards for our work in this area and began to receive local and sector coverage about our work to increase opportunity for technicians.

In late 2014, I was lamenting the lack of a national conference for technicians in UK higher education and decided that perhaps I could make this happen on a national scale. We had a new public affairs colleague at the university and I discussed my idea informally with him. His advice was clear - "call it a 'summit', if you call it a 'summit' everyone will take it seriously". Alongside this, to increase sector-wide recognition for technical contributions, I created an award scheme called the Papin Prizes, with the name inspired by a 17th century technician I had read about in the literature when researching my MA dissertation. The awards aimed to celebrate technical excellence in academia.

The university was part of a regional consortium of research intensive universities who I approached about hosting the event and sharing the cost. I was keen there was not a registration fee for delegates as I knew this would be a barrier to participation as technicians did not have the same funding opportunities that PhD students, researchers and academic colleagues had. These conversations were positive and in 2015, we hosted the inaugural UK Higher Education Technicians Summit and awarded the first Papin Prizes. The conference attracted over 450 delegates from across the country and over 250 Papin Prize nominations. In order to give the Papin Prizes some prestige, I asked a group of Pro-Vice-Chancellors from across the Midlands to judge the shortlisted nominations – once again, I thought the Summit would be taken more seriously if it was attributed to and associated with academic colleagues. This provided another way of increasing the profile of technicians, but with university leaders in our own region. On the day, the Vice-Chancellor of my university opened the event and spoke publicly about the importance of technical skills and roles to universities. It was a really proud day for me, I could see first-hand the impact that the event, and associated recognition had on technical colleagues from universities across the UK.

My advocacy for technicians, along with the Summit had brought me to the attention of the Science Council and in 2015, they invited me to go on a part time secondment

with them, funded by the Gatsby Foundation. The Science Council are the umbrella body for the professional bodies in science, for example, the Institute of Physics, the Royal Society of Chemistry and others. The Science Council license their member bodies to award professional registration. Prior to 2012, this was the designation of 'Chartered Scientist' with the post nominal letters of CSci. In 2012, they introduced two further levels of professional registration, Registered Science Technician, with the post nominals RSciTech, and Registered Scientist, with the post nominals RSci. This was a key step as for the first time, it created an accredited development pathway at all steps of a scientific career. Professional registration accredited an individual's experience 'on the job' and not their academic qualifications. The Science Council were keen to promote the new registers to technicians in higher education and thought I could be helpful in this. My university could see the benefit of this and were supportive. I was excited as the secondment provided a national platform to create positive change for the technical community.

The secondment led to the formalisation of a new role at my university and in 2017 I became the Technical Skills Development Manager. This was a university wide role with responsibility for the professional development and strategic direction of the university's 700+ technicians.

The next part of this chapter discusses the creation and development of the Technician Commitment, up until the present day.

4.4 Creating the Technician Commitment: 2017 Onwards

When I first joined the Science Council, the emphasis of my role at that time was to engage the technical community in UK higher education with the new professional registers. It quickly became apparent to me that the culture for professional registration for university technicians did not exist. Technicians in universities still experienced the invisibility I had discussed in my MA dissertation and seemed to fall through the gaps structurally within their institutions. Technicians didn't fall under any senior leader's portfolio, there was no single point of contact at universities for technicians, and unlike researchers, who had a national concordat in place for their development, there was still an absence of sector support for the technical community. I believed there was a clear need for greater coordination and collective

action across the sector to improve the status and profile of technicians and to ensure the sustainability of the technical workforce in academia and research.

I discussed this with two key colleagues, one at the Science Council and one at the Gatsby Foundation. I had the idea for some sort of pledge that we could ask universities and research institutes to make to demonstrate their support for the technical community. I was keen to keep it straightforward and centred around some key principles. I think this is because, as a technician, my role is to solve challenges in a practical and logical way. I wanted to apply this approach to develop a simple initiative that could hopefully help to create a more positive environment for technical staff in universities and research institutes. We played with some key themes and the end result was an initiative called the Technician Commitment – a pledge to advance visibility, recognition, career development and sustainability for technical skills, roles and careers in higher education and research. The Gatsby Foundation and the Science Council were supportive, and financial resource was offered from Gatsby to pilot the initiative.

Alongside the ultimate goals of achieving increased visibility, recognition, career development and sustainability for the technical community, there were some key practical things that I wanted to achieve with the initiative. Firstly, I wanted to secure high level sign off from the universities and research institutes who would sign the Technician Commitment. I had direct experiences of how hierarchical universities can be and I felt it was important to secure support from the highest level of the organisation. We therefore designed the initiative to require a sign off from the Vice-Chancellor of any university, or Director from any research institute wishing to join. I wanted to be sure that the people who would end up taking the Technician Commitment forwards would have the backing of the university as a whole and I knew this level of sign off would help them. Secondly, I wanted institutions to provide the name of a person who would, from that point, have technicians as part of their portfolio. I felt this was important as we did not have a national network of people whose remit included a mandate to support the development of technical staff in their institutions. The signatory process therefore included a requirement to name an institutional lead for the Technician Commitment. Thirdly I wanted to ensure that the Technician Commitment had profile and influence across the sector and was

collaborative in its approach. I needed influential people, or organisations, to help me achieve this. My two colleagues and I pulled together a list of our key contacts at various sector stakeholder organisations and we invited individuals from several organisations to join a Technician Commitment Steering Board to lead and advise on the development of the initiative. I really wanted this to be something that was genuinely by the sector, for the sector.

I recognised, rightly or wrongly, that engagement with the Technician Commitment would be limited if it was a technician (me) trying to seek that engagement. I thought it needed it to be spearheaded by academic colleagues with sector profile for it to be taken seriously. I approached the Vice Chancellor at my own university, along with the Vice-Chancellor at the University of Cambridge, (whose Chancellor Lord Sainsbury was the founder of the Gatsby Foundation) who both agreed to support the initiative, and through the Science Council, we arranged for a small group of university leaders to discuss the principle further over a dinner at the Vice-Chancellor's Lodge at the University of Cambridge in January 2017.

I was supported well by the two key colleagues at the Science Council and the Gatsby Foundation with whom I had discussed the original idea of the Technician Commitment. I remember feeling astonished that we could just decide to have a dinner to discuss technicians and that organisations and senior leaders would support it. I learnt valuable lessons from them both about how to identify sector advocates and how to ascertain who I needed to influence to make progress.

We invited a small group of Vice Chancellors to join us and ten of us met for dinner hosted by Cambridge's Pro-Vice-Chancellor for research as the Vice Chancellor had a last minute trip overseas. The other universities also sent Pro-Vice-Chancellors as representatives and I recall thinking that perhaps attendance at the event demonstrated that they felt that the invitation from Lord Sainsbury, was important and merited attendance, but was perhaps not quite important enough to send a Vice-Chancellor. Nonetheless the dinner went well and we spent over 3 hours discussing the need for increased visibility, recognition and opportunity for technical staff. At one point I remember sitting back in my chair, amazed that there was such a detailed and engaging conversation about technicians with university leaders. It felt like a huge step forward. By the end of the evening those present had pledged that their

institutions would become founding signatories of the Technician Commitment upon launch.

Following on from that, we wrote to universities across the UK to invite them to sign the Technician Commitment. The letters came from Lord Sainsbury, in a bid to ensure profile and get the attention of Vice-Chancellors. We created a website, the two Vice-Chancellors who had agreed to spear head the initiatives wrote articles in support of the Commitment and my own Vice-Chancellor agreed to feature in a short film to showcase the initiative.

I distinctly remember the day of filming as it took place in his office. At this point, I had worked at the university for almost eighteen years and I had never stepped foot in the Vice-Chancellor's Office before. This felt significant to me in some way at the time, and again it feels quite superficial when I reflect on it now. I think it was another example of how I was feeling an increased sense of belonging, or perhaps feeling good enough, to the university.

We launched the Technician Commitment in May 2017 at the second UK Higher Education Technician Summit which we held at the University of Warwick. I would have been thrilled if we could have persuaded 5 universities or research institutes to sign up to the Technician Commitment, but by the time we launched the initiative in May 2017, we were able to announce 36 founding signatories. In the run up to the event, I remember thinking that we needed to capitalise on the positive press opportunities that we could create through this, knowing that universities and research institutes would engage with a good news story. We worked on a joined up communications approach to ensure a coordinated launch of the initiative through press releases and social media posts. We had the 36 signatory universities and research institutes and the organisations from the Steering Board communicating very publicly about the importance of technicians, celebrating their involvement with the Technician Commitment and how they were committed to supporting their technical staff. This got the attention of institutions who had not yet engaged with us and by September of that year the Commitment had grown to over 60 universities and research institutes.

It was important to me that the Technician Commitment created a community and a space where Technician Commitment leads could network and share best practice. I wonder now if that was also in part due to the feeling of isolation that I had experienced earlier in my career. The Technician Commitment offered an area where universities and research institutes could collaborate, rather than compete. To facilitate this, I introduced the 'Technician Commitment Signatory Events' – national, biannual events where the nominated Technician Commitment leads could come together to network, hear sector updates, share best practice and identify opportunities to work together.

The first of these took place in September 2017. I felt it was important that these events, and therefore technicians, were associated with prestige and so over the past few years I have sought to host them in prestigious venues and locations. The first of these was held "behind the scenes" at New Scientist Live at the ExCeL in London. Future events took place at locations including the Tower of London, the Royal Society and Jaguar Land Rover.

I also used the September 2017 event to collectively design the evaluation process for the Technician Commitment with the institutional leads. I recognised that it was perhaps relatively easy to get universities and research institutes to sign up to the initiative, yet perhaps more difficult to get them to actually do something in response to that sign up. We therefore needed a process that would help organisations and us to evaluate progress and impact. It was important that the process was fit for purpose, was not administrative burdensome and that the leads were bought in. I felt the best way to do this was to co-create it together. The result took the form of a self-assessment consisting of five contextual questions, and the creation of a two year action plan for signatories to submit, a year after becoming signatories. To date over 80 organisations have created action plans to support increased visibility, recognition, career development and sustainability of their technical communities. These are peer reviewed by fellow Technician Commitment leads to ensure the sharing of practice and to reemphasise the community ethos of the Commitment.

I designed the Technician Commitment as a tool to improve the culture and environment for technical staff working in higher education and research. It was, and is, important to me that our working environments are inclusive and that all roles in

our sector are, and feel, respected and treated fairly. This fosters a sense of organisational belonging which also has performance benefits for the institution. It is also the right thing to do.

4.5 The Present Day

Since its inception the Technician Commitment has secured over 100 signatory and supporter institutions and unlocked significant inward investment into the community from signatory institutions, with many providing new financial and in-kind support to develop and deliver Technician Commitment related activities. The initiative has begun to trigger cultural change at higher education and research institutions across the UK and leveraged several millions of pounds worth of external funding to support the higher education and research technical community through other sources/grants. Alongside this, the Technician Commitment has established partnerships and engaged a range of learned societies and professional bodies to raise the profile of, engage and support the technical community. I think it is also fair to say that the Technician Commitment has established itself as the source of expertise on technical roles in higher education through the publication of 'hot topic' reports and policy work with government and organisations such as the Russell Group, Wellcome Trust, Academy of Medical Sciences and the Royal Society.

The Commitment has grown a vibrant community of Technician Commitment leads and has become a household name in the sector. I know it is delivering impact and positive change for technicians across UK higher education and research. I also know that there is still work to do. For example, in a recent meeting I was told by a senior academic that "the university could survive a bomb attack as long as the bomb didn't kill the academic staff and only the administrators and technicians – we can get support staff anywhere but it is our academics who are the university". Ironically, this was in a workshop to improve university culture. Although comments like this are in the minority, they do demonstrate that action and progress to ensure an inclusive work environment for all is still needed.

4.6 Summary

There is a lot more that I could say about the creation of the Technician Commitment, and what has happened since its launch in 2017. This is an unusual

chapter for an EdD thesis in that it is part autobiographical and part auto-ethnographical. I felt it important to focus on my experiences throughout the early stages of my career and to use these experiences to try to understand where the Technician Commitment came from. This presents a 'view out' as perhaps to understand the Technician Commitment is to understand me and my journey as a technician in higher education.

I have learned things about myself that I did not know in the process of writing this chapter. I found it difficult to write and surprisingly upsetting in places, particularly when revisiting formative experiences. I also have felt a sense of pride in my journey and how far things have come.

Throughout the process of writing this chapter I realised that there are some key themes emerging from my narrative. The first is that this is all about belonging; belonging to a profession and belonging to an organisation. Secondly, there is also a theme that centres around not feeling good enough for my organisation, whether that be because of my socioeconomic background in comparison to other colleagues at the university, or because of my role as a technician in higher education where everything seemed to centre around the academic community. I am conscious that this also comes from me, and is not necessarily my university and my colleagues, and I recognise that I am still sensitive to the occasional comment that makes me feel this way, but perhaps more on behalf of my community than myself. I recognise that I have struggled inwardly to inhabit the spaces and places where the journey of the creation of the Technician Commitment has taken me, perhaps because of that feeling.

These experiences and feelings ultimately led to the key principles of the Technician Commitment, of the need for a more positive culture and environment for technical staff and specifically to ensure increased visibility, recognition and career development for technical roles and careers in higher education and research.

Chapter 5: Positioning technicians in universities

5.1 Introduction

As discussed in Chapter 4, the Technician Commitment was designed as a tool to improve the culture and environment for technical staff working in higher education and research across the UK. It aimed to ensure that working environments are inclusive and that all roles in the sector are respected and treated fairly. This in turn would foster a sense of organisational belonging which also has performance benefits for the institution. This chapter begins to explore this sense of organisational belonging. It considers the positioning of technicians within universities through the perspectives of the Technician Commitment leads at seven UK universities.

The chapter begins with short vignettes of the seven Technician Commitment leads and the context in which they are working. I then consider the positioning of technicians in universities, exploring the interviewees' perceptions of the relationships and interactions between technicians and members of the university community. This includes the perceived historical environment and the positioning between a) academics and technicians, b) students and technicians and c) senior leaders and technicians. This provides some insights into the historical positioning of the technical community at each of the institutions and explains the environment and culture for technicians before the Technician Commitment came into being. I also develop a typology of *organisational belonging* that describes the perceived positioning of the technical community within institutions. This ranges from a hierarchical environment with relatively hard boundaries (alienation), to an environment where boundaries are starting to be broken down and there is a more collegiate culture (affiliation), to an environment with softer, more porous boundaries where there is parity of esteem and mutual respect (alliance).

5.2 Vignettes of interviewees

The vignettes below are high level overviews, interpretations and summaries of the person, their employment history and role and the organisation, its history and position in terms of the Technician Commitment.

Interviewee A - Andy

Andy has a technical leadership role at a large, research intensive university in the south east of the UK. He has worked at the institution in a technical related capacity for over 30 years. He has played a significant role in a professional body related to his scientific discipline over this time. He is well known across the technical community beyond his own university. He has influenced colleagues at his institution to engage with initiatives to build profile for the technical community, one example is his establishment of an internal 'Technician Network' at his institution. Andy values external networks and has collaborated with other Technician Commitment leads in his region to share knowledge and expertise.

Andy's university was a founding signatory of the Technician Commitment and senior leaders are outwardly very proud of this, using their signatory status in news stories and e-mail signatures, for example. Andy reports being well supported and actively encouraged by senior leaders at his institution.

Despite his career progression into senior management, Andy's identity is still firmly rooted in his role as a technician. He naturally includes himself in the conversation when discussing the technical community, he talked about his personal experiences as a technician and used 'I' and 'we' frequently when referring to technicians throughout the interview. His responses indicate that he plays a bridging role between the technical community and senior leadership in his university. His interview responses demonstrate personal ownership and responsibility for this agenda.

Interviewee B - Barbara

Barbara has a technical role in a large research intensive university in the north of the UK. She has worked at her institution as a technician for 12 years. She is keen to advance the culture for technicians in higher education and has been instrumental in establishing an internal university technical network. She regularly interacts with technical colleagues in other universities and has a strong external professional network. Barbara's university were more cautious in signing the Technician Commitment, wanting to watch the activities of others before committing. Barbara was frustrated about this at the time but also appreciative that it made sense to be certain that the university could deliver against the Commitment's objectives. Her

university has been outwardly vocal in their support for the Commitment (and for Barbara herself) but Barbara does not feel that she has had the same level of personal encouragement, and open communication with senior leadership that she knows others at other institutions have had. Barbara has strong views about her experiences as a technician in her university but recognises that these might not be shared by others. Barbara considers herself to be a technician. This is demonstrated throughout the interview ("a technician like myself") but, in contrast to Andy, she sometimes speaks about technicians in the third person. She explains that she had been asked to lead on the Technician Commitment because she was the key coordinator for the technician network and was "the right person at the right time at the right place". Whilst Andy's role acts as a bridge between senior leadership and the technical community, Barbara is trying to create a bridging role between the technical community and senior leadership but does not think she is receiving appropriate support from her institution. She is frustrated with this but keen to ensure that she is not speaking negatively about her institution, recognising that other factors are at play.

Interviewee C - Charlie

Charlie is in a relatively new technical leadership role at a medium sized research intensive university in the south west of the UK and has been in a technically-related role at the institution for 12 years. Charlie worked in industry prior to working in a university. He sees himself as having a 'less typical' background and expressed frustration with his own perceived lack of influence. Charlie is the Technician Commitment lead because he had been leading a technical strategy at the university for a number of years. Charlie and colleagues have been working together internally for several years to develop and deliver a technical strategy for technicians at the institution which has been supported by senior leaders at the university. Charlie alternates between considering himself a technician and not – he used "us" on occasion and "them" on others. He feels less of a technician than more of one. In many ways he is similar to Andy in that he is on the boundary of two communities and plays a bridging role. His responses demonstrate that he is wrestling between his professional identities. Unlike Andy, and in a more similar vein to Barbara, Charlie does not feel fully supported in his role. Charlie is trying to play a bridging role between the technical community and senior leadership and can see this is needed.

His institution was an early adopter of the Technician Commitment and were keen to be outwardly vocal about their support for the initiative. Charlie's experiences within the university, as discussed in his interview, do not appear to align with this external presentation.

Interviewee D - Denise

Denise works in organisational development in a medium sized research intensive university in the south east of the UK. She has been at her institution for 11 years in a staff development role. Denise presents a formal, corporate image; she wears full business dress and is very much 'on brand'. This is evident in the tone of the interview which, though relaxed, feels more formal than the previous ones. Denise works with a range of staff groups and has worked with technicians for a number of years. Her institution was a very early adopter to the Technician Commitment and has put a number of initiatives in place to advance the aims of the Commitment since becoming a signatory. Denise is supportive of technicians and the need to advance their opportunities, but she can also see that this is needed in a number of other staff groups. She is professionally committed to the Technician Commitment and her role is delivery focussed, with a wider portfolio than this single initiative. Denise suggested that she was asked to take on the role of Technician Commitment lead as she was the person "doing technical stuff round there at that point".

Interviewee E - Emma

Emma also works in staff development and is based at a medium sized university in the Midlands. She joined the institution 17 years previously in a staff training role. Her institution was an early signatory of the Technician Commitment but she feels that this is predominantly because other universities in the area were signing up. Emma did not know a lot about technicians when she joined the university but has developed a passionate interest in their development; it is a group she enjoys working with and she describes a rapport that she has built with the technical community. Emma believes she became the Technician Commitment lead because she was working on a project with technicians at the time. She expresses some frustration at the pace of engagement from her institution. Emma can see that the technical community at her organisation have experienced isolation and she is keen

to address that and raise the profile of the technical community with senior leaders in the institution.

Interviewee F - Fiona

Fiona is two years into a technical leadership role in a large university that is predominantly teaching focused. Prior to this she worked at a research-intensive university and has an operational management and scientific background. Despite having undertaken technical roles in her career, she does not consider herself a technician, referring to "them" rather than "us". She leads the Technician Commitment at her institution because it provided a way to ensure that the Commitment reached technical staff across the institution. Fiona is strategically minded and can see clear links between the roles of her technical team and the translation of their activity to teaching and research outputs, measures and funding. She has engaged positively with the networking opportunities that the Technician Commitment has brought to her institution. There is a frustration that comes out in her interviews that her technical teams are not necessarily strategically minded and she feels that they do not help themselves when given new opportunities, for example, when some of them are reluctant to engage in new initiatives and activities. She is comfortable operating with both the technical teams and senior leadership colleagues and appears to be in a bridging role, able to speak with authority in both communities. Despite this, it appears that she does not know the extent of her influence, and she demonstrates a clear hierarchical relationship between her and her technical teams and senior leadership.

Interviewee G - Grace

Grace works in training and staff development in a large research-intensive university in the south west of the UK and has been in a training related role there for 27 years. Grace's institution's involvement in the Technician Commitment came from the technicians themselves who drove the agenda to get their university to sign the Commitment. Those technical colleagues were put in touch with their university's Chair of Governors who suggested the institution should sign the Commitment. Grace is careful to present a corporate view and is happy in her role. She has had specific responsibility for the development of professional services for the past three years. Technicians fall under professional services at the institution, so

she was asked to lead the institution's Technician Commitment because of her department's remit. Grace demonstrates good understanding of the technical community at her university but explains that much of that understanding is recently acquired from her work on the Technician Commitment. Grace is working hard to engage with the technical community and is trying to build technical colleagues' understanding of the wider institution. She is also challenging stereotypes and perceptions about technical roles with other university colleagues.

I now consider my interview data and discuss the themes that emerged in my analysis. The remainder of this chapter will consider the positioning of technicians in universities, *prior to the advent of the Technician Commitment*. Interviewees were asked about the environment for technicians at their institutions and how technicians were viewed from different perspectives over time, prior to the introduction of the Technician Commitment.

5.3 Academics and technicians

The relationship between academic members of staff and technicians is rarely explored in the literature and yet, the dynamics of university laboratories and workshops depend on it. The concepts of status and hierarchy are reflected in the responses from interviewees, with participants describing a distinct hierarchy between academics and technicians. Andy talks of a past culture where 'It was definitely an us [technicians] and them [academics]", illustrating a hard boundary between both communities. Denise also defines this boundary: "You are academic or you are non-academic" but acknowledges that "at other universities, I get the sense that there is more movement across that boundary". The use of the term 'non-academic', placing the academic community as central to the organisation, with all other staff being described as something they are not, reflects the traditional hierarchical boundaries between the technical and academic communities.

When discussing the historical interactions and relationships between academic and technical colleagues prior to the introduction of the Technician Commitment, interviewees described two distinct sets of experiences. Some participants spoke of the servant culture evident in the literature. This was particularly felt by the interviewees from technical backgrounds:

"We would just be the gophers, you clean up, you tidy, you do whatever you were told. You make the tea, wash people's cars, you'd make up solutions, you're basically seen but probably not even seen" (Andy)

"I'd say largely technicians were taken for granted and unloved, second-class citizens, a bit like servants in a large house kind of seen going up and down the stairs, different stairs. It's really what they think of us. You know, we know we're important… kind of you're not meant to say that we're really important because we're not entirely quite good enough". (Charlie)

Andy and Charlie both describe a lack of visibility and a lack of recognition and respect for their roles, particularly in Andy's comments regarding making the tea and washing the car, both being tasks that do not fall within a technical job description. The use of words "gopher" and "servant" illustrate this perceived lack of respect for the technical profession. There is an awareness from them that others consider their role to be important but there is a clear perception many in the academic community have not always recognised this, leaving technical staff to feel quite isolated within academia.

Interviewees in organisational or staff development positions describe similar experiences:

"We have got people who just say, well, it's just a technician, you know, you're just a technician, why would you—? You know, why would I involve you in that? And I think that there are some people outside of – even outside of schools and colleges who see it as a kind of, well, it's all a bit 1970s, you know, isn't it? It's all brown coats and don't they just, you know, do lathes and things? And, you know, is that even what we should be having in institutions anymore? And that's incorrect, you know, it is absolutely incorrect". (Grace)

"Some of them are treated as odd job people if something needs, you know, if a loo is broke or something "let's get a technician" …which is wrong". (Emma)

Grace and Emma both recognise that there can be a lack of understanding and respect for technical roles within their institutions, along with wider inaccurate stereotypes of what a technician is and does, which they both view as incorrect. Although not technicians themselves, they observe a difference in how technical roles are viewed, in comparison to academic roles. There is also a perceived underappreciation of the technical work required to enable research:

> "I remember somebody saying to me once, "Well, we've got – it's that bloke who mixes cement all day". Yes, he does mix cement all day but it's for civil engineering. The way in which he's doing that is fundamental to how that research is going to go forward". (Grace)

Grace's experience demonstrates the lower status placed on practical work and technological capital and suggests a lack of appreciation from her colleagues as to the technical contributions to, and subsequent impact on, research and innovation.

Discovery and innovation is a collective endeavour with a multitude of skills, tasks and roles required, which are all interdependent on each other for success and all deserve respect, status and value. Whilst my data is limited, it resonates with the picture presented in Chapter 2 of two distinct staff groups with a firm boundary between academic and technical communities, and reflects the low value reportedly placed on the hand, or technological knowledge associated with technical staff in comparison to the head, or theoretical knowledge associated with academic staff.

Barbara recognises that her profession's lowly status needs to be challenged:

> "I know that status of technicians is lowly. And I take exception. So, I suppose that's where I am coming from is that I like to be respectful of other people and I expect it to be coming to me. And I would want it for other people and we should be seen as a team". (Barbara)

Universities are traditionally viewed as the home of academic knowledge, this positioning of technical staff in relation to academic colleagues can lead to technical staff feeling undervalued. Andy illustrates this low status, along a lack of professional identity conferred on the technical community when he says that "some of the older academics, well not just older, say [to technicians], 'well, how can you

call yourself a scientist?". He is frustrated by such dismissive attitudes given the practical and academic credentials of many of his technical colleagues. Denise's earlier observation about a movement across boundaries may be a reflection of the increasing educational credentials of many technical colleagues, though such a change might not be widely recognised amongst academics. Andy sees such mixed attitudes towards technical staff in his institution:

> "Some folks, some people think technicians are great and they do a really good job, other people, it's just 'oh, just a technician'. And they just saw people who washed up test tubes and go in dark rooms and fiddle with equipment. But for some, and it's more and more, and the young PIs and the young professors coming up just don't really differ between a post doc and a technician. So there is a real difference. And certainly with the PhD people and the postdocs, they now recognise that if they've got a good technician running their lab they've got some gold-dust. And that's changed so that's really good". (Andy)

Grace also recognises this shift in perspectives on the work of technical roles:

> "And for some people, if you ask them, do you, you know, how do you see your technician, they would say, "I didn't even know they were a technician. To me they're just part of the team". (Grace)

This movement across less well-defined academic-technical boundaries, from a culture where technicians have experienced a lack of visibility and status - to a culture where technicians are increasingly integrated into academic and research teams is exactly the type of movement that the Technician Commitment seeks to drive. Grace recognises this change in her institution's School of Chemistry:

> "I've got colleagues, for example, in the School of Chemistry who not only get acknowledged on papers but have actually been named on papers. And there's technicians that, that's not unusual. But in other areas I know that that would never have been true, it's not true now, it wouldn't have been true five years ago". (Grace)

Recognising the contributions that technicians make to research through acknowledgement or authorship on research papers shows recognition of the theoretical knowledge and inputs that technicians make to research design and implementation and is a clear signal of the blurring of the hard boundaries between these two staff groups. Grace describes the inclusion of technicians on research papers as a positive development, but there is an argument that it should be normal practice to name all contributors as co-authors, despite their job role, rather than something to be grateful for because of their job role, another indication of the boundary between technicians and academics.

To summarise, when exploring the positioning of technicians in relation to academic staff *prior to the advent of the Technician Commitment*, there were two broad perspectives amongst interviewees. Some report a boundary between technical and academic roles, characterised by a difference in status. In some cases, this was a perceived to be a hard boundary, for example, with technical staff being referred to as "just the technician". In other cases, there was a recognition that this boundary was beginning in soften in some areas, for example, with technical staff being named as authors on research papers.

5.4 Students and technicians

As discussed in Chapter 2, many technicians play a key role in educating students (both undergraduate and postgraduate) and in providing a positive student experience, for example through the provision of pastoral support. Indeed, the majority of technical roles involve helping others to develop new skills and understand new concepts to some extent. The relationship and interactions that technicians have with students, and the roles of technicians in teaching was mentioned by nearly all of the participants, despite them not being directly asked about it. Andy reflected on how his own technical role evolved to be student facing:

> "I was allowed to mix with the, with the students, so I could show how
> equipment worked. And, slowly, after a while, this was recognised and
> I was then encouraged to go out and help. So it did slowly change."
> (Andy)

Andy's reflections echo the boundaries highlighted in the previous section between academic and technical roles and work. He recognises a movement over time and across traditional boundaries. Andy's use of the word "allowed" reflects the hierarchy discussed earlier, when discussing the relationship between technicians and academics. That boundary softened once his ability and formal knowledge was recognised. As well as demonstrating "how the equipment worked", Andy's career progressed and he regularly delivered practical teaching in anatomy to students, including concepts and theories.

Andy's university is a large, old, research-intensive organisation and therefore this boundary could have been very embedded, making it harder to cross. Fiona's institution is a large post '92 teaching focussed university and her experiences differed with technicians being fully integrated into the teaching of students:

> "We have technicians who are in front of – running seminars, you know, running skills based training and learning directly in front of students, without an academic being there [and it is] kind of part of their routine role." (Fiona)

Fiona's experience is in an environment where the teaching role of technicians is clearly embedded and the boundary between academic work and technical work appears more porous. Fiona believes that this has led to technicians having positive relationships with students:

> "I think they've [technicians] always had a really positive relationship with students and, and a good relationship with students" (Fiona)

She also believes that this is valued and recognised by university: "I think that was one thing that senior management would of, would of recognised actually." This is in contrast to Barbara, who, like Andy, is in a technical role in a large, research-intensive university. Barbara recognises that technicians are contributing to the student experience: "I think the teaching technicians really do contribute to the student experience with the kind of ground level so to speak". However, her perception is that her institution does not recognise or place sufficient value on the roles that technicians play in educating students: "I don't think they [technicians] are

given a lot of, I don't think they have a high status, but I think that they are involved with students a lot".

Emma, who works in staff development in a research intensive university describes "the unsung hero and heroine role that they are doing in terms of students", demonstrating a knowledge of what technicians do to support students but a perceived lack of recognition for the roles technicians play in supporting students at her institution. Grace, who also works in staff development in a research intensive university recalls her surprise when learning more about the roles of technicians:

> "I was surprised back then as to how big a role the technical community had in the Schools around the student experience, and teaching, and how much support for teaching there was. They still obviously are significant in the student experience. They are very significant to students. And I don't think that we necessarily acknowledge that particularly." (Grace)

The boundaries between academic work and technical work, in particular the perceived lack of recognition of the interactions and relationships between technicians and students appear to be more embedded in research intensive institutions. This could be because these institutions are often older, with deep, entrenched traditions and divisions between staff groups, and a strong hierarchy in staff structures. These levels of hierarchy often create multiple layers in their structures, of which technical staff are often at the bottom because of their perceived lower status. This can lead to insufficient visibility of the interactions between technician and students and a lack of awareness and appreciation of the contributions that technicians make to the student experience.

Fiona's experiences in a post '92 teaching focussed institution are different, with her institution ensuring visibility of technicians in seminars and skills sessions. Students thereby form strong relationships with technical staff and benefit fully from the technological and theoretical expertise of their technical staff: "Technicians [have] a strong relationship with students" (Fiona). Yet the interactions between students and technicians are not restricted to teaching activities. Barbara is keen to emphasise the key role of technicians in supporting the pastoral care of some students:

"I think students would maybe go to them [technicians] before they might go to a more senior member of staff. They are a bit more accessible and they are maybe a friendlier face. They tend to be the first line of contact in a lot of situations". (Barbara)

Technical staff make valuable contributions to the teaching and learning experience of students and the frontline nature of their roles means that they are also providing important pastoral support. The perceptions of interviewees are that these contributions, both what technicians bring to teaching and learning and what they bring to wellbeing, do not appear to be recognised, particularly in the research-intensive universities, another example of the boundary between technical work and academic work and the perceived lower status of the technical workforce.

5.5 Senior leadership and technicians

The perceived relationships and interactions between organisational senior leadership and technicians were a strong theme that emerged from the interviews. Interviewees presented a view of a staff group that were isolated from senior staff and the wider institution. Several reasons for this arise in the analysis.

Firstly, there is a perceived lack of understanding about the roles of technicians, from senior leaders generally and also in some cases from the interviewees themselves as Technician Commitment leads. Interviewees were of the view that senior leaders in universities considered that technical staff were a difficult group to engage with. Fiona explained: "I think technicians were viewed as being a difficult and negative staff bunch". She goes on to say: "They were viewed as being quite unionised and, and quite difficult to engage with".

Historically, technicians in universities have been members of different unions from the unions that academic staff have joined. This is another distinction between academic work and technical work, though interestingly the academic community were not described as unionised at any point in this research. This may reflect a perception that technicians are undertaking 'blue-collar' work; work that is considered manual labour and unskilled with trade union membership a historical characteristic. Fiona believes that "they [technicians] didn't have very good relationships with maybe senior colleagues". Emma recounts similar experiences at

a large university in the Midlands. She reports senior leaders describing the technical community as "difficult, won't move on, been here a long time, difficult". She describes the senior leadership perception of the technical workforce: "They were just known as collectively people were saying, 'We don't want to do anything for technicians they just moan, they whinge.'"

Historically, technical staff in universities have not had many opportunities to engage with their senior leadership teams and there has been a lack of representation of technical staff within university governance structures. Until recently, the only formal way in which technical staff could interact with senior leadership teams would be through committees where technicians were present as union representatives. This could provide an explanation for these viewpoints, as the conversations at those fora would naturally be about pay and conditions for example.

These historical descriptions of technical staff being described as difficult, together with a reluctance from some senior leadership to engage with the group, builds a picture from some of the interviewees of a divide across staff groups. Technicians were also reported to be disengaged with the organisation:

> "They were known as the most disengaged group because our staff survey, our last staff survey in 2012, showed they came out as the least engaged. Yes, so the most disengaged group and least motivated."
> (Emma)

On one side there is a technical staff group who are considered difficult, disengaged and demotivated by some senior leaders in universities. To explore an alternative view, interviewees were asked how they perceived technicians to view the senior leadership perceptions of technicians. Denise, who works in staff development in a research-intensive university, believes that technicians think leaders view them as a lower status staff group: "I think technicians would possibly say that they are lower down the hierarchy". She goes on to explain that:

> "From technicians themselves, you definitely got a feeling that they felt isolated, they felt ignored, they felt like they weren't valued or seen to be valuable within the workforce". (Denise)

The perception of technicians being a staff group that is ignored is echoed by Barbara: "I really just think it's been a group of staff that have been ignored up until now". She recognises the lack of visibility placed on technical work: "I think it is the invisible efficiency; jobs are done, nobody ever stops to think who has done them". Charlie puts this down to the "closeness of technical staff to the academic delivery. So it's just kind of taken for granted, just happens". A historical lack of recognition and value on technical work is also discussed by Andy:

> "For most of them [senior leaders], the technician was there to just do things, wash up, make up solutions, do as they're told, they weren't meant to think for themselves, they just did it. And so they, they're the ones that made it happen but they never got any, any credit for it whatsoever". (Andy)

These experiences reflect the historical boundary between academic and technical communities, as discussed earlier in this chapter and echoes the literature, where the theoretical knowledge associated with academic staff is seen to be more valued than the practical knowledge associated with technical staff. This is not surprising, given that senior leaders in universities mainly come from academic backgrounds and roles, which means that the perceptions, preconceptions and beliefs academic colleagues may have about the value of technical work are taken with them as they enter senior leadership positions.

Senior leaders' perceptions about technical work could be due to limited awareness and understanding of the work of technicians in universities. There was a perception amongst interviewees that some senior leaders in universities struggled to understand technical roles. Fiona is the Head of Technical Services in a large post '92 university. She believes that senior leaders struggled to make links between what the university wanted to deliver on a strategic scale in relation to the contributions of the technical community:

> "They were viewed as being not joined up with organisational priorities on the whole and I think that people didn't really know what they did, so lots of – senior leadership really - didn't really know what they did, but they knew – they thought that they spent quite a lot of money on

quite a large staff body that they didn't really understand what value they were adding" (Fiona)

This partial understanding can translate into the use of university finances. If senior leaders do not understand the value of technicians to the organisation then the technical community will be vulnerable when cuts are required: "If job cuts were going to be made or resourcing cuts were going to be made, it was going to be technical roles that went" (Denise).

The perceived low levels of understanding of technical roles by some senior university leaders, and the perceived absence of join up to institutional priorities indicates a potential lack of synergy between the roles of the technical staff group and wider organisational strategy. If the linkage can be made, senior leaders can better understand how the technicians in the organisation are contributing or can contribute to the wider aims of the institution. This gap between the technical community and senior leadership and organisation strategy was identified at Fiona's institution:

> "It was recognised that technicians really are essential to teaching and research and unless they, you know, unless this kind of stalemate was remedied then neither the technicians were going to get an opportunity to develop and the organisation wasn't going to reap the rewards that the, that the technicians had to, to offer students and the NSS and REF and, and all the rest of it." (Fiona)

Linking the work of technicians to organisational priorities and strategic initiatives, such as work to secure good outcomes in external frameworks such as the National Student Survey (NSS) and the Research Excellence Framework (REF) could be a key factor in breaking down boundaries between staff groups and build mutual understanding. Grace, who works in organisational development at a research-intensive university recognises that for constructive progress to be made between the technical community and senior leadership, work is needed to get senior leaders on board:

> "But that's why alienating, you know, anybody that just wants to lob stones over and say, well, you don't really – you don't value the

technicians, you don't value the technicians, you don't—that won't help us, you know, we have to create that alliance, that affiliation, amongst our senior people because we have to get them on side. Not because, you know, they're all going to suddenly have a lightbulb moment and go, "Oh, yes, we forgot the technicians". But everybody can gain something from this, you know, and I genuinely think some people get that but it's absent to an extent on both sides". (Grace)

Historically there was a potential disconnect between the technical staff group and senior leaders. Fiona describes this as a "mismatch between people doing operational things and people setting strategy, a discord between the strategy setters and the operational people". The mismatch Fiona describes may be in part because technical staff were rarely invited to be part of strategic decision-making conversations.

"That there wasn't necessarily technical people on the committees and there wasn't really technical people as part of the senior leadership team, so therefore the senior leadership team, there wasn't a technical voice there, representing technical people". (Fiona)

Technicians were rarely on organisational decision-making committees in universities and a potential explanation for the isolation experienced by technical staff groups: "We're not quite good enough [to be at the table]. I don't know why that is" (Charlie). If technicians have no voice and their expertise is not deemed valuable enough to contribute to these decisions, it builds a culture of isolation and disengagement: "They (technicians) didn't get involved in staff meetings and any sorts of meetings" (Andy). Both groups, senior leaders and the technical community are responsible for improving this interface.

The historical positioning of technicians between organisational senior leaders and technicians reflects a hard boundary between the two groups. Interviewees describe experiences where senior leaders appear detached from the work of technicians, demonstrating a lack of awareness of technical roles and activities, which translates into a lack of understanding of how the work of technicians can impact institutional strategy and performance. Technicians were perceived to feel undervalued, ignored and invisible to their leadership colleagues, which can result in demotivation, a lack

of engagement and a feeling of being isolated from the leadership of the institution and therefore the institution as whole, leading to a lack of organisational belonging. Some interviewees recognise the power of bridging this gap and can see the benefits that both parties could realise if the boundary between the technical community and senior leadership can be softened. Technicians need to be able to understand their roles in the context of the wider institution to ensure they feel visible and valued. Senior leaders need to understand the roles and work of technicians and how this is of strategic importance to the organisation.

5.6 A proposed typology

A recurring theme in the data concerning the pre-Technician Commitment positioning of technicians is the presence of boundaries, albeit of different strengths, between academic roles/work and technical roles/work and between technicians and senior leaders in institutions. The participants' historical views are of technicians as a relatively undervalued, misused and misunderstood staff group. This has led to feelings of isolation and a lack of organisational belonging in technical communities. The findings can be summarised in a 3-part typology of *organisational belonging* that describes the positioning of the technical community within institutions.

Participants explained how, prior to the Technician Commitment, their institutions maintained clear boundaries between technicians, academic staff and senior leaders. In some cases, there was evidence of some softening or blurring of those boundaries though each institution was at a different point on a spectrum.

At one end, technicians are experiencing **alienation**; there are deep rooted, hard divisions between them and the organisation within which they work, as demonstrated by their interactions with academics, students and senior leaders. They experience a traditional, high power-distance relationship, there is a lack of respect and engagement with them as a key part of their university community.

In some institutions those hard boundaries seem to have started to soften prior to 2017. This represents a move from alienation to an environment where technicians begin to experience **affiliation**. In these places technicians are beginning to be thought of, included, and engaged with and the environment and culture becomes more generous and mutually respectful.

The third part of this typology, though not an environment described by interviewees prior to the introduction of the Technician Commitment, is where technicians experience what might be termed **alliance.** In such environments, technicians experience genuine parity of esteem and a collegiate culture that recognises <u>all</u> colleagues engaged in research and teaching.

Alienation	**Affiliation**	**Alliance**
Hierarchical environment with hard, deep-rooted boundaries between them and the organisation within which they work	Boundaries are beginning to soften and environment and culture starts to become more mutually respectful	Parity of esteem, mutual respect and a collegiate culture

Figure B: Alienation – Affiliation – Alliance: A typology of organisational belonging

One of the limitations of applying this framework at the institutional level is that it homogenises the experiences of technical staff. It is important to acknowledge that there are many subcultures operating within large institutions; technicians in one department may have a very different experience to those in another department or research group for example.

5.7 Summary

This chapter has explored participants' perceptions of the historical positioning of technicians with regards to three different groups in universities: academics, students and senior leaders. This analysis shows the positioning of technicians within higher education over time and leading up to 2017, when the Technician Commitment was introduced.

Having explored the perceived positioning of technicians in higher education before the introduction of the Technician Commitment and established the beginnings of an emerging framework of organisational belonging in terms of environment and culture for the technical community, in the next results chapter I discuss the intervention of the Technician Commitment initiative, exploring institutional motivations and enabling factors. A third results chapter will explore the impact of

the Technician Commitment and discuss whether the initiative has helped institutional cultures to move from *alienation to affiliation to alliance*.

Chapter 6: Engaging with and experience of the Technician Commitment

6.1 Introduction

This chapter explores institutional reasons for engaging with the Technician Commitment and then how those signatory organisations interpreted and enacted the Commitment. Any sector-wide policy or intervention such as this is not made in a vacuum and the espoused and lived versions of such change agendas can differ. The Technician Commitment interacts with the particular history, culture and practices of each higher education institution. This chapter therefore explores how these contextual factors motivated institutions to engage with the Commitment and, after signing, explores the experiences of leads to ascertain the key factors that were needed to ensure progress and enactment. It draws on interview data with the designated institutional lead for the Technician Commitment.

6.2 Motivation for signing the Technician Commitment

A number of common themes are apparent as the key drivers for signing the Technician Commitment and these can be organised into three broad themes: 1) **external influences**, reputation and competition, 2) **internal signalling** demonstrating commitment to technical staff groups, and 3) as an **agenda setting** tool for improving support for technicians. These categories are not mutually exclusive and I will now explore each in turn.

6.2.1 External influences, reputation and competition

The interviewees clearly perceived a reputational driver for signing the Technician Commitment. More than that, there is a sense of institutions wanting to be seen to be one of the first to commit and engage: "I think the drivers were to do things to show that we were one of the first institutions" (Emma); "They really wanted to be one of the first ones to sign it" (Andy).

Emma, who works in Professional Development, uses "we" to indicate her sense of ownership of the decision and perhaps her involvement in the decision-making process. It might also reflect a much more inclusive institutional culture. Such use of language might seem like a small point but it is precisely these sorts of linguistic and

cultural shifts – with different groups feeling valued and included – that is central to the Technician Commitment vision. Andy, on the other hand uses the word "they" when talking about the university, indicating that he was not party to the decision. Whether or not this was a more senior person with responsibility for technicians or perhaps the university's executive board is unclear. What is striking though is that Andy is a Technical Manager who doesn't see himself as part of the decision-making apparatus. Whilst Andy's institution might care deeply about the inclusion and wellbeing of its technical staff, he clearly feels that external reputation is key.

This keenness for an institution to be a founding or leading signatory of the Technician Commitment was thought by interviewees to enable a university or research institute to position itself in the sector, part of its soft branding: "I think it was very much that they wanted to be seen to be impressive in the sector, a differentiator like badges, like league tables" (Charlie).

As with Andy, Charlie is another Technical Manager who uses the word "they" when describing his university. There is, perhaps, a hint of cynicism in this view, namely that the Technician Commitment is another badge (such as Investors in People, Athena Swan Charter, Race Equality Charter, etc) and therefore is a kind of institutional posturing. Over time, the need for such badges changes. Moving from 'first mover advantage', as the number of signatories gets larger and larger, there is a risk of being negatively associated with those who have not signed up as explained by Barbara: "I think it was a reputational risk not to sign it.". This sense of competition, of not being left behind and therefore exposed in some way is explained by Denise and Emma:

> "…there's a competitive element, as there is with most universities.
> You know, being able to showcase that you have the same standards
> and approaches as other universities, ideally better of course." (Denise)

> "Yes we definitely need to do this especially as all the [regional]
> universities are doing this as well." (Emma)

The types of institution that were engaging with the Technician Commitment was also reported to be an influence on whether an institution chose to engage. This

reflects institutional hierarchies such that, for example, the majority of Russell Group universities had signed the Commitment and others were keen to follow suit.

These rather managerial approaches to behaviour change might be considered a good thing, but if it produces only commitment *in words* without any substantive change *in deeds* then the initiative's potential is blunted. That said, there did seem to be a sense amongst the interviewees that the Technician Commitment was something of genuine importance, that they "were all committing to something (that) was important" (Denise).

Not all institutions became a founding signatory of the Technician Commitment in phase one; some took a 'wait and see' approach. This might reflect a different kind of primary motivation, not of being seen to be doing the right thing, or of leading the way, but of learning from those change leaders and deciding what really mattered, and worked, in the process. Barbara's institution, a research-intensive university in the north of the UK, took this approach observing how others approached their initial response to the Commitment. This shaped their Technician Commitment strategy and Barbara felt that this approach showed that her institution were serious about doing something meaningful with the initiative:

> "We had a bit of momentum; we had a bit of HR interaction. So, there was a bit of a push, but we sat back for a while to see what everybody else was doing. I don't think it's a coincidence that we saw what everybody was doing and that we thought we should sign it. But to be fair, sitting back was maybe thinking if we sign this we have to put something in there, I like to think that's fair. So, it wasn't signing without having some sort of plan, some sort of resource. I think it was reputational really so, we could see what other people were doing."
> (Barbara).

It is perhaps not surprising that institutions were perceived by the interviewees to be signing the Technician Commitment for reputational reasons as this is very much the culture of higher education at the present time. The Technician Commitment is trying to break down barriers of status and hierarchy amongst staff groups and yet such classifying seems endemic to university life, both between and within

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universities. Recognising this, as evidenced in the interviews, is a helpful reminder of the challenge of meaningful and sustained culture change.

There was one research intensive university in the sample of universities where the lead stated that they had not been immediately keen to engage with the Technician Commitment. Like Barbara, they were keen to watch and learn from the initial adoption phases. This interview raises questions about how and where such decisions get made. Andy identifies an anonymous 'they' but here Grace is more specific about the role of non-executive governance in influencing:

> "We were kind of interested in this, and I made our Chief Operating Officer aware because obviously she was responsible for the technicians. And there wasn't an enormous, you know, amount of interest, it wasn't one of the things, I don't think, that was catching her attention at that time. And then our Chair of Council, sent an email to a couple of people and said, "This looks exciting. I'm sure this is something [institution] might be interested in". And as a consequence, we were. And so, nobody was anti it but I think in honesty, until [Chair of Council] just tipped that balance a little bit, that I think possibly up until that point we would not necessarily have been in that first tranche of people who signed. But it's a relief that we did really because, you know, we don't like, generally don't like to be left behind". (Grace)

Similarly to Emma, Grace, who works in organisational development, uses the word "we" when discussing her university. Although it is impossible to generalise from such a small sample of interviews, it is worth considering whether colleagues in professional services feel more a part of the university than their technical peers. It is also interesting to note that the Chief Operating Officer didn't at first see the Technician Commitment as a priority which raises the question of whether they were the right person to hold responsibility for technicians.

6.2.2 Internal signalling

So far in this chapter I have focused on the perceived importance of external positioning and signalling with the HE field, particularly for research intensive institutions; of being seen to be doing the right thing and of not being left behind.

Although this might not be the only driver for engaging with the Technician Commitment it is nevertheless important as it might provide insights about the ways in which the institution enacts the Technician Commitment.

The second area of motivations that I want to explore is internal; signalling institutional commitment to one's own technicians. Fiona explains the motivation of her post '92 university to support the Technician Commitment as follows:

> "I think that it was a formalised manner in which the senior leadership could demonstrate their commitment to, to the technical workforce, because if you actually talk to the really, really senior people at the university, they all recognise what an important part technicians play in the university ecosystem. Somehow that was getting lost in translation between the very senior people and the, the kind of middle management, if you like. You know, so the Technician Commitment has allowed the senior leadership to make a really clear commitment to technicians and, and I think that on the whole, apart from one or two really cynical people, that technicians have reacted positively to the Technician Commitment". (Fiona)

This reflects a real sense of valuing people and the important contributions played by all components of an 'ecosystem'. Metaphors are important as they have generative power (Duit 1991) and so not only reflect understanding but also frame possibilities and help to create realities. One can think differently with the language of ecosystem than architecture, for example. The ecosystem metaphor signifies something organic, complex and interdependent and also suggests evolutionary change processes. The emphasis here is on a primary commitment to the organisations' technical staff community rather than external recognition, competition or funding hurdles. The goal is to appreciate all parts of the system. That said there is some sense of hierarchy in Fiona's thinking (e.g. "really, really senior leadership" and "very senior people") but this is not incompatible with the ecosystem metaphor. It seems that this hierarchical reference is more about communication, having a language (e.g. 'lost in translation') that would ensure closer alignment of senior leaders' vision with practice across the organisation.

Fiona refers to "one or two cynical people" amongst the technician community at her organisation, though it isn't clear whether their cynicism is targeted at the Technician Commitment itself, or the motivations of senior leaders in signing up. If technicians view the organisation's Technician Commitment as being due to concerns about reputation and competition, rather a genuine desire to develop the technical workforce, it is understandable that cynicism can result. In Fiona's institution, the perceived motivation does appear to be valuing the technician workforce though persuading the staff concerned that this is genuine is not always so easy:

> "The biggest challenge has been from technicians themselves, so you know, that thing where I say sometimes they're their own worst enemy. You know, the biggest challenge has been persuading them that it's not just, just hot air and that if, you know, if they engage with it that it can actually change people's perceptions of technicians within the organisation and, and it is a way that they can access training and development." (Fiona).

Emma also refers to some technicians' scepticism regarding the authenticity of the institutional motivations to sign the Technician Commitment:

> "Technicians, so I had some that were like, 'This is brilliant, this is great.' Others, 'Oh it is just something that we tick box, we are just signing up for it and it is just another thing to make us [the institution] look good.'" (Emma)

Organisations are likely to have multiple reasons for signing the Technician Commitment but what seems to be important here is the clarity and authenticity of motivation(s) as well as good communication and co-ownership. As discussed earlier, Andy's research-intensive university was very mindful of the external factors in signing the Commitment. He also recognised the importance of signalling a high-level commitment to the technical community by supporting the Technician Commitment initiative:

> "I think they wanted the technical staff to recognise that they, that they recognise their work, if that makes sense. So I think they wanted to

send out a signal to everyone that they were signing this to make a
clear, a clear commitment that they were here to help both internally
and possibly outside to the wider world. Because before that, frankly,
[Institution Name] and technical training just didn't exist. And I think
they suddenly realised other places were doing a lot more for their
technical staff than they were." (Andy)

For Andy's institution, the Technician Commitment offered an externally recognised
and clear way for them to demonstrate to their technical communities that they were
valued. It also made the organisation hold a mirror up to its own practice and
developments in this area and acknowledge that they were lacking in comparison to
other organisations.

The Technician Commitment provided an external badge, but also offered a way to
internally signal that they recognised the contributions of technical staff to the
organisation. This example shows how the different motivations are not independent;
the reason for engaging with the Technician Commitment might start off being
external and performative but a process that exposes previously hidden
organisational arrangements might result in moments of institutional reflection and
change. Given that the goals for the Technician Commitment are much more about
internal cultural change than institutional posturing this example is interesting.

6.2.3 Agenda setting

I now discuss what appears to be a distinctive third motivation that emerged in the
interviews - **agenda setting** - where the Technician Commitment was perceived to
provide a framework for organisations to plan and enact change agendas. This is
related to *internal signalling* but I separate it out because although it is hard to
undertake *agenda setting* without *internal signalling*, a weak form of *internal
signalling* might not lead to meaningful *agenda setting* and cultural change.

The Technician Commitment is based around four key pillars; visibility, recognition,
career development and sustainability. Together with a fifth pillar - evaluating
impact, which takes the form of an institutional self-assessment and action plan - the
initiative provides a framework for organisations to advance the status of, and
opportunities for, their technical communities. This simple framework helped

institutions to engage with the Commitment, as Denise explains: "We were really keen because it gave that framework, it absolutely gave something to shape activity within and to give it the driver". Similarly, Charlie described how "the Commitment is something that gives some tangible structure to the community that people want to have, that sense of a collective discipline, professional group" (Charlie).

Denise, like Emma and Grace (see above), uses 'we' to describe her interaction with the Commitment, demonstrating collective ownership. It is a point that I have already made but seems worth reemphasising; colleagues in professional services seem to feel more a part of the university ('we') in comparison to technical colleagues ('they'), though admittedly I am drawing a conclusion from a rather limited sample. The framework of the Technician Commitment has helped to catalyse a programme of activity supporting the technical community but importantly this gets to some of the structural challenges: "Actually people got a framework that's organisational wide that maybe you can influence some structural stuff, like pathways and all of that sort of thing as well" (Denise).

This systemic, holistic emphasis is important for sustaining change. One of the ways whole-organisation buy-in is achieved is through institutional sign off from senior leadership and in universities this is usually the Vice-Chancellor. Indeed this process was considered crucial to agenda setting: "Having the Vice-Chancellor sign the Technician Commitment…it gives you some authority and uses some status that wasn't there before" (Charlie).

The Technician Commitment appears to play differing roles in the organisations that have signed up to its principles. In some cases, the primary motivation is a badge for external display. In others the lead motivation seems to be a desire to signal institutional commitment to the technical community. A third motivation is the structured framework it offers which facilitates and enables organisation to advance change for the technical community in their organisations. As previously acknowledged, these motivations are not independent and the impetus to sign the Commitment is likely to come from a blend of these motivations. Tensions can arise when different groups perceive different motives for engaging with initiatives such as the Commitment. This is not surprising as new policies are never implemented into a vacuum but rather in institutions with varied priorities, structures, cultures and

histories. There is a reaction that takes place between commitment and context and this is something that I will reflect on in the discussion chapter.

Table D below summarises the motivations of the seven institutions, albeit based on limited interviewee responses. External signalling was an important factor for them all, with three of the leads believing that the motivation also stemmed from a desire to genuinely advance the environment and culture for the technical community (A, D, F).

Technician Commitment Lead	Motivators		
	External Signalling	*Internal Signalling*	*Agenda Setting*
Andy	Yes	Yes	Yes
Barbara	Yes	Partly	Partly
Charlie	Yes	No	No
Denise	Yes	Yes	Yes
Emma	Yes	No	No
Fiona	Yes	Yes	Yes
Grace	Yes	No	No

Table D: Motivators

Having discussed the motivational drivers for institutional engagement with the Technician Commitment, I now turn to consider participants' perspectives on how the initiative was enacted within these organisations. Having mentioned above that there can be within-institution differences on motivation, so too there will be varied perceptions of what is happening. That said, this group of people leading the implementation of the Technician Commitment in their organisations have a privileged point and angle of view on the process.

6.3 Experiences of leading the Technician Commitment

Analysis of the experiences of those leading the Technician Commitment within their institutions identifies three broad *enablers*:

1) **resources,** for example budget, staffing and time management;
2) **senior sponsorship** and how this demonstrates institutional ownership and facilitates action; and
3) **engagement** from the institution's technical community, including how individuals act informally as champions to advance this agenda.

Table E below summarises the analysis of which enablers have been enacted at their institutions.

Technician Commitment Lead	Enablers		
	Resource	*Sponsor*	*Engagement*
Andy	Yes	Yes	Yes
Barbara	Yes	No	Partly
Charlie	Yes	No	Partly
Denise	Yes	Partly	Partly
Emma	No	No	Partly
Fiona	Yes	Yes	Partly
Grace	No	No	Partly

Table E: Enablers

6.3.1 Resources

An institutional commitment to sign the Technician Commitment does not necessarily come with the resources to makes the changes that the Technician Commitment requires. The allocation of the necessary resources is linked to the motivations for signing the Technician Commitment discussed above. Grace explained that there was no additional resource, formal time allocation or budget for them to progress the Commitment within their institution:

> "It's just me, I don't have any resource for it, I have no— we don't have a budget for it. And it's a strand of what I do. And I know that that's not true everywhere but for here it is, and I don't see that changing really, you know." (Grace)

She appears to accept this and is resigned to the situation she finds herself in. She does not think she has the power or influence to change this. The role of the leads, their power, influence, knowledge and network appear to be integral to the level of resource allocation within the institution. Emma describes a similar situation:

> "I thought because of this I will probably get somebody to work with me, to help, but that didn't really happen. I think I was probably a bit naive and thought wow because this is going to be a major project we must be able to allocate resource." (Emma)

Grace and Emma both come from institutions where the perceived motivations for signing the Technician Commitment were linked to external signalling. Whilst the Technician Commitment does not mandate dedicated resource allocation as a prerequisite of being a signatory, a lack of budget and staff to dedicate to the initiative may make it harder to make progress in comparison to those organisations who have committed resources. Grace and Emma's organisations are reliant on existing staff members taking on additional responsibilities. This makes it appear, both internally and externally that the initiative does not have serious backing from the institution. This is important in terms of how it influences the engagement of the technical community.

Denise and Andy are both from organisations where the perceived key motivators include agenda setting. They present a different picture:

> "[Colleague] spearheaded the case for having dedicated resource for the Technician Commitment. So we have a half-time in post, which we never had before. It had always been part of my role with parts of some admin support when, when it was available, so having that dedicated half-time post for it I know has really helped as well." (Denise)

> "[Institution] have proved themselves, they give me as much money as I need for everyone's professional registration. If people want to go on courses we've got budgets to help them, you know, so there is a lot more training and a lot more help there." (Andy)

These examples highlight different approaches to the Commitment. It is possible that those that are not providing dedicated investment are not as engaged with the initiative. This could link to possible reputational motivations for signing the Technician Commitment discussed previously, for example, the idea of getting the external 'badge' without the desire to invest in advancing change within the organisation. Alternatively, the institution may have limited financial resources and/or may not have prioritised this as a strategic priority for the institution. Technicians rarely feature in organisational strategies and their work may not have been linked to common goals such as ensuring excellence in research and improving

the student experience. Therefore the provision of dedicated resource to support the Technician Commitment may not align to current institutional priorities.

A key factor in the securement of budget and resource in the cases of Andy and Denise is that they themselves, or a colleague, asked for investment. Where an institution has strong voices lobbying for investment, in one case, a prominent technical member of staff (Andy) and in another, a senior operations manager in the institution (Denise), this influence then moves the Technician Commitment up the list of priorities for investment.

An additional factor is that both Denise's colleague and Andy had the know-how to navigate the institution's structures in order to bid for investment. They either knew how and where to ask for support or were advised on this. Technician Commitment leads come from different roles within the signatory organisations. For example, some are from organisational development and human resources, some are academic members of staff and some are technical staff. For some of these leads, the Technician Commitment will be the first time they have led on the roll out of an initiative at an organisational level. Consequently they may not have the tacit knowledge possessed by some colleagues of how to navigate organisational structures, committees and the experience of how and who to approach for funding. There may also be what could be described as naivety; that funding will just be given automatically. Some of the colleagues in Technician Commitment lead roles may be waiting for people to come to them, rather than taking ownership of the agenda themselves, perhaps due to their role and/or lack of experience and confidence when working on an organisational level.

6.3.2 Senior sponsorship

Alongside the knowledge of how to navigate institutional structures in relation to attracting resource, a key theme that emerged from the analysis was the significance of active senior sponsorship and the hierarchical influence that a senior figurehead in the institution has on building a culture of institutional ownership of the Technician Commitment and ensuring progress.

Barbara, a technical manager, considers this to be key: "I am convinced that you need senior sponsorship, you need somebody asking questions and making sure

things are happening". She argues that other categories of colleagues have more influence on the progression of the Technician Commitment than she can have as a technical member of staff in the position of lead: "if you have got a manager or an academic lead they have more clout". This links back to the perceived positioning of technical staff in organisations as discussed in the previous chapter.

Fiona also shares a frustration that she is unable to influence others in the institution to help her drive aspects of the Technician Commitment. She perceives this to be due to her technical role and her lack of seniority:

> "Getting that kind of buy in or that time with HR in order to really sort
> of develop career pathways and competency frameworks and all of
> those kind of things, that are needed or to really look at how our reward
> structures work is, is quite difficult and that's something that I kind of
> can't influence without that buy in from, from HR. So, so those are –
> those have been – those continue to be quite tricky, to be honest with
> you." (Fiona)

When asked as to why this was tricky she explained that it was "mainly because you're kind of trying to do it yourself when you don't have the clout". Charlie, another technical manager, also perceives senior sponsorship and institutional ownership to be key:

> "What I'm really impressed with by institutions, [what] I kind of pine
> for is that institutional ownership. Where you see that, where you see
> the seniors really steeped in it and that's the thing we haven't got and
> that's the biggest challenge I've got is to get there." (Charlie)

There is clearly a view from those tasked with leading the Technician Commitment that have technical roles, that the need for a senior sponsor or figurehead is vital to driving the initiative in their organisations and ensuring institutional ownership. This could be due to their own perceived lack of seniority, despite all having significant management roles, but could also be a reflection of the hierarchical culture of academia as discussed in the previous chapter. Andy took a different approach and recognised that he needed the "clout" that others referred to:

"I've said recently, look, we've got to make this an official thing so that I've got clout, if not it's not going to work. So I've been appointed to a senior position to make sure the Technician Commitment and technical training keeps going." (Andy)

The appointment of Andy into a new dedicated role to lead on the Technician Commitment shows practical commitment from his institution to advance the culture for technicians in the organisation. From my knowledge of the Technician Commitment implementation process nationally, I am aware that this has happened in only a small number of other signatory institutions. It does not guarantee the successful enactment of the pillars of the Technician Commitment. Andy has regularly spoken of the strong sponsorship of the initiative from a high-profile academic leader of the institution. He also has support from operational management colleagues and has used this support, his ownership of the agenda and extensive experience of working in higher education to navigate institutional structures to influence progress.

Charlie also has a role that provides dedicated time to lead the implementation of the Technician Commitment in his organisation. Despite this, he feels like there is still a lack of respect from senior leaders in his organisation towards the technical community: "It's something 'Charlie' does…that bloke we don't really like…he's a bit of the great unwashed, not really one of us. It's something he does with the bottle washers. It's a bit of that, honestly". (Charlie). He laments the lack of senior sponsorship and perceived continued invisibility and lack of involvement of technical colleagues:

"The biggest challenge, and it affects all of the strands, is connectivity. It's being in the consciousness of decision-makers where we're not sat at a table, where we're not missing nearly all the time. So when we make big decisions as an institution, it's being connected into that in time to say, "Hang on, what about… or what if we did?" Yeah, it's connectivity. The major thing for us is that connectivity and that real commitment from the seniors." (Charlie).

The leads who had roles in organisation or staff development also recognised the important of senior sponsorship, for example Denise "Having [colleague's name] as an organisational champion was a fantastic part of it"; and Grace: "One of the things that we have discovered from liaising with other universities is that if you don't have senior support for this, it doesn't happen, nothing happens."

6.3.3 Engagement

Having discussed the need for resource and senior sponsorship, I now move to discuss a third emerging theme: positive engagement with, and from, the technical community themselves. There has been tremendous engagement with the Technician Commitment from institutions and colleagues across the UK. As a result it is widely recognised in academia. However, there has also been a distinct lack of engagement with the Technician Commitment from some technical colleagues who believe that nothing will ever change for the technical community despite people's best efforts. These polar views and approaches to the Technician Commitment were evident in the experiences of Technician Commitment leads during the research. Where positive progress was seen, there were often enthusiastic individuals who took it upon themselves to drive the initiative forwards. Emma is one such individual who displays a personal commitment for seeing the project succeed:

> "And me and [xxx] were like, 'No we really want to drive this forward, we really want to do this, this is what we want to do, this is what we want to do.' And I think I thought we would definitely be given the resource to do that. So really a lot of it was driven because I really wanted to move because if I had a project I really, really, wanted to make it work." (Emma)

Emma had struggled to get dedicated resource to drive the Technician Commitment at her institution but by persisting with her case with senior management she was able to attract administrative support and a senior Chair for the working group she had convened. She was very aware of the expectations of technical staff once the university had signed the Commitment:

> "I think there is probably a bit of frustration among the technicians themselves, 'I know we have signed up but what are you doing, what

are you doing?' Your expectations are high from the staff and you have got to put in the resource in there." (Emma).

Emma sees her role as institutional lead as being key to ensuring the initiative progresses: "what I can do is I can stand up and fight and talk to the right people". Emma's choice of language - 'fight' - demonstrates the sense of struggle with progressing the Technician Commitment initiative since the university committed to it. Throughout her interview she repeatedly expresses her frustration: "it got quite frustrating in the end", "I do feel like I am banging my head against a wall" and the need for resilience in her role as lead: "you have to be quite resilient though".

Denise described experiencing difficulty in engaging staff with the initiative and the importance of technical colleagues who had volunteered to join a Steering Group:

> "I think engagement is an ongoing one (challenge) and it's not just technical staff. You know, it's, it's an ongoing organisational issue about communicating and engaging and reaching people. So we have nine campuses and [colleague] is half of a person and so for her, you know, to literally be seen by everyone and to reach everyone is hard and that's where things like the Steering Group become really important, because they're representatives of other campuses as well." (Denise)

She also describes the challenge of asking technical staff to engage with an initiative to make them more visible:

> "Encouraging technicians to be visible is quite hard as well and you cannot do it without people being willing to be – their photographs taken and their names mentioned and telling us what they're doing and all of that sort of stuff and that's quite hard, you know." (Denise)

Engaging the technical community with professional development opportunities has also had its challenges:

> "Technicians – and like anyone – don't know what they don't know. When we've tried to run focus groups about what development and support you need, we get very little information." (Denise).

Denise's experiences of technicians' engagement probably reflect the historical culture in which colleagues are operating. Technicians have traditionally lacked professional development opportunities in comparison to other staff groups in academia. In many ways, staff development colleagues may not recognise this culture and have expectations of them that they would have on other staff groups without understanding the lack of visibility and opportunity these colleagues have experienced in the past. There are staff development colleagues who think that the Technician Commitment is a positive thing for technicians and try and engage them with it but then can get frustrated when technicians don't engage, as Denise articulates above. It is important to note that staff development colleagues may have had limited engagement with the technical community prior to this and may not have a good understanding of their roles and the culture in which technicians are operating, for example:

> "It's not my background, so it's— I'm still getting to grips with it but I try hard." (Grace)

> "I am so conscious I don't know what it is like to be a technician, I don't get that at all." (Emma)

> "I always felt like I was a bit lost in the woods with it, when I had it way back when, because I was like nobody can really tell me what they want." (Denise)

There is also a technical community who have not previously experienced the level of interest and visibility generated by the Technician Commitment. They may not know how to interact with it or respond to it. Resources could have been limited in institutions and roll out and promotion of the initiative could therefore have been patchy. There may not be anyone on the institution's leadership team providing senior sponsorship, endorsing and ensuring ownership of the initiative at an institutional level. On the other hand, there may be institutions who have provided

dedicated resource and high level sponsorship and visibility of the initiative, and potentially institutions that fall somewhere between the two extremes.

Within the technical community there may be some technical staff who are suspicious and/or cynical about the Technician Commitment, particularly those who have been in role for some time: "Some of the older technical managers just, just don't get it. And that's a bit of a shame. I think they're so scarred and broken that you can't fix them" (Andy).

There may be a proportion of the technical community who seize this opportunity and welcome it warmly, understanding that the Technician Commitment may be a vehicle to changing the culture for the technical profession in higher education and research, for example: "the younger up and coming ones, think it's great. And they really engage with it" (Andy).

Naturally, as Denise explains, there will be a proportion of the technical community that fall somewhere between the two:

> "I think people have seen that it means that there's more weight and activity and action behind it and that's great and that's positive and people that were supporting technical development from the beginning have got involved and continue to support it and so on, including you know, the technical staff and managers that have always been really willing to volunteer, they've been involved. I think, like anything, that comes from the centre of a university or from HR or whatever they think, there's an element of cynicism about it as well." (Denise)

Grace describes the importance of technicians being empowered to lead on the implementation of the Technician Commitment:

> "I'm not doing it for me, you know, and I don't think that the other technicians that are involved, and are pushing on this, and wanting to— You know, they're taking on stuff, they don't have to do it actually. They're all right, they're quite successful already, you know. But they want— they say, look, here's something that actually will benefit being a technician. They care about something that's a bit wider but there's a

lot of people who just simply don't still. We've got a very mixed picture here in the whole of the technical area." (Grace).

She goes on to explain:

> "The impetus, I think, the momentum which we do have, and we do have more, I think it's because it's a few passionate people who don't accept no for an answer really".

A further challenge for some of the Technician Commitment leads is that once technicians have engaged, there is a further step to ensure they take ownership of the initiative, alongside their colleagues in professional services departments for example. This can be problematic, as Grace explains:

> "Where we struggle is that quite often in these things you get people who say, okay, so we need to do this. And we go, right, who's going to do it then? You know. And they look at me and I say, "Well, I— not because I don't want to do it, it's not possible for me. I'm not a technician, I don't understand these things, so it can't be me doing it". But they're there saying, "Well, but we've got full time jobs". It's like, "Yes, that's where we all are", so—But unless people recognise, we'll share it out, share a bit each, and it always fall on the same people to do these things." (Grace)

This could be due to a lack of experience that many technicians have of involvement in institutional initiatives and change projects. There could be an assumption that the Technician Commitment is something that central departments should drive, not the technical community itself. This is Grace's experience at her institution:

> "Helping people to realise, you know, that (a) it exists and (b) that they can contribute in some way. And that they have to contribute because it's not about— you know, this is not an HR project. Well, some people think it is but it's not". (Grace)

6.4 Summary

This chapter has discussed the varying reasons institutions may have for engaging with the Technician Commitment – ranging from **external influences**, reputation and competition, **internal signalling** demonstrating commitment to technical staff groups and/or as an **agenda setting** tool for improving support for technicians.

The lived experiences of Technician Commitment leads indicate three key factors for successful implementation. These are dedicated **resource,** in terms of budget, staff and time, **senior sponsorship** to demonstrate institutional ownership and to utilise hierarchical influence to ensure things happen and positive **engagement from the staff community – moving to community ownership.**

I now move on to explore the impact of the Technician Commitment in institutions.

Chapter 7: The impact of the Technician Commitment

7.1 Introduction

Chapter 5 explored the historical positioning of the technical community at seven institutions as perceived by the Technician Commitment leads. Those perspectives were of the culture and environment for technical staff before the Technician Commitment came into being in 2017. In Chapter 6 I then proceeded to discuss three institutional motivations for signing the Technician Commitment: external reputation, internal signalling and agenda setting. Participating individuals reported different combinations of those drivers in their institutions. Those tasked with leading the Technician Commitment also reported various 'enablers' utilised by their institutions to progress their Technician Commitment. These enablers - resource, sponsorship and engagement - are considered key to the success of the initiative within each institution.

In this chapter, I analyse Technician Commitment leads' perceptions of the impact of the Technician Commitment within the seven institutions. The original research plan aimed to understand how the Technician Commitment initiative had made an impact on its proposed four key pillars: visibility, recognition, career development and sustainability. As an insider researcher I have had to constantly strive to understand, critique and address the problems resulting from both leading the Technician Commitment nationally and researching its introduction as a scholar; confirmation bias is a continual risk. Whilst the Technician Commitment initiative as a whole has been evaluated through sector reports and evaluative studies (see Chapter 2), it is fair to say that my professional thinking about the Technician Commitment has been influenced by my own research and theorising. The Technician Commitment has evolved under the influence of conceptual frameworks emerging from my research. These aim to develop insights into the factors necessary for fully realising the ambitions of the Commitment. The chapter explores the impact of the Technician Commitment through three broad themes generated from the data analysis:

1) Visibility, recognition and profile (being seen and appreciated)
2) Opportunity and career development (being invested in)

3) Community, collaboration and representation (belonging/feeling a part of something)

These are used to organise the chapter.

7.2 Visibility, Recognition and Profile

Prior to the advent of the Technician Commitment, the technical community were perceived to experience a level of invisibility in some institutions, and as a consequence, relative isolation as a staff group. The positioning of technicians does appear to have been impacted by the Technician Commitment in these seven institutions. Interviewees believe that the initiative has fuelled an increased awareness of the technical community and increased visibility. Grace, for example reports that "The profile of the technicians has been raised. Everyone kind of looks now and thinks, oh, yeah, there's a whole group of people there". She is not alone in her experiences of how the Technician Commitment has raised the profile of the technical community. Emma describes a similar shift in thinking: "I think technicians aren't as hidden anymore" (Emma) Charlie agrees that the initiative has progressed the visibility and perceived status of the technical community at his institution and believes that technicians have welcomed the initiative: "I'd say they see it as something positive that gives them identity and gives them status and gives them something to hang their hat on".

Grace, Charlie and Emma are all from institutions where, prior to the Technician Commitment, they believed that the technical community experienced a degree of isolation, what I termed *alienation* in the Chapter 5. In Chapter 6 the main perceived motivation for engaging with the Technician Commitment was reportedly *external reputation* – the need to be seen to be doing the right thing. As a result of this particular emphases, it seems that limited enabling strategies were deployed; *resource*, *sponsorship* and *motivation* were non-existent or limited, even with the public institutional messaging of having signed up to the Commitment. Despite this, all three leads consider the profile of the technical community to have been increased in their organisations as a result of the Commitment. Grace goes on to say that:

> "The Technician Commitment has raised profile in one way, and that's one of the absolute benefits I think for the technical community. People

are all of a sudden interested, you know. There is a spotlight which

didn't, you know, which didn't exist before". (Grace)

Similarly, Andy and Fiona, who are from institutions where the perceived motivations for signing the Technician Commitment were about agenda setting and a desire to improve the culture for the technical community also recognised a change in visibility:

"Technicians are getting much exposure, which before would never

have happened, you know, so it's great". (Andy)

"Our visibility has increased. I wouldn't, I don't know how to put

figures around it, but you know, really our visibility has increased

enormously and so I'm constantly being asked by the university

magazine if I've got any good copy for stories". (Fiona)

Andy recognises a change in the level of exposure that is given to technical staff since the introduction of the Technician Commitment at his institution. Fiona's example about the inclusion of technical staff in a university magazine also demonstrates a shift towards organisational recognition and inclusion of a staff group. A further example from Fiona shows how the technical community are receiving increased visibility and recognition at her institution. She explains that the Technician Commitment has led to the realisation, both hers and that of senior leaders, that the technicians in her institution are more involved in student education than had been previously thought: "We have realised that our technicians teach an awful lot". She believes that the Technician Commitment has helped to create an environment of recognition: "I think we're being recognised, you know, for the skills and professionalism that we bring to the team".

In turn, the increased visibility and profile is contributing to a feeling of pride within the technical community. Andy has experienced an active change in positioning from the technicians themselves: "There's a real buzz – people say they're proud to be technicians which is something I thought I would never hear".

The sense of increased pride amongst technical staff is not confined to those institutions whose motivations were believed to be about agenda setting. Charlie,

who felt his institution's motivations were about external signalling, also believes that the Technician Commitment has helped to change the way in which technicians themselves feel about their roles:

"You didn't get that sense of 'I'm proud to be a technician' before [the *Technician Commitment*], you got that 'oh I'm just a technician' thing you know. There's definitely a bit more pride and a bit more… you know, we're something that's valued by the organisation" (Charlie)

Barbara, who is from an institution where the motivating factors were also perceived to be external signalling, with limited follow through in terms of the Technician Commitment enablers enacted, believes that her institution is struggling to achieve impact through the initiative. Despite this, she believes that the visibility and profile of technicians at her institution has increased:

"Different institutions will have different levels of impact. I'm not 100% convinced that we are having impact. We [technicians] need to be seen as part of the team and valued for what we contribute so, that goes with the visibility and recognition and there is still work to do but profile has been raised, profile has been raised, yeah". (Barbara)

Despite the various blends of motivations for signing the Technician Commitment across the participating organisations, from external signalling to agenda setting, the Technician Commitment is consistently believed to have had an impact on the visibility, status and profile of the technical community. This appears to be a positive first step in the transition towards a culture of *alliance*.

7.3 Opportunity and career development (being invested in)

A second theme around technicians feeling invested in through the creation of new opportunities and career development activity also emerged from the data. Those institutions that had committed resource and enacted a wider range of enablers reported greater impact in this area:

"We've got a budget for training, we've got a budget for travel, we've got a budget to support professional registration and we wouldn't have

had that, unless the Technician Commitment had been in existence".
(Fiona)

"[Institution A] have proved themselves, they've given me as much
money as I need for everyone's professional registration, if people want
to go on courses we've got budgets to help them, there is a lot more
training now, a lot more help there". (Andy)

Whilst this additional financial resource from Andy and Fiona's institutions is
helpful, creating opportunity was not just about funding and budget, but was also
about creating an environment and culture where staff want to participate and engage
with these opportunities. Chapter 5 reported how the technical community in some
institutions were believed to have experienced *alienation* and isolation. The
increased visibility and recognition described above could be the first step to creating
an environment where staff want to engage in new opportunities.

Andy and Fiona report increasing levels of engagement through the new
development opportunities at their institutions. Andy reflects that "they're…really
engaging with it, engaging with me and with professional registration and the
courses I'm running for technicians". Similarly, Fiona explains that "people have
been to conferences, all sorts of things, that they just wouldn't have been able to
before".

As already explained, Andy and Fiona are from institutions where the motivations
for signing the Technician Commitment seemed to be a desire for genuine change
and *agenda setting*. The enablers, including *resource* as highlighted here, have
helped to provide additional career development opportunities for technical staff at
their institutions and they both believe technicians are engaging well with these new
opportunities.

Denise is also from an institution where the perceived motivators for signing the
Technician Commitment were *internal signalling* and *agenda setting*. She describes
opportunities that have developed in response to the Technician Commitment: "the
obvious one that jumps out is the interest in professional registration - we actually
fund any professional registration with line management agreement". She also
describes a new dedicated online resource: "there's now a web presence, you know,

purely just for technicians, it's a technician portal for the Commitment and other activity". She has seen increased engagement from the technical community at events: "events that have been run over the last couple of years have seen increased engagement".

Technician Commitment leads from institutions who thought signing the Technician Commitment was motivated primarily by *external signalling* also believe that engagement from the technical community is changing as a result of the Commitment. Charlie believes there is a change in how technical staff in his institution are engaging with opportunities:

> "When I go to some of the conferences and I see some of the seniors [technicians] stand up, I can see a massive difference in how engaged they are. The [Technicians] Conference will sell out this year and now they want to come. That's real people giving time up, you know, 'I was too busy before. We're too busy, we can't possibly stop. We won't be allowed, from academics'. They wouldn't do it now, the academics, they're scared to do it. … so there's a shift, things have shifted" (Charlie)

Charlie's comments suggest that the reasons for this increased engagement could be more complex. It is hard to ascertain whether technical staff are genuinely more engaged, or whether they were engaged before but, perhaps because of their positioning with regards to academic staff, they felt that they would not be 'allowed' to attend. The Technician Commitment could have had a different impact here, possibly influencing the culture in the organisation to support time for professional development for technical staff, though Charlie perceives that the motivations for supporting this are from fear of being reprimanded and not necessarily a genuine desire to support the career development of technicians.

Emma, who is also from an institution where motivation for engaging with the Technician Commitment was perceived to be about *external signalling*, and who had lamented the lack of *resource* from her institution, still believes that opportunities for technical staff have increased:

"We have given them so many more opportunities. I mean a lot of that has been down to the Technician Commitment. Long term if we do it right and we do keep resourcing it and commit to it I think it will completely change the career progression". (Emma)

Emma is a strong supporter of the Technician Commitment and believes that it can create real change for technicians at her institution. She is also experiencing increased engagement from technical staff: "We have got loads more that are more engaged and brought into what we are doing as a whole in the university. And who are given good opportunities as well, definitely". Her comment here about being bought into what the university is doing as a whole indicates a move towards a culture of community and shared ownership. I now move on to discuss the impact of the Technician Commitment on community, collaboration and representation.

7.4 Community, collaboration and representation

The Technician Commitment was designed to generate a more positive culture and environment for technicians. Together with the above examples of how the Technician Commitment was increasing **profile** and **opportunity** for the technical community, a third theme of **community** emerged in the analysis. The participants reported that the Technician Commitment is impacting on the sense of community in three important ways:

1) between technicians within institutions;
2) between the technical community, other staff groups and the wider organisation;
3) across the sector.

I will explore each of these in turn.

7.4.1 A community of technicians

The majority of participants report a growing sense of community forming across and between technicians as a result of the Technician Commitment. Charlie recognises that the Commitment has influenced a sense of community amongst technicians themselves:

"We have got a real community now and so the Commitment is something that gives some tangible structure to the community that people want to have, that sense of a collective discipline, professional group". (Charlie)

The Technician Commitment is having an influence on the professional identity of technicians at his institution. He believes this is related to the increased profile they have: "So one of the biggest things is visibility and that sense of belonging to that community. They're quite proud to be technicians and you didn't get that [before]". This sense of community is present despite Charlie's belief that his institution signed the Technician Commitment due to *external signalling* motivators. Emma believed her institution has similar motivators and lamented the lack of practical support and resource put into the Technician Commitment. Yet despite this, she reported technicians coming together to form a community:

"It's great because they are knowledge sharing now and they are sharing kit, looking at training and that for me is just huge, it is massive, because it never ever happened before." (Emma)

Barbara is also from an institution who she believes to have had *external signalling* motivations for engaging with the Technician Commitment. She recognises that bringing technical staff together at a dedicated Technician Commitment event at her institution had initiated the forming of a technical community: "It…brought together people from different areas, I mean they joined in their working experience, they joined that they could see how they had things in common". (Barbara)

These examples suggest that the Technician Commitment has given technical staff a framework, a point of reference or space to inhabit and begin to establish a professional identity for themselves as a visible and identifiable staff group within the higher education workforce. There is clearly a level of support from Charlie, Barbara and Emma's institutions in that they themselves have been allocated time to lead the Technician Commitment and Charlie and Barbara reference a conference and a launch event for example. Despite their belief that the institution is not fully behind the Commitment (in terms of motivators and enablers) there are still suggestions that a community is forming across technicians within their institutions.

This is also recognised by Fiona and Andy, who reflect on how the Technician Commitment has influenced a feeling of community amongst technical staff, along with practical ways in which that community is now operating, including the sharing of practice and resource:

> "The morale with technicians, is, is better than I've ever seen it. I think people talking to each other, there's people sharing equipment, they are sharing resources, not only across faculties, but across university wide. And people are really keen to meet up and, and help each other".
> (Andy)

> "They are learning so much from each other within the organisation and you know – and each have quite different sets of best practice, that they are helping each other implement across the organisation and, and that definitely wouldn't have happened without this kind of coming together to deliver something together". (Fiona)

These comments indicate similar forms of community developing across the seven institutions. As discussed in Chapter 1, technical staff have historically operated in siloes and this breaking down of boundaries, both in terms of discipline and department is seen as a positive impact of the Technician Commitment.

Grace's experience differs. Grace's institution signed the Technician Commitment in response to influence from a member of their governing council and she believes the motivation for this was *externally signalling*. Whilst technicians' profile has been raised, she is experiencing challenges in identifying, defining and communicating with her institution's technical staff:

> "Even things like creating communication structures for a technical group is really hard because we don't know where they all are. And lots of people who are in that group, they still don't think of themselves as technical". (Grace)

Whilst the profile of this staff group has been improved, Grace is unable to leverage the forming of community that the Technician Commitment has catalysed at other institutions. There is a lack of clarity as to who this staff group are – from the

university's professional services departments (Grace works in organisational development) and also from the technical staff themselves, some of whom do not align themselves with having technical roles, despite Grace believing they are technical staff. This suggests a potential lack of professional identity amongst technical staff at her institution and indicates lesser impact of the Technician Commitment in this space, compared to other institutions.

7.4.2 A community inclusive of technicians

Alongside the forming of a community across technicians within institutions, interviewees discussed a sense of institutional community and belonging that came from the inclusion and integration of technicians with the wider university. There were mixed examples of where this was or was not taking place which included the introduction of structures and increased representation of technical staff at an institutional level and through interviewees describing an increased feeling of belonging.

Some institutions have introduced formal governance and reporting structures in response to the Technician Commitment, to provide integration at an institutional level. Andy, Denise and Fiona all reported this:

> "We [Institutional Technician Commitment Steering Group] have to report now into ALT now which is the Academic Leadership Team so that is massive, the fact that we do that now. We are also reporting to HR committee". (Andy)

Andy views this structural integration as very positive and sees it as a fundamental change in how the organisation operates. Denise explains that the Technician Commitment had led to the formalisation of a Steering Group with formal representation from technicians: "it formalised their [technicians] role in the Steering Group, whereas before we'd have more of an informal relationship with them".

This increased representation of technical staff in organisational structures is in contrast to the environments described in Chapter 5, where technical staff were not included in formal structures or processes. Two of the institutions in this research are taking this further and integrating the technical community into wider initiatives at

their institutions, ensuring the community is affiliated or aligned into institution wide activity:

> "[The Technician Commitment has] been really well received. I think it's seen as a noble cause, you know, something that should have happened years ago, that kind of attitude towards it. I think our senior academic staff are starting to clock kind of how – where the Technician Commitment can help us put something like in our REF environment statement and really affect the university metrics in a positive way. It's suddenly becoming all the more kind of relevant". (Fiona)

Fiona describes a move to recognise technical staff for the roles they play in research. The motive here is university metrics, and how the technical community can help drive them, rather than how the institution advances the culture in which technical colleagues are working, but it does present an example of how technicians are being integrated and considered alongside other staff groups as to how they can support the organisation's aims and objectives. This presents a move away from *alienation* and towards *affiliation* and *alliance*, in the typology of organisational belonging discussed in Chapter 5. However, rather than being about how technicians experience this - it seems like a two way thing, where senior leaders are realising that technical staff are an integral part of the institution.

Fiona describes new activities, introduced by her as a consequence of the Technician Commitment at her institution that have aided this process:

> "I've run, run some little seminars for technical managers, where I've invited the – well the pro-vice chancellor for research, has come and talked to technical, to technical managers about research and they've actually had like a dialogue about, you know, well this, you know, this is what we do for researchers, this is for this technical space that we, that we run and you know, that's sparked him to get in touch with the research office, who've got in touch with me, to say oh yes, this needs to go in the [REF] environment statement" (Fiona)

This awareness raising and integration of the technical staff groups is key to the move to *alliance*, and ultimately a culture of parity of esteem for technical roles and careers.

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Andy describes another example of how technical colleagues are being integrated into wider institutional activity:

> "Technicians are now going to be involved in the graduation ceremonies and involved in diversity and inclusion, I've got one of my team who is working on the Athena Swan [Charter], when we got the Silver [award] recently technicians were mentioned at great length. Which they hadn't before. So there's lots of positives". (Andy)

The inclusion of technical staff in graduation ceremonies demonstrates institutional recognition of the contributions technicians make to the student experience. Technical staff wearing academic robes and sitting alongside academic colleagues on stage is in sharp contrast to Andy's reflections on the positioning of technicians at his university prior to the Technician Commitment where he described their status as "lowly". The inclusion of technical staff in university wide initiatives, such as the example here regarding Athena Swan, a charter to advance equality, diversity and inclusion, is also a positive step forward. Both examples demonstrate a shift in how technical staff are now being included and recognised in more institutional activities at Andy's university and could be a consequence of Andy's institution's motivating and enabling factors as described in the previous two chapters.

In contract, Charlie is still experiencing harder boundaries at his institution and feels there is a lack of representation and inclusion in institutional decision making, despite the introduction of the Technician Commitment: "We're not quite good enough. I don't know why that is. Even with all the work of the Commitment in the sector, they're [technicians] not allowed at the table". He finds this challenging, particularly as he is unable to attend key meetings to provide representation for the technical community:

> "You know, the professional services leaders' group is the group I should be on because we are professional services, but I can't get on it. So I can't get to use my brain or my boss to win the argument because I'm not a divisional head because we're [technicians] not a division. No-one knows what we are". (Charlie)

Charlie's comments indicate that there could still be firm boundaries in place between technicians and the wider institution, and a lack of understanding about how to recognise and integrate the technical community into the university. This contrasts with his comments earlier in this chapter about the increased pride he believes is felt by the technical community at his organisation. Whilst he believes that technicians themselves feel more valued by the organisation, Charlie's comments on the lack of representation and inclusion indicate that he is not experiencing that sense of value for himself, and therefore, the initiative as a whole from senior leaders. Whilst Charlie can see that the profile of the technicians has been raised, this has not translated to increased inclusion and Charlie still experiences a lack of belonging and a sense of frustration that he is unable to influence decisions at an institutional level:

> "The biggest challenge, and it affects all of the strands, is connectivity. It's being in the consciousness of decision-makers where we're not sat at a table, where we're not missing nearly all the time. So when we make big decisions as an institution, it's being connected into that in time to say, "Hang on, what about… or what if we did?" Yeah, it's connectivity". (Charlie)

7.4.3 Community beyond the institution

The theme of community and belonging that emerged from the interviews also extended beyond the immediate institution, with some of the interviewees commenting on the impact of the Technician Commitment in building a sector wide community:

> "One of the things that the Technician Commitment's been great for is it's really enabled people to, you know – different technical managers and technical leaders to come together and meet each other and from coming to the Technician Commitment meetings, I've been able to network with other Heads of Technical Services". (Fiona).

The meetings that Fiona is referring to are the biannual national Technician Commitment Signatory Events that are hosted by the initiative. These events bring the Technician Commitment leads together to share best practice, hear updates from sector organisations and network. The value of these in creating a community is also

recognised by Barbara: "I mean it's amazing to think that all of these institutions are joined up and working in collaboration with technicians".

Denise recognises the benefits of attending the sector events for the institution:

> "I think the weight that's got behind the Technician Commitment, it's really given a broader weight across the sector as well and that element of competitiveness across the institutions helps, because it keeps it going, but also there is a genuine nature of learning across institutions as well, which means that like when we go to those events, we can learn from what each other are doing and I think that that can, that can increase our resource". (Denise)

She goes on to suggest that "one of the impacts [of the Technician Commitment] might be the sharing of practices that actually make a difference".

7.5 Alienation, Affiliation or Alliance?

When considering the impact of the Technician Commitment, three major themes have been generated through the analysis: *profile, opportunity* and *community*. I am interested in how the perceived impact of the Technician Commitment at each institution relates to the typology of organisational belonging discussed in Chapter 5, and how the positioning of technicians has been influenced by the motivators and enablers discussed in Chapter 6. In other words, how do the initial culture and conditions interact with the institutional motivators and subsequent enablers to produce different types and levels of impact. This is an imprecise science but my aim is to explore general relationships and principles here.

There were a number of challenges highlighted by interviewees in terms of delivering activity aligned to the impact that the Technician Commitment has had had at their institutions. These challenges tended to be highlighted by the leads of organisations who believed the institutional motivation to sign the Technician Commitment was primarily about the badge, i.e. *external signalling*, and that consequently, there were limited *enablers*. Remembering that the Technician Commitment has four key pillars (visibility, recognition, career development, sustainability), Emma explains that "the career development and career progression

part I find really, really, hard". The career development pillar of the Technician Commitment requires genuine institutional buy in. It is about reflecting and re-evaluating professional development, career pathways and progression opportunities, and only those organisations whose motivations include agenda setting, and a genuine desire for change for the technical community, will be putting resource and effort into addressing this. Given Emma's reflections on the motivations and level of commitment from her institution, it is perhaps unsurprising that she is finding progressing this part of the Commitment challenging. Similarly, Charlie is finding the fourth 'pillar' difficult to enact: "So sustainability is really hard and we're still very, very vulnerable because we're not part of the club. We're not connected to the senior team in a hard way". Sustainability, in the context of the Technician Commitment, is about sustaining the future of technical skills in the organisation. In a number of organisations this has been enacted through the introduction of technical apprenticeships and trainee technician programmes. This requires both financial and human resource from the organisation, characteristics or *enablers* that arguably would only be present in an organisation whose motivations were about *agenda setting*. It is therefore unsurprising that Charlie is experiencing difficulties in progressing this pillar of the Technician Commitment. As he explains: "the major thing for us is that connectivity and that real commitment from the seniors". Barbara also expresses frustration about the level of impact of the Technician Commitment at her institution: "I suppose I would have hoped for more, faster".

This presents a pattern. Barbara, Emma and Charlie are all from institutions where the motivation for signing the Technician Commitment was perceived to be mainly about *external signalling*. As such, few *enablers* were enacted, either at all or to the same level as in institutions whose motivations were more about *agenda setting*. It seems likely that this explains the difficulties they are experiencing in delivering activity and impact. In contrast, Fiona and Andy recognise challenges in continuing to deliver impact but their responses indicate confidence in a more positive future:

> "I would like it to become, you know, much more people reporting to
> me that they're doing things and – rather than me asking people to do
> things, but I think that's kind of part of the maturity of the, of the

process, if you like. It's part of it just becoming business as usual".
(Fiona)

"I think the momentum has swung so far it can't go back. But it needs,
it still needs that energy to move it forwards". (Andy)

Andy and Fiona both discuss the Technician Commitment as having changed
perceptions – within the technician community itself as well as within the wider
institution community. Andy and Fiona are both from institutions where the
motivation for engaging with the Technician Commitment was perceived to be a
good balance of *external reputation*, *internal signalling* and *agenda setting*. As such,
all three *enablers* of resource, sponsorship and engagement were effectively utilised
in support of the initiative. It has enabled both institutions to move significantly
towards a culture of *alliance*:

"[The Technician Commitment] can actually change people's
perceptions of technicians within the organisation. It's a really positive
thing, the Technician Commitment, I think we really need to keep the,
the momentum up and not kind of let it fall away and that, that has its
challenges, but I see that, you know, it really is providing an
opportunity for a technical career to start to have parity of esteem with
academic careers and you know, that for me is the, is the big – that,
that's the big nut to crack I think" (Fiona)

"I don't think that they are the group that people always saw them as. I
think perceptions change" (Andy)

They both describe an environment where the culture has shifted to one with softer
boundaries between staff groups, and within which technical staff are empowered,
proud and are beginning to experience parity of esteem with other colleagues in their
universities:

"And rather than [saying] "we only just do this that and the other" –
they're [technicians] proud of what they do. And they're asking to do
extra things – it's helping the university. Productivity has gone up,
people are sharing ideas, people are happier. It's really good. And

that's all to do with the Commitment. Because they feel as if they are empowered". (Andy)

Denise agrees that the Technician Commitment has had a positive impact on the culture for technicians: "I think it's, it's done more than perhaps we might have even hoped it had".

Despite the challenges that Grace has experienced in implementing the Technician Commitment, she has hopes for the future, and articulates the need for this for this to be embedded in the organisation:

"If you have got a recognition of what technical work is really like, you know, and that's something that you're proud of, and that is something that is really integral to the success of your organisation, if you— If we can make that valuable and the institution sees, yes, that's actually going to work in our favour, I think it will have quite a significant impact. If we just see it as being about the technicians, I think it will be – have less of an impact". (Grace)

Andy's reflections describe a university that is beginning to embed the principles of the Technician Commitment and reflects an increasing culture of *alliance* and a journey towards parity of esteem with all staff groups:

"You know, we've got postdocs who work alongside technicians and they are wanting to come on our courses and to our away days, you know, and we've got top researchers begging to have [host] a three month rotation with one of our apprentices. I think it really has made a massive difference". (Andy)

Andy believes the Technician Commitment is removing traditional boundaries and changing the positioning of technicians at his institution:

"I think it's going to professionalise technicians far more. I think it's going to be a career of choice. [Our institution] had never mentioned this as a career before. I'm suggesting that one of the things our students think about doing is going into a technical career and the PhD

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people now are certainly told about being technical managers so you know a lot of them are doing it by choice. I think that's a massive sea change, where before [the Technician Commitment], if someone with a PhD went into being a technical manager they'd be quote – 'a failed academic', but now it's, and it's changing both ways. Some of our PhD or researchers are going into technical roles and vice versa. So up in the top of the trees, you know, people are jumping across all the time. So you know, that is, and that's happening for lots of other places, as well. So I think the recognition, and visibility is changing and that wall is broken down and I don't think it will ever be rebuilt". (Andy)

7.6 Summary

Across the seven institutions, the various impacts of the Technician Commitment can be evidenced under three broad headings: profile, opportunity and community. Importantly there are three sub-dimensions of community that can be seen to be changing as a result of the Technician Commitment. These can be summarised as communities **of** technicians within institutions, a wider institutional community that is **inclusive of** technicians, and the growing recognition of a technical **community beyond** the institution. `

The analysis suggests that where institutions were motivated to sign the Technician Commitment in part because they wanted to use the experience to set a new agenda for technical staff, they tended to enact a wider range of enablers to realise this vision. It was these organisations that seemed to experience greater impact across all three areas (profile, opportunity, community) and which, in turn, seemed to be producing a stronger change trajectory towards a culture and environment closer to the *alliance* described in Chapter 5. Institutions whose motivations for signing the Technician Commitment were strongly focused on external signalling, and who consequently had less of a change agenda enacted fewer/limited/no enablers. They still saw impact but this tended to be limited to increased profile of technicians and to the first type of community in which technicians came together across the organisation to form a community of technical staff.

Chapter 8: Discussion

8.1 Introduction

This study was motivated by an interest in the roles of technicians in UK universities, a desire to address the paucity of research in this area and thereby contribute to the knowledge base on technical roles in UK higher education. During the course of my doctoral studies my professional role changed considerably and I found myself at the heart of strategic national developments. As a result, my research pivoted to become a study of the changing positioning of technicians following a major national change initiative - the Technician Commitment – and how this varied between universities. This research investigated the enactment of the Technician Commitment in seven institutions and explored perceptions of the impact of the Technician Commitment on the positioning of technicians. This has enabled me to consider the extent to which the Technician Commitment initiative has realised its goals of improving the culture and environment for technicians. The analysis was based on interviews with those responsible for leading the Technician Commitment in each institution, although those conversations were inevitably framed by my much broader knowledge of each institution. For example, each had produced self-assessments and action plans as part of their Technician Commitment, though they were produced for different purposes and so not considered part of the data for the study.

This research set out to explore the following research questions:

- RQ1: How were technicians 'positioned' in higher education organisations prior to the advent of the Technician Commitment?
- RQ2: What were the perceived motivations for signing the Technician Commitment and how do these differ across the sector?
- RQ3: How is the Technician Commitment perceived to be being enacted in institutions in their own contexts?
- RQ4: How is the Technician Commitment beginning to make an impact on technicians in universities and is this impacting the positioning of the technicians in higher education?

This chapter discusses these research questions in turn before assembling the findings to present a novel conceptual framework of how organisations engage with the Technician Commitment to create positive culture change that has been developed through the above analyses.

8.2 RQ1: How were technicians 'positioned' in higher education organisations prior to the advent of the Technician Commitment?

This aspect of the research surfaced participants' perceptions of the historical positioning of technicians prior to the introduction of the Technician Commitment in 2017. Three main stakeholder groups were identified in the analysis: academics, students and senior leaders. The analysis explored the perceived historical positioning of technicians within universities in relation to these three groups.

8.2.1 Technicians and academics

The analysis indicates that prior to the Technician Commitment there was a clear distinction or boundary between technical staff and academic staff, but with evidence that this was starting to soften in places. This was the case in all seven institutions. Although this was the case irrespective of the job role of the Technician Commitment lead, it was felt particularly strongly by the interviewees who came from technical backgrounds, which is perhaps not unsurprising as they had direct experience of these relationships. For example, Andy, Barbara and Charlie all used words to describe the historical positioning of technicians in comparison to academic staff such as "lowly", "gopher" "the great unwashed" and "servant". Those in staff and organisational development roles also recognised this boundary. For example, Grace and Emma both used the phrase "just a technician" when describing how they perceived their academic colleagues had traditionally thought of this staff group before the advent of the Technician Commitment.

These findings are consistent with the literature, where the work of technicians has been defined by a boundary in knowledge (Whitehead 1952, Shapin 1989, Tansey 2008). Technicians have been deemed to have practical (manual) knowledge which is not valued as highly as the theoretical (mental) knowledge of academics. Consequently, technical staff have lower status than their academic colleagues and my findings show that prior to the Technician Commitment they were still struggling

to shrug off the 'servant' label of the original technicians in the 17th century (Shapin 1989).

There were many examples in the universities where the work of technicians was not fully recognised by academic staff. For example, the day-to-day duties that ensured that the laboratory or workshop was able to function often went unacknowledged. These exemplify the "broker" role technicians play (Barley 1996), for example the "bloke who mixes cement all day" (Grace) or "the people who washed up test tubes and go in dark rooms and fiddle with equipment" (Andy). Yet there was evidence of some change in this area prior to the Technician Commitment. This is described by interviewees in two ways. Firstly, there was a younger generation of academic staff who were not always reinforcing the old historical distinctions between technical work and academic work. Secondly, and relatedly, there were examples of technicians being named as co-authors of research outputs. This slow blurring of academic-technical boundaries, from a culture where technicians have experienced a lack of visibility and status, to a culture where technicians are increasingly integrated into academic and research teams is encouraging. It also reflects the increasing theoretical knowledge and educational credentials that technical staff have. This resonated with Hong (2008) who recognised that the university technician is increasingly required to demonstrate both technological capital and theoretical capital and the traditional view of technical or manual workers only possessing contextual knowledge is not so relevant in the case of university technicians (Hong 2008). The recently published TALENT Commission report also recognises that the roles of university technicians are multi-faceted and can cross traditional academic boundaries (Midlands Innovation 2022). That said, this present research follows other research in noting that recognition for technical work is inconsistent; there are no formal guidelines for when a technician should or should not be a co-author on a paper and academics have different views on it (Shapin 1989).

This crossing of boundaries has been witnessed in other professions and it is perhaps instructive to consider research on key relationships in other professions to which the academic-technician relationship could be deemed analogous, for example, the doctor and the nurse or the lawyer and paralegal. The following quotation is from a paper on doctor and nurse relationships:

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"[A nurse] must begin her work with the idea firmly implanted in her mind that she is only the instrument by whom the doctor gets his instructions carried out; she occupies no independent position in the treatment of the sick person."

(McGregor-Robertson, 1902 cited in Fagin and Garelick 2004:277)

The historical associations between doctors and nurses affect their working relationships today (Fagin and Garelick 2004) and this could also be the same for technicians and academics. The role of the technicians originated from the roles of servants to scientists (Shapin 1989) and although this study shows that this master-servant relationship is moving on, the idea of nurses being an instrument for the doctor was echoed in the comments from interviewees for this study regarding the practical nature of the work of technicians. Not only is the doctor-nurse relationship analogous to the academic-technician relationship, the roles of both the nurse and the technician have also evolved in similar ways. Nurses today often have a university education, nursing is a recognised profession and nurses now have many more medical responsibilities, for example, nurse practitioners are able to diagnose and prescribe medication independently of a doctor (Fagin and Garelick 2004, Lowe 2017). Similarly, technicians today are often educated to a university level, have many more responsibilities including independent teaching or training of students and moves are underway to address the standing of the technical role as a profession (Lewis and Gospel 2011). Interestingly, like the work of technicians, nurses too have described their work as being invisible (Rafael 1996, Latimer 2000).

8.2.2 Technicians and students

Over the past twenty years, and prior to the introduction of the Technician Commitment in 2017, it has been noted that technicians have much more contact with students, taking on responsibilities that were previously those of the academic members of staff (Smith, Adams et al. 2004). For example, technicians regularly supervise undergraduate and postgraduate students in laboratories and workshops and demonstrate techniques and the use of equipment. Technicians have the practical experience that complements the traditional academic's theory-centred teaching. In

some cases, however, technicians are demonstrating their formal knowledge and are teaching students the theoretical basis behind techniques:

> "The technician role is increasingly growing to include the
> demonstration of concepts and theory and is ultimately moving towards
> an active teaching role, away from a pure technician's role."

> (PA Consulting Group for HEFCE, 2010:29).

Lewis and Gatsby (2011) found little evidence to support this claim stating that although technicians contribute to the education of university students, they lack either the knowledge or time to be able to teach students "concepts and theories". (Lewis and Gatsby 2011). In contrast, interviewees in this study indicated that prior to the introduction of the Technician Commitment, the university technician did undertake teaching other than practical demonstrations, but that this was not always recognised.

This study found that technical staff engaged with students though there were varying descriptions of how technicians were positioned in relation to students. All interviewees independently mentioned the relationship between technical staff and students. Although it is impossible to make assumptions on such a small sample, this research demonstrated that the recognition that technicians teach and perhaps, routine practice of this occurring through the delivery of practical skills classes was observed more strongly in a post '92 institution, in comparison to the Russell Group universities included in this work. In the latter, the boundary could have been more historic and embedded, in comparison to the perhaps more porous boundary experienced at Fiona's institution, where her experience was that technicians were fully integrated in the teaching of students. This needs further exploration given the small scale of this study.

There is little research on the relationship between student and technicians. What does exist tends to have been published after the onset of the Technician Commitment in 2017. A study and report about how technicians impact the wellbeing and mental health of students was led by the initiative in 2019 (Technician Commitment et al 2019). This evidence based work discussed the frontline role that many technicians play in the student experience and explored how students often

approach technical staff with personal or mental health issues. One reason stated for this was because students can often find technical staff more approachable than their academic colleagues because that more formal boundary between academic and student is not as present, for example technicians are rarely assessing the work of the student. The report called for this aspect of the technical role to be formally recognised and for technical staff to be included in development activities available for other staff on supporting student wellbeing, for example, formal training in mental health first aid. This aspect of the role was recognised by the interviewees in this study, for example Barbara's response: "They [technicians] tend to be the first line of contact in a lot of situations".

There are reports of technicians transitioning into academic roles in recognition of their teaching activity, though these studies are scarce and mainly based in arts practice based education. Where present they also discuss whether technicians teaching devalues the academic role (Savage 2018). The TALENT Commission report has raised the visibility of technicians as teachers and calls for greater recognition of the roles technicians play in the education of university students (Midlands Innovation 2022). This reflects the perceptions of the interviewees in this study who believed that the contributions that technicians bring to teaching, learning and wellbeing, do not appear to be recognised.

8.2.3 Technicians and senior leadership

University technicians have regularly been termed an invisible workforce. This lack of visibility, whether intentional or unintentional, has led to technicians being overlooked in their organisations for many years:

> "Because technicians work in organisations that tend to be dominated
> by other occupational groups, especially professionals such as doctors,
> scientists and engineers, technicians constitute an almost invisible part
> of the workforce."

> (Shapin 1989:558)

My analysis on the period before the advent of the Technician Commitment shows that this lack of visibility still existed thirty years on. It shows a staff group who were isolated from senior leaders and the wider institution. Senior leaders in

universities are traditionally academic staff, appointed for their background in education and research and the beliefs, or possibly ignorance, academic colleagues may have about the value of technical work are taken with them as they enter senior leadership positions. Participants felt senior leaders largely "ignored" technicians or lacked insight into technicians' contributions. Some thought that the technical community had been traditionally viewed as difficult and unionised by senior leaders. There are no studies on the positioning between senior leaders in universities and technicians and there is a lack of research that explores how technicians engage with their organisations, or with senior leaders specifically. The historical lack of technical representation in institutional decision making structures was highlighted in this study. It has been unusual for universities to have formal representation of technical staff on senior institutional committees. There would frequently be administrative representation (in the form of roles such as the Registrar, the Chief Finance Officer for example) and there would obviously be academic representation in the form of the Vice Chancellor and the Pro Vice Chancellors across multiple university governance structures. However, it is rare that there is someone to formally represent the technical staff group or feed back to the technical staff about the key decisions and strategic vision of the institution. It could be argued that there is no such representation because there is no need for it; the academic staff are the leaders in the higher education institution and technical staff are in place to provide a service to the organisation. However, given the increasing responsibilities that technical staff now have and the combination of contextual and formal knowledge they offer, (there is evidence that they research, they administer, they manage and they teach), they are undoubtedly a staff group with much to offer and would be better utilised if they had insight and involvement in the current and future strategies of their institutions, (for example in the same way that nursing staff are on management boards for NHS Trusts). In addition, involving technical staff on senior university committees would enhance the esteem currently placed on the role of the university technician, ensuring that it is an attractive position for individuals to aspire to.

Despite calls in the limited literature since the 1950s for increased recognition and value for technician roles in higher education there had not been any specific initiatives in place to drive and enable this at a sector level. A recurring theme in the

data concerning the pre-Technician Commitment positioning of technicians is the presence of boundaries, albeit of different strengths, between academic roles/work and technical roles/work and between technicians and senior leaders in institutions. These boundaries can create a culture of isolation or alienation. Softer boundaries, as I explore later in this chapter, can lead to a culture of belonging or alliance.

I now explore research questions 2-4, that focus specifically on the Technician Commitment initiative.

8.3 RQ2-4: The engagement, enactment and impact of the Technician Commitment

8.3.1 RQ2: What were the perceived motivations for signing the Technician Commitment and how do these differ across the sector?

This study identified three common themes as the key drivers for institutional engagement with the Technician Commitment. These were: 1) **external influences**, reputation and competition, 2) **internal signalling** demonstrating commitment to technical staff groups, and 3) an **agenda setting** tool for improving support for technicians. As noted in Chapter 6, these categories are not mutually exclusive and it is important to recognise that the Technician Commitment interacts with the particular history, culture and practices of each institution.

A perceived motivation of external signalling can also lead to individuals within institutions to doubt the motivation for the engagement. This was evident in my research with the Technician Commitment and has also been identified with the Athena Swan Charter, where one study described the perceptions of employees in one case as certain activities being "window dressing" (Bryant, Burkinshaw et al. 2017). It is also noted in the literature that these motivations can vary within one organisation, for example from being from "box-ticking" (or external signalling) to a "genuine commitment to improve the situation" (or agenda setting) (Ovseiko, Chapple et al. 2017).

External signalling as a motivation does not mean that the initiative will fail to cause positive change, my argument is that it will be more limited than in those

organisations where motivation is also linked to internal signalling and genuine agenda setting.

A further example is the Concordat to Support Research Integrity. This was established in 2012 to ensure high standards of "rigour and integrity in research" (Khajuria and Agha 2014). It was made a condition of research funding that organisations engage with the Concordat, but how compliance was monitored at that stage was not clear (Torjesen 2012). Therefore the origins of the motivation for organisational engagement were likely external signalling but that does not mean that motivations aligned to agenda setting were not also a consideration.

There is a lack of work in this area and an increasing sector interest in research culture may provide further impetus to explore and understand the varying motivations for engagement in sector level agreements and concordats. I discuss this further in the concluding chapter.

8.3.2 RQ3: How is the Technician Commitment perceived to be being enacted in institutions in their own contexts?

The lived experiences of Technician Commitment leads indicated three key factors for successful implementation of the Technician Commitment: 1) dedicated **resource,** in terms of budget, staff and time, 2) **senior sponsorship** to demonstrate institutional ownership and to utilise hierarchical influence to ensure things happen and 3) positive **engagement from the staff community – moving to community ownership.**

There is limited literature on the factors needed to ensure successful implementation of sector agreements and concordats such as the Technician Commitment. A report commissioned to assess the impact of the Athena Swan Charter identified challenges which threatened ongoing engagement with the Charter. These were identified as "resource requirements and lack of leadership support" (Graves, Rowell et al. 2019). This aligns with the findings of this research.

8.3.3 RQ4: How is the Technician Commitment beginning to make an impact on technicians in universities?

This study offers an insight into what, if any, impact the Technician Commitment is perceived to be having in seven individual institutions. These impacts vary and can be categorised under three broad headings: **profile, opportunity** and **community.** My analysis identified three sub-dimensions of community that can be seen to be changing because of the Technician Commitment. These can be summarised as communities **of** technicians within institutions, a wider institutional community that is **inclusive of** technicians, and the growing recognition of a **community beyond** the institution.

There are two existing reports that explore the wider impact of the Technician Commitment initiative. The first is the report of a study commissioned by the Technician Commitment to independently assess the impact of the Technician Commitment 'on the ground' with technicians and signatory leads in signatory institutions. The report assessed the impact of the initiative through the scoping and review of action plans, an in-depth examination of 30 self-assessment reports, a survey of technician leads, a survey of technicians, and the development of four case studies (Technician Commitment 2021). It found evidence of sector wide impact, with particular examples around the initiative's pillars of visibility and recognition. There was more limited evidence of impact around the pillars of career development and sustainability but recognition that the Technician Commitment was in its infancy (being launched four years previously) and that these would take longer to embed within institutions. The second report is a wider study of 12 sector concordats and agreements. Through survey methods and interviews, the Technician Commitment was perceived by respondents to have the most positive effect on the working environment (Basis Social 2022). I discuss this work further in the next chapter.

8.4 An emerging conceptual framework

Through a grounded theory approach, my analysis has developed a conceptual framework of how organisations engage the Technician Commitment to create positive culture change. I now assemble the findings from Chapters 5, 6 and 7 and bring them together to illustrate this model.

This study has illustrated the culture and working environment for technical staff, prior to the intervention of a national sector initiative; the Technician Commitment. Prior to the advent of the Technician Commitment, participants described a history of technicians being a relatively undervalued, misused and misunderstood staff group. This led to feelings of isolation and a lack of organisational belonging in technical communities. I summarised these findings in chapter 5 in a 3-part typology of *organisational belonging* that describes the positioning of the technical community within institutions: i) **alienation**; where there are deep rooted, hard divisions between technicians and the organisation within which they work, as demonstrated by their interactions with academics, students and senior leaders, ii) **affiliation**; where those hard boundaries have started to soften and technicians are beginning to be thought of, included, and engaged with and the environment and culture becomes more generous and mutually respectful and iii) **alliance**, where technicians experience genuine parity of esteem and a collegiate culture that recognises all colleagues engaged in research and teaching.

The Technician Commitment was launched in 2017 to advance a more positive culture and working environment for technical staff across UK higher education and research. Upon its introduction, organisations took an internal decision on whether to engage with it. Chapter 6 explored the motivations for institutions to become a signatory of the Technician Commitment. I presented three common themes that were key drivers for signing the Technician Commitment: i) **external influences**, reputation and competition, ii) **internal signalling,** demonstrating commitment to technical staff groups, and iii) as an **agenda setting** tool for improving support for technicians. These categories are not mutually exclusive and this engagement may be for a complexity of reasons.

I argue that the root of those motivations, the core reason for engaging with the initiative then influences which enablers are enacted. These enablers were identified in Chapter 6 as being i) **resources,** for example budget, staffing and time management, ii) **senior sponsorship** and how this demonstrates institutional ownership and facilitates action; and iii) **engagement** from the institution's technical community, including how individuals act informally as champions to advance this agenda.

These enablers and the extent to how they are deployed are what influence the level of impact of the Technician Commitment within institutions. Chapter 7 identified three broad categories of impact derived from the analysis with the seven Technician Commitment leads interviewed in this study. These are: i) visibility, recognition and **profile** (being seen and appreciated), ii) **opportunity** and career development (being invested in) and iii) **community**, collaboration and representation (belonging/feeling a part of something). The third impact theme, community, has three sub-dimensions that can be seen to be changing as a result of the Technician Commitment. These can be summarised as communities **of** technicians within institutions, a wider institutional community that is **inclusive of** technicians, and the growing recognition of a **community beyond** the institution

My argument is that the initial culture and conditions, and the positioning of technicians, interacts with the institutional motivators and subsequent enablers to produce different types and levels of impact. This impact then influences the present culture and conditions, and the positioning or organisational belonging experienced by technicians. It is this that can move technicians from a place of organisational alienation to organisational affiliation or alliance. This is illustrated in figure C below.

<<< Typology of Organisational Belonging >>>

Alienation
Hierarchical environment with hard, deep-rooted boundaries between them and the organisation within which they work

Affiliation
Boundaries are beginning to soften and environment and culture starts to become more mutually respectful

Alliance
Parity of esteem, mutual respect and a collegiate culture

Intervention

Motivators

External Influences
Reputation and competition

Internal Signalling
Demonstrating commitment to technical staff groups

Agenda Setting
A tool for improving support for technicians

Enablers

Resource
For example budget, staffing and time management

Senior Sponsorship
And how this demonstrates institutional ownership and facilitates action

Engagement
From the institution's technical community, including how individuals act informally as champions to advance this agenda

Impact

Visibility, Recognition and **Profile**
(Being seen and appreciated)

Opportunity and career development
(Being invested in)

Community, collaboration and representation
(Belonging/feeling a part of something)

Communities of technicians within institutions

A wider institutional community that is **inclusive** of technicians

Growing recognition of a **community beyond** the institution

Sub-dimensions of Community

Figure C: A proposed conceptual framework for the enactment of the Technician Commitment in institutions

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My study showed that the intervention had impact in all of the seven institutions I examined, but this impact was variable and was felt on different levels. Greater impact was observed where all of the enablers were reportedly enacted. Enablers were enacted based on the core motivators that were in place for that institution. If these were more focused on external reputation, fewer enablers were deployed. If they were more focused on agenda setting, then enablers were enacted more thoroughly. This had a direct influence on the impact observed and experienced by the Technician Commitment institutional leads.

It was these organisations that seemed to experience greater impact across all three areas (profile, opportunity, community) and which, in turn, seemed to be producing a stronger change trajectory towards a culture and environment closer to the *alliance* described in chapter 5. Institutions whose motivations for signing the Technician Commitment were strongly focused on external signalling, and who consequently had less of a change agenda enacted fewer/limited/no enablers. They still saw impact but this tended to be limited to increased profile of technicians and to the first type of community in which technicians came together across the organisation to form a community of technical staff. Table F provides a tabular representation of the seven institutional journeys through the implementation of the Technician Commitment.

It is important to note that the relationships between motivations, enablers and impact are nuanced and this framework should be used with this in mind. For example, the motivations for HEI engagement with the Technician Commitment may not be as clear cut as this framework suggests, and evidence of limited resources and/or impact might not necessarily be a result of limited motivations or commitment to the initiative.

	Organisational Belonging	Motivators			Enablers			Impact			Organisational Belonging
Lead	Positioning pre TC	External reputation	Internal signalling	Agenda setting	Resource	Sponsor	Engagement	Profile	Opportunity	Community* (A,B,C)	Positioning post TC
Andy	Alienation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	A,B,C	Alliance
Barbara	Alienation	Yes	Some	No	Limited	No	Limited	Yes	No	A,C	Alienation
Charlie	Alienation	Yes	No	No	Yes	No	Limited	Yes	Yes	A,C	Affiliation
Denise	Alienation	Yes	Yes	Yes	Limited	Limited	Limited	Yes	Yes	A,B,C	Affiliation
Emma	Alienation	Yes	No	No	Limited	No	Limited	Yes	Yes	A	Alienation –Affiliation
Fiona	Affiliation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	A,B,C	Alliance
Grace	Alienation	Yes	No	No	No	No	Limited	Yes	No	-	Alienation
								*Community sub dimensions: A) Internal community of technicians B) Institution inclusive of technicians C) Community beyond institution			

Table F: Tabular representation of seven institutional journeys through implementation of the Technician Commitment

8.5 Towards a theory of change

My work to understand the implementation and impact of the Technician Commitment has come from a grounded theory inspired approach. My change leadership, and this linked research, has been motivated by a desire to catalyse systemic change. As I explained in Chapter 1, the programme of activity of which the Technician Commitment is a key part, has developed quickly over time and in parallel with my doctoral studies. In reality, my study has sought to evaluate the implementation and initial impact of the Technician Commitment. Had my trajectory been different, I might have framed the Technician Commitment intervention with a theory of change, an approach that is increasingly expected for such complex change initiatives. This large and expanding literature has not been explored as part of this thesis, predominantly because I was not thinking about my work in those terms at the outset. However, on reflection I can see how my research, and the wider Technician Commitment initiative, and the application of this research in other contexts, would benefit from a more well developed theory of change.

Theory of change was first conceptualised in the 1990s. It came from the field of programme evaluation, initially emerging at a roundtable where the challenges of the evaluation of complex programmes were discussed (Connell 1995). It was argued that the reason for these evaluation challenges was because the desired outcomes of these complex programmes were poorly defined or understood. A proposed solution was to establish 'theory based evaluation' where "outcomes-based evaluation was based on theories of change that underlie the evaluation" (Auriacombe 2011 p41). Essentially, at the outset of a change initiative, a theory of change identifies longer term or higher order goals or outcomes, and then maps backwards to identify lower order objectives that need to be achieved to deliver the long term impact that achieving the higher order outcomes will ensure. A theory of change can inform future evaluations as predicted expectations of how the change initiative would be implemented are in place from the outset. Ideally, to evaluate the impact of the Technician Commitment as an intervention, I would have articulated a theory of change from the outset of its creation (Chen and Chen 1990). It is noted however that the development of a theory of change is not always developed at the inception of change initiatives and that the development and application of a retrospective

theory of change is possible to support evaluation of interventions (Levay, Chapman et al. 2018).

Auriacombe (2011) states that in order to develop a theory of change, a "basic, fundamental theoretical and practical understanding of the social problem to be addressed is needed". My lived experiences as a technician, as outlined in Chapter 4, led me to create the Technician Commitment and the variety of work and research I have undertaken in this area, as outlined in Chapter 1, have built towards the conceptual framework outlined in this thesis. At this point in my doctoral journey, as I have further developed my scholarly identity alongside my professional identity, I can reflect that perhaps this thesis is an example of theory of change in practice.

In the case of this research – I am enabling increased visibility, recognition, career development and sustainability of technical skills, roles and careers in UK higher education to deliver a higher order outcome of parity of esteem, mutual respect and a collegiate culture for technicians, to deliver a long term impact of increased attraction and retention of technical roles and careers, ensuring a technical skills base to enable the UK to be a global science superpower. The measure of a collegiate culture is reflected in my conceptual framework as a typology of organisational belonging, with the positioning of technicians framed as alienation, affiliation or alliance. Influencing institutions to engage with the Technician Commitment, as the tool and intervention I designed to change the culture for technical staff, is a lower order outcome, required to achieve the higher level outcomes and longer term impact I am seeking.

8.5.1 Logic Models

Having attempted to articulate the theory of change for this work, a further useful tool is the use of a logic model. Whilst the theory of change represents how I believed change will happen in theory (conceptually), a logic model translates this into the practical ways the programme will have enacted that theorised change (operationally). It illustrates the theory of change underlying the change intervention. A logic model usually consists of four key components: inputs, activities, outputs and outcomes (Frechtling 2007). Figure D depicts a basic, generic logic model.
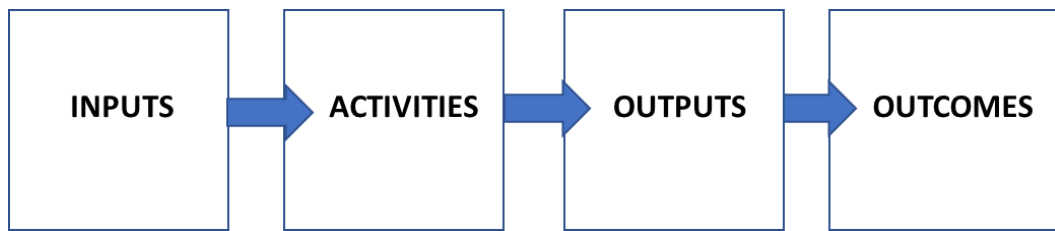
```
┌──────────┐      ┌──────────┐      ┌──────────┐      ┌──────────┐
│          │      │          │      │          │      │          │
│  INPUTS  │ ───▶ │ACTIVITIES│ ───▶ │ OUTPUTS  │ ───▶ │ OUTCOMES │
│          │      │          │      │          │      │          │
└──────────┘      └──────────┘      └──────────┘      └──────────┘
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Figure D: Example of a basic logic model

My research can be retrofitted to a logic model to demonstrate the implementation and initial impact of the Technician Commitment. Figure E illustrates how my research fits to a logic model and demonstrates how the Technician Commitment has worked both at a sector level and at an institutional level, detailing inputs, activities, mechanisms, outputs and outcomes including the motivators, enablers and impact factors from my proposed conceptual framework.

Inputs (sometimes referred to as resources) are required to operate and deliver the Technician Commitment (e.g. financial investment, sector steering board). If these are in place, then the activities of my change intervention can take place (e.g. the sign up process, website and sector events). If these activities take place successfully, they activate mechanisms at both an individual institution and a sector level (e.g. communications campaign, allocation of institutional resource and senior sponsorship). If these mechanisms are enacted, they lead to sector and institution outputs (e.g. delivery of Technician Commitment action plans, published research reports). If I deliver the outputs, then outcomes are enabled (e.g. institutional and sector engagement and change for the technical community).

Logic models come in many different forms and the literature advises that they are not intended to be static, but instead support in understanding and evaluating dynamic nature of work such as that involved in the development and enactment of system change interventions such as the Technician Commitment (Creighton 2008).

It is important to note that this model is not designed for evaluation, but retrospectively. Whilst I did not utilise a logic model at the outset of the Technician Commitment, there are possible insights learned from this retrofitted development of a logic model that could be helpful in evaluating other interventions. This is an area of work I intend to explore further in my professional practice.

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Inputs

Investment and support for TC initiative from Gatsby

Sector steering board of influential organisations and individuals

Technician Commitment lead with working knowledge of technical landscape

Activities

Recruitment of TC sector champions

Creation of sign up process

Engagement activities designed:
- Communications strategy
- TC website
- Creation of awards for engagement
- TC sector events

Self-assessment and action planning process

Mechanisms

National mechanisms
- Awareness raising though press releases announcing signatories (**external influence - reputation and competition**)
- Communication through TC website
- Community building through sector events from 2017 – 2022
- Creation of sector partnerships

Institutional actions
- Organisations sign up as TC signatories and supporters
- Creation of institutional TC lead
- Self-assessment and action planning
- **Identification of and engagement with technical community**

Institutional mechanisms
- **Allocation of resource**
- **Senior sponsorship**
- **Internal signalling**
- **Agenda setting**

Outputs

Development and delivery of research reports on topics pertaining to the technical community in higher education and research

Awards for signatories that demonstrate progress

Delivery of institutional action plans

New patterns of engagement within and beyond institutions

Outcomes

Sector change for technicians
- Increased visibility, recognition, career development and sustainability of technical skills, roles and careers in UK higher education and research

Sector engagement with TC
- Wide take-up of Commitment
- **Growing cross-sector technician community**
- Increased understanding of the contributions of technicians make to the sector

Institutional change due to TC
- **Visibility & recognition** of technicians
- **Opportunities and career development** for technicians
- **Strong and engaged technician community**

Impacts organisational belonging

<alienation – affiliation – alliance>

External mitigating factors:
Institution context (e.g. changes in leadership, policy and practice)
Sector context (e.g. political and policy landscape; system disruption/shocks - e.g. Brexit)

Linkage with proposed conceptual framework: **Motivators** /**Enablers**/**Impact**/**Typology of Organisational Belonging**

Figure E: A proposed logic model for the enactment, delivery and impact of the Technician Commitment

8.6 Limitations of the research

There are several limitations to this study. Firstly, my sample is very small, consisting of seven individuals at seven individual institutions. However, the institutions are different in size, are geographically dispersed across the UK and the interviewees have a variety of roles and job titles. Moreover, their role in being the designated lead for the implementation of the Technician Commitment at their respective universities provides a unique institutional picture about the enactment of the initiative at those institutions. Nonetheless, this data must be interpreted with caution.

Secondly, my proposed conceptual framework tries to fit a simple model over a complex system and environment which will have many historical and contextual factors and subcultures at play. As a researcher, I recognise that organisations enact policy and change processes in different ways depending upon the particular circumstances, mission, history, culture and people. Nonetheless, I believe there is merit in distilling complexity into a simple framework that can be used to understand how to best maximise impact of tools designed to create positive culture change.

One of the added complexities that I would have explored further with hindsight is the personal agency, connectivity and networking capabilities of the Technician Commitment lead. I believe that if these individuals have the know-how to navigate and influence key players, particularly senior leaders, then they can help to make more happen quickly.

A third potential limitation of this study is that it is not the study I set out to execute. My original intention was to research the roles of technicians in higher education and to make a contribution to knowledge in terms of what is understood about technical roles and careers in the sector. When commencing this doctoral programme, the Technician Commitment did not exist. This study evolved alongside my professional practice. If I was commencing this research now and designing it in reverse, I would possibly look at different literatures, for example, the literature on organisational change. However, I did not know at the outset that this study would be about how cultural change is enacted in universities, particularly given the use of grounded theory which is what led me to my proposed conceptual framework. I also believe

that my position, at this particular time and place and during the genesis of the Technician Commitment provided a unique opportunity to build understanding of how culture change initiatives such as these are enacted from the outset in organisations.

A further limitation of this research is that I conducted it from a position of bias. I have taken measures to address this, for example, taking time to understand the experiences that led me to create the Technician Commitment and recognise my bias in the context of this study. My bias also presents a paradox in that it would not have been possible for me to undertake this research without being in the position that I was in. My work comes from an authentic place and perhaps this gives it strength, for example, I do not believe that the development of the Technician Commitment would have been the same if it had not been designed by a technician who had 'walked the walk' – in order to 'talk the talk'.

8.7 Golden threads: boundaries, identity and status

Through this research and the resulting thesis, I have tried to tell the 'story' of technicians, where we came from, who we are and what we do. I now revisit some of the themes and golden threads that have emerged throughout this work to explore conceptual insights and lessons learned.

A key theme that has surfaced from this work is the concept of boundaries between technicians and academia, whether that be a boundary between technicians and academic members of staff or a boundary between technicians and senior leaders/the individual institution itself.

As discussed in Chapter 2, these boundaries can take many forms. They can include a boundary defined by the type of knowledge technicians possess, or are perceived to possess, or a boundary defined by the lack of status attributed to the work of technicians. These boundaries can then inform and impact the positioning of technical staff in their respective institutions and potentially their individual perceived organisational belonging and/or professional identity. The analysis of interviews with research participants in this study demonstrated that the ways in which their respective universities engaged with and enacted the Technician

Commitment impacted on the sense of belonging and professional identity experienced by technical colleagues in their institutions.

8.8.1 Professional Identity

Given the documented invisibility of university technical staff, it is perhaps unsurprising that the concept of identity has emerged from this research. There are many terms that are used to define identity in the workplace, (two examples are 'occupational identity' and 'social identification' (Trede, Macklin et al. 2012)). Paterson defines professional identity as simply "the sense of being a professional" (Paterson, Higgs et al. 2002 p6). A professional identity is created in interaction with others (Larsson, Aldegarmann et al. 2009) and changes in the professional role affect the professional identity. In turn, a social sense of coherence is essential to ensure the effective running of the organisation where the professional group resides (Pingel and Robertsson 1998, Larsson, Aldegarmann et al. 2009).

Dietz and Ritchey suggest that "identities are derived from occupied social positions and the meanings and role expectations associated with them" (Dietz and Ritchey 1996:1). Allen-Collinson (2006) found that the formation of identity by research administrators was heavily influenced by their interactions with colleagues, particularly academic colleagues given the power that increased academic 'capital' (Bourdieu 1984) has in the power hierarchy of higher education (Park 1992). Given the power hierarchy in academia, it is easy for those placed higher up the hierarchy (i.e. academic staff) to place categorisations on other 'lower' occupational groups in the university, for example, those described as support staff (i.e. technicians) (Jenkins 2000). These categorisations in turn may influence the classifications (and identities) that technicians place on themselves. Jenkins describes the way we identify ourselves and the way others identify us as the "internal and the external moments of the dialectic of identification" and describes professional identity as a result of the interactions between these (Jenkins 2014 p86). He suggests that there are two modes of identification which all 'actors' are subject to. These are either internally orientated, 'self or group identification', or they are externally orientated, 'the categorisation of others' (Jenkins 2000, Jenkins 2014). I interpret this to mean that a technician's professional identity is formed from the relationship between how they view themselves, their own work and their technical peers and how others

identify them as individuals, as a group and by their work. This aligns with the conceptual model of the enactment of the Technician Commitment proposed earlier in this chapter, in terms of how Technician Commitment leads perceived the organisational belonging, or possible professional identity of technical staff having evolved as a consequence of the Technician Commitment initiative, conceptualised as alienation – affiliation - alliance.

8.8.2 Moving to a 'third space'

In chapter two I discussed the concept of the 'third space', a term defined by Whitchurch (2008). Whitchurch defined third space as an emerging territory between academic and professional domains that could be reconciling academic and professional agendas. Her study is based on managerial and administrative staff and has not been expanded to include technical staff. I argue that there is evidence that technical staff in universities are crossing into the 'third space', particularly as evidenced in the analysis on the positioning of technicians in Chapter Five of this study. There are similarities with Whitchurch's work in the idea of categories of university staff crossing a boundary, sometimes visible, sometime invisible. In the context of technical staff, this is evidenced by the softening of boundaries, for example technical staff playing an increasingly student facing role in teaching environments, or technicians experiencing increased recognition for their contributions to research, to the point where they routinely are named as co-authors on research outputs.

8.8.3 Status

The concept of professional identity and the perceived movement of technical staff across boundaries point to an increased societal status for technicians in higher education. This thesis began with a literature review that traced the origins of the technical profession back to the 17th century, where technical staff were deemed to be male servants dependent on the commands of their masters, a source of physical energy as documented through the writings of Robert Boyle (Shapin 1989). The work of Tansey (2008) demonstrated that this boundary between manual and mental work was still very evident in the early 1900s where technical staff at the Medical Research Council were segregated from their academic colleagues by the colour of their laboratory coats and the lack of permitted entry to the library. By the end of

World War II, these boundaries were beginning to soften slightly with limited evidence of technical staff being permitted to be collaborators in research at the Medical Research Council. Despite this softening, sector reports in 1998 and 2004 demonstrated that strong boundaries were still evident and that more needed to be done to ensure improved visibility, recognition and status of technical professionals in UK higher education (Royal Society 1998, Smith, Adams et al. 2004).

The Technician Commitment has continued and accelerated that journey. There is evidence of increased visibility and recognition of technicians and the contributions they make to UK higher education, and growing acknowledgment of technicians being knowledge producers in their own right, in similar ways to the increased recognition of the contributions of nurses and teaching assistants as discussed earlier in this chapter. The technical role in higher education and research has evolved, and despite limited evidence of sector action in response to national reports and studies in the last 25 years that called for change, there has been demonstrable progress in recent years to ensure that technical roles in UK higher education and research are supported, developed and invested in.

8.8 Reflections

At the beginning of this work the Technician Commitment did not exist. The whole process of creating it and driving its implementation has disrupted my doctoral journey, but it became more important to me as I could see it had the potential to drive genuine change across the sector for the technical community. This has made my doctoral journey challenging but in hindsight I think this is the thesis I was always meant to write.

I have struggled throughout my studies to detangle this research from my professional life, to step back and understand my role as a researcher and to ensure I think about that in a separate way to how I think about my professional role. Another area I have struggled is the ability to look deeply at my data. My preference has always been to 'get things done', perhaps because of my background and training as a technician. I found myself getting frequently frustrated when attempting to analyse my interview data, and it was challenging for me to dig deeper and understand my data more meaningfully. I believe that my science background may have hindered

this process too, whilst my MA was also in higher education, there was a more linear, prescriptive approach to that which was more suited to my science and technical training. I am encouraged and challenged by colleagues in my professional life to ensure that I can back up everything I say publicly - that it is "evidence based", "right or wrong", "statistically significant" and so forth. By its nature, this study has been much more exploratory and this has been a difficult transition for me to make, particularly when I have jumped in and out of my research so frequently alongside my professional role.

An additional issue which I have faced, which is actually at the heart of the work in this thesis, is that I have a pragmatic and practical approach to my work. I recognise and respect the need to theorise, analyse and discuss but ultimately, I want to use that analysis to deliver something that makes a difference. I really thrive on this – the making a difference part, the impact. It is what motivates me every day and I am fortunate and proud that my work in recent years is really starting to have a positive effect for the technical community across the sector. There is still a lot to do in my professional sphere but there has certainly been distance travelled in the right direction. Because of this I often wrestle with the tensions between theory and practice. This is where it comes back to the head vs hand types of knowledge discussed in my literature review. Perhaps being a technician is so much of my being that it makes it really hard to dig deeper into the 'head' theory aspects of my work. But then, I find myself asking whether it really needs to? Can a contribution to knowledge be pragmatic and practical and an example of something that has changed my small slice of the world for the better? Theorising does not feel naturally authentic to me and I have made a deliberate decision to not apply philosophy to the enactment of the Technician Commitment. I suspect that my personal doctoral journey mirrors the very thing I am researching.

8.9 Summary

This research has explored technicians and the emergence, enactment and impact of a national change intervention to advance a positive culture and environment for the technical community across UK higher education and research. At its heart is a question about what knowledge we value in society. Can practical, hands on knowledge – *the doing* – be just as important and useful as theoretical knowledge –

the thinking. I believe it can, that one cannot occur without the other, and secondly – that it is not clear cut and those historical hard knowledge boundaries are increasingly blurring. I think this thesis is an example of that very principle. I do not apply theories and philosophies about education to the enactment of the Technician Commitment, and it would be a departure from my authentic self if I did. I am a technician - a 'do-er' and this thesis is about doing and about how we do – and a demonstration of how do-ers, alongside thinkers, can make a difference in the world and make valid contributions to knowledge.

Chapter 9: Conclusion

The need for a more positive working environment and culture in higher education and research is of growing interest in the UK. There is increasing importance placed on what is regularly termed 'research culture', particularly since I began this doctoral study. The culture of scientific research was first explored by the Nuffield Council of Bioethics in 2014 through a range of engagement exercises including workshops and a survey (Nuffield Council on Bioethics 2014). They concluded that there was an "obligation for the actors in the system to do everything they can to ensure the culture of research supports good research practice and the production of high quality science".

Further work by the Royal Society and Wellcome progressed this work and explored how a culture had been created across the sector that valued outputs "at any cost", thus building high levels of competition and an increase in mental health issues amongst the research community (Royal Society 2017, Moran, Karlin et al. 2020). There has been a call for action to address this and the term 'research culture' has now rapidly been taken up by institutions, with several universities creating specific posts whose job titles and remit specifically includes research culture. Wellcome state that "building a healthier culture means making sure that the system supports the behaviour we want to see" (Bleasdale 2020). Current initiatives by other funders support this ethos and there is also a focus on inclusivity, both from an equality, diversity and inclusivity angle but also with the aim of ensuring that all roles in research are visible and valued (Leyser 2021). The Technician Commitment is a key part of this movement and many supporting organisations have joined its vision for a system that is inclusive of all roles that enable education and research.

There is a lack of research into the landscape of agreements that higher education institutions make with various sector organisations to improve the working culture and environment. A recent report commissioned by Universities UK (UUK), UK Research and Innovation (UKRI) and Wellcome gathered information on a number of concordats and agreements that are present in the research sector. This study identified twelve current initiatives. These were: the Athena Swan Charter, the Concordat for Engaging the Public with Research, the Concordat for the Advancement of Knowledge Exchange in Higher Education, the Concordat on Open

Research Data, the Concordat on Openness on Animal Research, the Concordat to Support Research Integrity, the Concordat to Support the Career Development of Researchers, the Leiden Manifesto on Research Metrics, the Race Equality Charter, the San Francisco Declaration on Research Assessment (DORA), the UKCDR Guidance on Safeguarding in International Development Research and the Technician Commitment (Basis Social 2022).

The review of concordats and agreements explored to a limited extent, the perceived impact of twelve sector level agreements and concordats. Of the initiatives assessed through survey methods, the Technician Commitment was perceived by respondents to have the most positive effect on the working environment (Basis Social 2022).

My research has not sought to interrogate and understand the origins, development and impact of this suite of individual initiatives but there are perhaps interesting parallels that can be made when examining the motivations for engagement. The UUK/UKRI/Wellcome report does not explore these motivations but a handful of studies do touch on this. For example, the Athena SWAN charter was established in 2005 and aimed to "encourage and recognise commitment to advancing the careers of women in STEMM employment in HE and research" (AdvanceHE 2019). Between its launch and 2017, it saw a period of growth from ten original members to 140 institutions. It is believed that universities and research institutions were increasingly motivated to engage with the Charter following an announcement in 2011 from the National Institute for Health Research (NIHR) that their funding would only be awarded to institutions that held an Athena SWAN award (Rosser, Barnard et al. 2019). This would fall into the category of **external signalling** identified in this study. That does not mean to say that there was not a genuine desire to advance gender equality in some of the institutions that engaged with the Charter but my argument is that impact would likely be lesser in institutions whose motivation was limited to ensuring grant success, external reputation and competition.

As mentioned there are a number of agreements, charters, concordats and commitments that seek to improve one or multiple aspects of the culture and working environment within higher education and research (Basis Social 2022). There is not,

however, any current research that seeks to understand how they are enacted within institutions. With the exception of some studies, specifically on the impact of the Athena Swan Charter, there is a lack of literature on these agreements and initiatives generally and specifically on how they are implemented. I propose that the conceptual framework that has emerged from my data could potentially be applied to other agreements and initiatives. The evaluative study of the Athena Swan Charter, that also identified resource and senior leadership support as challenges to reaching impact provides additional confidence in the findings of my study and the replicability of this framework in the context of other agreements (Graves, Rowell et al. 2019).

This research has implications for a range of different stakeholder groups and I discuss some of the wider implications of the need for increased strategic understanding of the technical workforce in UK higher education in the TALENT Commission report (Midlands Innovation 2022).

For my research participants and their peers, this study can help them to further understand their own institution's journey in the Technician Commitment, in comparison to others in the sector and the impact that they delivered through engagement with the initiative. The conceptual model that has been developed in this research will be shared with all Technician Commitment signatories at a future Technician Commitment Signatory event, to both help to chart and understand the different ways in which universities have interacted with the Commitment, but to also understand the levels of impact that are possible through continued engagement, particularly on the perceived positioning of technicians within their organisations. It is hoped that understanding institutional engagement with a sector wide concordat in this way will be positive for new signatories and supporters of the Technician Commitment, and also have benefits for other sector concordats, such as those discussed earlier in this chapter.

I am fortunate that in my professional context, I am in a position to share this research and new understanding with the leaders of other sector concordats, agreements and charters, particularly in new sector discussions about aligning some of the ways of

working across the concordat landscape to reduce any potential bureaucratic burden on universities.

This work should also be of interest to government policymakers and funders, particularly in understanding the wider higher education workforce, both in terms of the need for robust data, the importance of further strategic understanding of the contributions technical colleagues bring to the sector and in terms of the culture in which colleagues are working. There is an entire system of diverse people and roles that enable the UK to deliver excellence in research, education and innovation and I hope this thesis has played a small part in shining a light on some of their experiences and contributions.

This study provides a contribution to knowledge in the following ways:

1) It explores at the micro level of seven individual institutions, the unfolding of a national initiative to create a change in culture for technicians. It provides insight on:
   a. the perceived historical positioning of technicians within universities prior to the introduction of the Technician Commitment
   b. the institutional motivations for engaging with the initiative
   c. the unfolding of how the Technician Commitment was enacted, including the identification and analysis of key enabling factors
   d. the perceived impact of the Technician Commitment and its influence on the positioning of technicians in academic work environments

2) It presents a novel conceptual framework that decodes how institutions experience and enact sector wide concordats, charters and commitments, and demonstrates the key drivers for influencing culture change in higher education institutions

3) It contributes to a gap in the literature by providing the perspectives of individuals tasked with leading culture change interventions

4) It provides a first-hand narrative of the genesis, development and implementation of the process of designing and delivering a sector wide change programme designed to drive a more positive culture and working environment

This work provides a foundational study to trigger further work to explore the role that agreements, concordats, charters and commitments play in enacting a positive culture across higher education and research. There is scope to apply my conceptual framework and logic model to other existing concordats to test if the model works and to further develop or expand it. It can also be used at the outset of engaging with tools such as these to understand what enablers need to be present to maximise impact.

A positive research culture is key to ensuring the UK can achieve its ambition to be a science superpower, driving increased investment in R&D and ensuring an open, honest, rigorous and collaborative community.

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Appendices

Appendix 1: Informed consent for interviews

Researching the Technician Commitment – Invitation to Participate

As a Technician Commitment lead, you are invited to participate in a research study titled **Technically Speaking: Visibility & Value of Technical Roles in UK Higher Education & Research** (working title). This study is being undertaken by Kelly Vere from the University of Nottingham as part of a Professional Doctorate in Education (EdD). The research is supervised by Professor Andrew Noyes.

The purpose of this research study is to gain an understanding of the impact of the Technician Commitment across UK institutions and to identify common trends/themes across Technician Commitment signatories. It consists of interviews with a sample of institutional signatory leads in order to explore the implementation and impact of the initiative within their organisation and to examine and understand their roles as change agents.

Institution and individual names will be entirely anonymous in any subsequent research write-ups and reports and only the researcher and the supervisor will have access to the data for this purpose.

Your participation in this study is entirely voluntary and you can withdraw at any time. You are free to omit any question. Responses are anonymous.

Please read the participant consent information below.

PARTICIPANT CONSENT FORM

- I have read the Participant Information and the nature and purpose of the research project has been explained to me. I understand and agree to take part.

- I understand the purpose of the research project and my involvement in it.

- I understand that I may withdraw from the research and that this will not affect my status now or in the future.

- I understand that while information gained during the study may be published, I will not be identified and my personal responses will remain confidential.

- I understand that while information gained during the study may be published, my institution will not be identified.

- I understand that data will be stored on a secure drive at the University of Nottingham and that only the researcher and the supervisor will have access to this data.

- I understand that I may contact the researcher or supervisor if I require further information about the research, and that I may contact the Research Ethics Coordinator of the School of Education, University of Nottingham, if I wish to make a complaint relating to my involvement in the research.

I agree to all of the above statements.

Signed:

Name:

Institution:

Contact details

Researcher: kelly.vere@nottingham.ac.uk

Supervisor: andrew.noyes@nottingham.ac.uk

School of Education Research Ethics Coordinator:
educationresearchethics@nottingham.ac.uk

Appendix 2: Interview schedule for Technician Commitment Leads

Theme 1: The individual and prior conditions for technicians. *(what's technicians' work here, how are they viewed, from different perspectives over time).*

In this section I'd like to know about you and your personal journey, what it was like for technicians just prior to the Technician Commitment and what it was like prior to that (depending on when they started) – i.e. how it came to be like that).

- Can you start by telling me what your role is and how long you've been at this institution?

  - (if relevant) How were technicians viewed/treated when you started here?

- Can you explain the conditions just prior to the Technician Commitment, say 5 years ago (2014):

  - What was the environment like for technicians here and how were technicians viewed/treated? (culture, status, relationship with academics, teaching, recognition)

  - Why do you think it was like that?

  - (If not a technician) Do you think that technicians would recognise what you've described?

  - (If a technician) Do you think that HR/staff development/senior leaders would recognise what you've described?

Theme 2 - Why did the organisation get involved in the Technician Commitment? *(what was the purpose of signing?)*

- What do you think were the institutional drivers for signing the Technician Commitment?

- Given your earlier answers, what impact was it expected to have?

- Why were you asked to take on this role? What are the advantages and disadvantages of a (manager, academic, technician) taking on this role?

- Which of the TC themes, if any, are particularly relevant/challenging for this institution and why?

- What would you say is the general view of the purpose and likely impact of the TC?

Theme 3 – What are you doing to implement the TC*? (Process involved in delivering the Commitment)*

I would now like to explore your implementation of the Technician Commitment:

- How would you describe your general approach to implementing the TC?

- What structures have been put in place? Is there governance in place? Who's involved?

- What's the balance between top down and bottom up development – organic and strategic?

(How is it organised, who runs it, what support do you get as lead, how is it communicated to the technical community?).

- Have you faced any particular challenges in implementing the TC?

- Are you aware of different approach to the TC across the sector and has this influenced your approach?

Theme 4 - What effect/impact is the Technician Commitment having – from different perspectives?

The final area that I would like to discuss is the effect of the TC here (last two years):

What is the environment like for technicians now and what has changed (is changing)? (culture, status, profile, relationship with academics, teaching, recognition).

- Would technicians here agree with the changes you've described?

- What do you think the longer-term impact of the TC will be?

- Do you think this will be different at different institutions and does that matter? (sustainability of TC)

- Have there been any unintended/unexpected consequences?

- How, if at all, are you evaluating the impact of the changes you're making in response to the Technician Commitment?

To close:

Is there anything that I should have asked that I've missed?

Appendix 3: Conference talks and previous writing

During the course of the EdD, I wrote a number of assignments on the topic of technicians in higher education and research. I also published aspects of my earlier research in the form of sector reports and advocacy articles.

EdD Assignments

- Technically Speaking: (Re)Defining the Role of Science Technicians in Higher Education
- University Technicians: The Emerging Professionals in the Teaching of Science in Higher Education?
- The Gender Gap in Technical Services Staff in STEM Academic Environments
- Literature Review - What is the role of technicians in universities and how, if at all, is this changing?

Sector Reports

Vere KA and collaborators: The TALENT Commission: Technical skills, roles and careers in UK higher education and research. 2022, February. TALENT.

Vere KA, Breeden S, Stevenson C et al: The Technician Commitment: Progress and Impact. 2021, November. Technician Commitment.

Vere KA, Hancox I, Turner H et al. The Role of Technicians in Knowledge Exchange: An explorative study. 2021, November. TALENT/Technician Commitment.

Vere KA and collaborators: Funding Technical Staff in Research. 2021, September. TALENT.

Howard V, Mullany L, Williams L, **Vere KA**: Equality, Diversity and Inclusion: UK Technicians' Experiences During the Covid-19 Pandemic. 2021, February. University of Nottingham and sector partners.

Vere KA and collaborators**:** COVID-19: The Impact on Technicians in UK Higher Education and Research. 2020, August. Technician Commitment**.**

Vere, KA, Stevenson C, Jones K et al. Equality, Diversity and Inclusion: A Technician Lens. 2019, November. University of Nottingham and sector partners.

Vere KA, Jones K, Gilbert P et al. Technicians: Providing frontline and vital support for student health and wellbeing. 2019, June. Technician Commitment.

Vere KA. Technician Commitment: One Year In. 2018, November. Gatsby Foundation.

Articles

Vere KA. Advancing gender equality for professional roles in higher education and research institutions in the UK. 2021, July. AdvanceHE.

Vere KA. My big idea for the People and Culture Strategy: Ronaldo, teamwork and how to create an inclusive R&D culture. 2021, July. MetisTalk.

Vere KA. Technicians are a vital component of UK higher education. 2021, May. WonkHE.

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