

**ACHIEVING THE THIRD MISSION IN THE UK: TOWARDS
A THEORETICAL AND PRACTICAL FRAMEWORK FOR
UNIVERSITY-BUSINESS COLLABORATION**

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ABSTRACT

The thesis aims to build a contextualised rich description of complex and possibly opposing views of the same phenomena of the Third Mission. It is becoming increasingly important for UK universities (and especially Business Schools as anchor institutions) to collaborate with businesses to achieve local economic growth, thus achieving the Third Mission.

The research design follows a constructivist, inductive stance however, it is based on secondary data, so it uses a modified qualitative systematic literature review (MQSLR) methodology. Twenty-one articles selected via the MQSLR were thematically analysed and synthesised, with the NVIVO software tool used to facilitate the coding process.

A number of themes and sub themes are interpreted from the selected literature. These include themes based on the context, exposure, mechanisms, and outcomes of the Third Mission activity in the UK. The research informs development of a new Third Mission Framework for a university (in particular, a Business School) to help create the conditions to achieve the Third Mission. This theoretical and practical framework offers opportunities for a university to consider their approach towards both explicit and tacit knowledge exchange.

The findings show that it is important to formalise measurement of two key outcomes: firstly, the extent to which there are Third Mission structures/systems in place and secondly, the extent to which Third Mission behaviours are adopted.

The new Third Mission Framework utilises the SOGI framework (Society-Organisation-Group-Individual) and modified CEMO framework (Context-Exposure-Mechanism-Outcome). This enables the multi-level and complex phenomenon of the Third Mission to be approached (by a university and in particular a Business School) in a heterogenous rather than isomorphic way.

The research finishes by proposing new contextualised definitions of the Third Mission and making recommendations for future study.

DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference to text. No part of the thesis has been submitted as a part of any other academic award. The thesis has not been presented to any other education institutions in the United Kingdom or overseas. Any views expressed in the thesis are those of the author and in no way represent those of the University.

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CHAPTER 1 - INTRODUCTION AND OVERVIEW

1.1 Introduction

The objective of this chapter is to introduce the research context and purpose. Initially aiming to explore university-business collaboration, a scoping search clarifies and refines the extent of the phenomenon named the Third Mission as the conceptual anchor of this study. The chapter then identifies the knowledge gaps and introduces personal positioning. Afterwards, the research aims, questions and objectives are presented. Finally, the chapter provides an outline of the structure of the study.

1.2 Research Context

Over the last decade, the UK Government drive to boost the UK's economy in a globally competitive market has put UK universities at the core of the economic development strategy for the UK. Between 2009-2016, the Department for Business, Innovation and Skills (BIS) had a remit for economic growth and skills in the UK. This is the only time in the last twenty-five years where a single department of the UK Government has had policy oversight of both *universities* and *economic growth*. This period between 2009-2016 catalysed reviews and policies for university-business-collaboration. For example, Local Enterprise Partnerships (LEP, 2013) were formed in order to offer opportunities for *universities* to work with local authorities and businesses towards *economic growth*. Furthermore, in 2015, the BIS Select Committee challenged universities and business to do more together for *economic gain*:

“The UK has a world class university system, which produces internationally recognised research. Yet we do not necessarily see this output translated into economic gain. More can be done to bring businesses and universities together, in order to realise the economic benefits from our fundamental research.” (BISC, 2014, p.3).

The BIS was disbanded in 2016 and the government Department for Business, Innovation, Energy and Skills (BEIS) was formed - Its remit has not included skills and education. The BEIS currently aims to “*lead economy-wide transformation by backing enterprise and long-term growth, generating cheaper, cleaner, homegrown energy and unleashing the UK as a science superpower through innovation*” (BEIS, 2022). As such, much focus of the BEIS is on Science, Technology, Engineering and Mathematics (STEM) and technology innovation.

In the UK, the term *Third Mission* was associated with *universities* and *socio-economic development*, in the UK Government drive towards *commercialisation* of research. This association was captured via the Dearing Report - National Committee of Inquiry into Higher Education (1997) and the Lambert Review of Business-University Collaboration (2003). Numerous reviews and reports have ensued (Figure 2-2, p.20 and Section 2.3, p.21). Twenty years on and the Third Mission is still relevant, for example, ‘*BREXIT*’ has recently shaped the UK higher education economic landscape, as described in the following quotation:

“UK higher education has faced an unprecedented period of change due to multiple UK governmental policies over a short period – coupled with demographic change and the vote to leave the European Union. This pressures universities to meet ‘Third Mission’ aims by engaging effectively with society and business, generating income in the process to address reduced funding.” (Martin, Warren-Smith, & Lord, 2019, p.281).

Within a European context, the European Commission funded a green paper to “*stimulate informed debate*” about the Third Mission. The outcomes advised that governments may:

“Seek scorecards from the universities they fund that give a comprehensible account of their ‘Third Mission’ impact. This would form part of the Balance Sheet - an increasingly explicit part of the social contract between state and institution – we fund you, but you must deliver impact and value for money, as well as academic high-culture. By that time, there would be no further need of the term ‘Third Mission’.” (Carrión García, Carot, Soeiro, Hämäläinen, Boffo, Pausits & Padfield, 2012, p.19).

This vision of applying a *scorecard* provided the possibility of ‘quantifying’ the so-called Third Mission activity in universities.

From a theoretical perspective, this led to questions about the so-called *Third Mission*. Vorley and Nelles (2009) noted that, through public policy, “*governments have repositioned universities at the centre of socio-economic development initiatives by means of the Third Mission*’.” (p.286). This suggested the Third Mission is a socio-economic *mechanism*. Kitagawa, Sánchez Barrioluengo, and Uyarra (2016) expressed concerns that the Third Mission risks being a ‘*one-size-fits-all*’ model: “*universities are subject to a number of policy pressures and external forces, which may lead to a ‘one-size-fits-all’ model of Third Mission*” (p.24). Based on this initial context a scoping search was conducted.

1.2.1 Scoping Search

A preliminary search of literature about university-business-collaboration revealed there was a large volume of research, with the initial database search yielding 3,539,916 references. A scoping search (Appendix A) was conducted leading to the term ‘*Third Mission*’ as the conceptual anchor of this study. The focus was originally to be on UK universities, with an emphasis on their Business Schools. However, the scoping search (and later the overall study) found a lack of information on Business Schools and the Third Mission. It was unclear from the scoping search of the involvement of Business Schools in driving the Third Mission. The Scoping search identified Universities as being key drivers. Part of the challenge for this research therefore has been to explore peer-reviewed literature to seek out where (if at all) Business Schools have been recognised as driving the Third Mission.

The Scoping search informed the definition of collaboration for the purposes of this thesis - the term ‘*collaboration*’ was specifically modified to ‘Third Mission *activity*’ within the context of the Provisional Conceptual Framework (Section 2.2, p.18). The scoping search also highlighted some research challenges (Section 1.3, p.4) and informed the provisional conceptual framework. (Section 2.2, p.18).

1.3 Research Challenge

Three key research challenges were identified from the scoping search:

1.3.1 Challenge 1 - The challenge for universities -with their Business Schools- is to create the 'best conditions' in which to achieve the Third Mission.

In response to the Wilson Review on university-business-collaboration (Wilson Review, 2012), the UK Government aimed to “*build on acknowledged strengths to create the 'best conditions' for universities and businesses to work together to create prosperity over the next decade*” (BIS, 2012, p.5). It was unclear from the scoping search what the definition of ‘*best conditions*’ actually means, let alone how a university and its Business School could achieve them.

A government step towards creating the so-called *best* conditions to achieve the Third Mission, was by means of the establishment of Local Enterprise Partnerships (LEPs). LEPs were tasked to work with universities, in order to drive *economic growth* locally. Thus, thirty-nine LEPs across the UK were given devolved responsibility for economic growth within their geographical areas. Furthermore, the BEIS financially supported LEPs to foster work with their local universities. However, one should be mindful that every university is different as “*Professor Wilson highlights the importance of building on the unique strengths of universities and local areas; there is no 'one-size-fits-all' approach to university involvement with Local Enterprise Partnerships (LEPs).*” (BIS, 2012, p.31).

1.3.2 Challenge 2 - The challenge for universities -with their Business Schools- is how to conduct Third Mission activity.

The Association of Business Schools, (ABS) was tasked to set up the ABS Innovation Taskforce (BIS, 2012, p.32). A UK Government drive for the 130 UK Business Schools to lead in ‘commercialisation and engagement’ activities with business ensued. In 2013, Lord Young suggested that “*Business Schools should be 'anchor institutions' with a key role to play in supporting growth in the local economy.*” (Young Report, 2013, p.17).

Identified in the scoping search (Appendix A) was research on academic enterprise and regional economic growth by Woollard, Zhang, and Jones (2007), who proposed that universities need '*better mechanisms*':

"The challenge faced by HEIs is to consider how they can increase their contribution to business and society through better mechanisms of knowledge/ technology transfer and the commercialization of basic research." (Woollard et al., 2007, p.390).

The challenge has been to identify where Business Schools, as a key structure within a university, has driven the Third Mission.

1.3.3 Challenge 3 – The challenge for universities is to define the Third Mission.

The scoping search highlighted Third Mission *activity* as a '*mechanism*' towards creating the *best conditions*; however, the Third Mission phenomenon appears to be a complex and multi-level entity that has little consensus of definition in the literature. This is indicated by the variety of the types of research on the Third Mission. It has been challenging to reduce, analyse and synthesise this variety so that the Third Mission can be achieved. This highlighted also that there is a 'multi-level structure' of Third Mission. The diversity of research and apparent lack of consensus on the definition of the Third Mission meant that this this thesis would need to tackle the challenge of the Third Mission being a 'multi-level' phenomenon. This is done by using the SOGI framework (Society-Organisation-Group-Individual) to help describe each level of the Third Mission as a muti-level phenomenon. SOGI is defined and explained in Section 2.7.2 (p.29).

1.4 Research Gaps

In addition to the three research challenges presented above (Section 1.3, p.4), the scoping search also indicated two key knowledge *gaps* to consider in the formation of a Third Mission Conceptual Framework:

1.4.1 University-Business School Gap

Prince and Beaver (2004) highlighted a gap in Business School structuring and the operation of commercial activity:

“While there has been considerable research into management development in general, there has been very little research into the structuring and operation of commercial activity in new university Business Schools. Indeed, what research there has been into university commercial activity has examined all UK universities at a level of aggregation that makes it impossible to determine levels of Business School commercialization, let alone the level of individual performance.” (Prince & Beaver, 2004, p.217).

1.4.2 Transferring Tacit Knowledge Gap

The scoping search lacked references on how *tacit* knowledge could be transferred. Perkmann et al. (2013) suggested that, in social sciences “*knowledge seems to be transferred through personal contacts and labour mobility*” (2013, p.248), which demonstrates the importance of tacit knowledge in Business and Management knowledge transfer. It also highlighted why *knowledge transfer* in this discipline may be more complex than in the medical field where ‘*explicit*’ knowledge is transferred.

1.5 Personal Positioning

Having started my career as an analyst/programmer and serving as a commissioned officer in the RAF (VRT), I progressed to become Head of Higher Education and Head of School for Education and Professional Studies at a local College. Previously, I’ve headed up Bespoke Learning Programmes for a large national client. I now operate strategically with clients (Director and Deputy Director level) in organisational change, aligned to learning and change impact.

Previously, I curriculum-led and taught, as a qualified teacher (higher and further education) in technical computing, leadership, and change management with a Level 7 (ILM) in Strategic Leadership and Management and MSc in Computing. I’ve also been in management roles including Associate-Dean, Business Development Manager and Apprenticeships Manager. It is from these multiple viewpoints that I could see a disconnect between UK policy and UK university practice in trying to

achieve the Third Mission. I recognised the translation of UK Government Policy aspirations for the Third Mission as a challenge, which inspired this research. I could have interviewed key people in UK universities, however I wanted to explore the wealth of existing peer-reviewed literature on the topic get a much broader *rich picture* of the UK Third Mission.

My choice of using a systematic approach was influenced by my personal positioning. I work in roles where there are strategic problems to fix. These problems are defined as complex (and sometimes as 'chaos'), of large scale, with little consensus and multiple dependencies. My structured approach enables a complex problem to be defined by using existing frameworks to unpick the complexity of a problem. By doing so a complex problem can be simplified (in terms of defining and contextualising a problem) in order to put a change management plan in place. As a result of the DBA journey, I have progressed in my career due to development of my 'analytical sensibility' (Section 6.2.1, p.70 and Section 6.3.2, p.74), which has enhanced my impact and effectiveness in helping solve complex problems for my clients. Section 10.5 (p.318) details my professional reflection at the end of my DBA studies.

1.6 Thesis Goal

As a result of the scoping search, identified challenges and gaps the 'Third Mission' became the unit of analysis for this thesis. This appeared to be a multi-level phenomenon (Section 1.3, p.4).

The Goal of the thesis has been to explore existing peer-reviewed literature, to build a contextualised, rich description of complex -and possibly opposing- views of the phenomena called the Third Mission.

From this exploration, characteristics and themes have emerged to inform a new practical and theoretical framework which can be used by any university and their Business School.

A university can use the framework (at an organisational level), which consists of a number of tools to:

- Review/baseline their current Third Mission status.
- Decide which future Third Mission direction to take (based on their own heterogenous heritage).
- Build a Third Mission Plan to make it happen.

A Business School (Department within a university) can use the new framework as it has been designed as a multi-level framework that can be used at any SOGI level (Section 2.7.2, p.29). Basically, the framework has been designed so that anyone who wants to initiate change in the Thirds Mission (regardless of whether they are a university strategist or a Business School academic) can act as a catalyst for change, where a catalyst is defined as “*An event or person causing change*” (OED, 2023).

Overarchingly the new Third Mission Framework aims to catalyse change in a university and in particular recognise that a Business School can play a key part in this. The boundaries of this study are detailed in Section 1.8 (p.10) to confirm what was in and out of scope for this thesis.

1.7 Research Aims, Questions and Objectives

The aim of the study and the Research Questions (RQs) were formed based on the research context (Section 1.2, p.1), challenges (Section 1.3, p.4), identified gaps (Section 1.4, p.5), and personal positioning (Section 1.5, p.6). The Research aim has been to answer five Research Questions (Table 1-1).

Research Questions (RQs)	Research Objectives
RQ1: What characteristics of 'Third Mission activity' emerge from historical and contemporary documents about achieving the Third Mission in universities (in particular, Business Schools) in the UK?	RO1: To identify characteristics from an exploration of Third Mission activity of UK universities (in particular, Business Schools) and businesses (Industry) in the context of the Third Mission in the UK.
RQ2: From the identified characteristics, what themes of Third Mission activity can be drawn together to contribute to the achievement of the Third Mission?	RO2: From the identified characteristics, to create themes of Third Mission activity for universities (in particular, Business Schools) and businesses (Industry) in the context of the Third Mission.
RQ3: From the themes of Third Mission activity, how may a university (in particular, a Business School) create the appropriate conditions to achieve the Third Mission?	RO3: From the themes of Third Mission activity, to develop a practical and theoretical framework for a university (in particular, a Business School) to help create the appropriate conditions to achieve the Third Mission.
RQ4: How may a university (in particular, a Business School) effectively conduct Third Mission activity with business (industry) to achieve the Third Mission?	RO4: Highlight considerations to inform decision-making/ discussion by practitioners to enhance Third Mission activity in achieving the Third Mission.
RQ5: What definitions of Third Mission and Third Mission activity will evolve in the context of the DBA to inform a theoretical framework?	RO5: To create new definitions of the Third Mission and Third Mission activity within the context of the study in order to inform a theoretical framework.

Table 1-1 Research Questions and Research Objectives

These five questions enabled answering an overarching question of *How may a university achieve the Third Mission?*

RQ3-5 could not be answered without answering RQ1 and 2 first. Therefore Chapter 9 (p.138) focused on identifying characteristics (RQ1) and building themes (RQ2).

As a result of answering RQ1 and RQ2, I was able to then answer RQ3 and RQ4 in Chapter 10 (p.293). RQ5 was then answered on Chapter 11 (p.332). The

combination of answering all five Research Questions achieved the answering of the overarching question in Section 11.2 (p.323).

1.8 Boundaries of the Study

This study answered to the Wilson Review (2012) and the BIS follow up to the Wilson Review (BIS, 2012) where the Government was taking steps to create the '*best conditions*' for university-business collaboration. Rather than focus on the *best* conditions, the scope of this study has been to explore the '*appropriate*' conditions and develop a framework towards achieving the Third Mission. This has been restricted just to the context of the UK, due to the sheer volume of data identified in the scoping search. It thus ensuring the scope has been viable within the restricted timeframe of a DBA.

Other boundaries for this research have been a *university* focus only and has not included other HEIs or colleges. Business Schools and the knowledge they generate (explicit and tacit) has been within scope, whereas STEM sectors (which may indeed inform practice, and lessons can be learned from these areas) has not been within scope of this study. The discipline boundaries have therefore been within social science and in particular B&M:

“Business research includes studies that draw on the social sciences, such as sociology, psychology, anthropology and economics, for conceptual and theoretical inspiration.” (Bryman & Bell, 2015, p.5).

The aim has not been to generalise, nor to offer comparisons, but rather to add a new perspective to already existing knowledge. The study has not discussed the building of a success criteria checklist. Grey literature has informed the scoping search (Section 1.2.1, p.3), however has been outside the scope of this study (Section 8.4.2, p.111). It has not sought to look at the funding or strategic UK Government support that is supposed to create the '*appropriate conditions*' for Third Mission activity, rather it has sought to look at how a university can '*capitalise*' once the funding is received.

Therefore, this thesis has focussed on emerging themes and a re-interpretation of information, rather than extending the work of others through replication of a methodology. No hypotheses have been set as there has been no testing of theory. These scholarly features have set the boundaries of the study, located within the wider social science discipline of '*higher education and socio-economics*'. Thus, they inform the rationale and purpose of the study.

Owing to methodological boundaries, and because this study is exploratory (Section 4.2, p.43), it included an initial scoping search to build a Provisional Conceptual Framework (Section 2.2., p.18) and to identify keywords for the main study. This was followed by reviewing the qualitative research strategy based on a constructivist research philosophy (Section 3.3, p.30). This enabled the consideration of various qualitative methodologies, which led to the adaptation of the *Qualitative Systematic Literature Review* approach by Tranfield, Denyer, and Smart (2003), to form a *Modified Qualitative Systematic Literature Review* (MQSLR) methodology (Section 5.4, p.55). To help clarify the range of the MSQLR, two additional boundaries were incorporated: firstly, the Data Synthesis Stage of the MQSLR (Section 6.3, p.69) included mitigations due to limitations highlighted by Tranfield et al.. Secondly, '*quality*' boundaries for the MQSLR were examined (Section 7.2, p.86), using the Roller and Lavrakas (2015) Total Quality Framework (TQF).

To explore the Third Mission characteristics systematically, I utilised the CIMO model (Context-Intervention-Mechanism-Outcome) proposed by Denyer, Tranfield, and Van Aken (2008). The framework was adapted to CEMO (Context-*Exposure*-Mechanism-Outcome). This approach has been defined in Chapter 2, Section 2.7.1. (p.28).

To examine the Third Mission as a '*multi-level*' phenomenon, I used the SOGI model (Society-Organisation-Group-Individual). As a social science and business model, it enabled the exploration of the concept of '*levels*' of analysis (Bryman & Bell, 2015, p.75). Chapter 2, Section 2.7.2 (p.29) defines each of the levels.

For the purposes of this work, '*collaboration*' has been defined as '*Third Mission activity*'. Chapter 2 Section 2.7.3 (p.30) defines Third Mission activity.

1.9 Significance of the Study

The study is expected to make modest contributions to knowledge about the Third Mission, and from a theoretical perspective, the work expects to extend understanding in Third Mission literature to some extent.

Furthermore, the work aims to support achievement of socio-economic impact at a university institution level, by identifying the context, definition, mechanisms, and outcomes of the Third Mission phenomenon. In faculties (especially Business Schools), the study intends to aid identification of Third Mission activity, with regards to both tacit and explicit knowledge. Also, for an individual/academic it could identify skills and values needed to enhance academic-business Third Mission activity.

The study will make a small contribution towards the national Government effort towards the Third Mission. The UK Government urged that opportunities do not be “*squandered*” and emphasised that government, universities, and businesses must all play key roles:

“Professor Wilson acknowledges in his review, we are already doing well in business-university collaboration, but there is more that we must do to make sure the potentially huge rewards of effective engagement are not missed, and that we do not ‘squander’ the opportunities afforded to us by a world-class higher education system. Universities, business, and Government must all play a role in making the UK the best place in the world for business-university collaboration.” (BIS, 2012, p.4).

This pressure has been heightened by the state of the global economy, and by Brexit driving European and UK discussion.

1.9.1 Contemporary Relevance of Work

The Third Mission is highly relevant to universities who are aiming to evidence their impact towards the Knowledge Exchange Framework (p.218, p.266 and p.297). Each university has its own unique Third Mission, and this thesis aims to help a university understand its own context and adopt a new approach to driving its own Third Mission. There also appears to be a missed opportunity to utilise Business Schools more formally in driving the Third Mission within a University. This research

provides a new framework to catalyse change in a university and ensure their Business School is recognised as playing a valuable part in the approach.

A university's route through this process will be unique. Currently the UK Government push for further cost reductions and reduced funding. The current focus on graduate employment, and the impact of home student numbers falling all add to the complexity of the current context.

1.10 Thesis Road Map

The Thesis Road Map (Figure 1-1, p.14) starts with context setting (Chapter 1 and 2). This has been key to forming the boundaries of the study. Forming a provisional definition of the Third Mission was challenging (due to ambiguity and diverse definitions in literature), however a scoping search enabled a provisional definition (Section 2.7, p.26) and the formation of provisional conceptual framework (Section 2.2, p.18). Thus Chapter 1 and 2 have formed the contextual foundations in which to conduct a Modified Qualitative Systematic Literature Review.

Chapters 3-7 articulate the building of the Modified Qualitative Systematic Literature Review approach, as by its nature the process should be replicable. Chapter 8 then leads the reader step-by-step through conducting the Modified Qualitative Systematic Literature Review and summarises the findings.

Chapter 9 provides a rich description of the characteristics and themes that have been generated from the corpus of data, into four overarching themes:

- Third Mission Context
- Third Mission Exposure
- Third Mission Mechanisms
- Third Mission Outcomes

Chapter 10 then presents a new theoretical and practical framework to guide a university through their approach to the Third Mission. This includes an emphasis on the role of a university's Business School.

Chapter 11 then concludes the thesis with recommendations for future study and review of the limitations.



Figure 1-1 – Thesis Road Map

1.11 Thesis Structure

Chapter 2 presents the provisional conceptual diagram, generated by the scoping search (Appendix A), along with definitions of concepts. Here, the Third Mission is provisionally defined. Previous Systematic Literature Reviews aid in mapping the theoretical landscape towards the provisional conceptual framework. Finally, some characteristics emerging from the scoping search inform key terms for the exploration of the Third Mission.

In Chapter 3, the definition of a paradigm and epistemology are clarified. Various models are then considered, and the ontological position and epistemology are chosen. An inductive research approach is justified, and reasons for discounting a deductive or abductive approach are given.

In Chapter 4, the qualitative research strategy is justified in alignment with the Research Questions a constructivist philosophy, and an inductive approach. Alternative strategies such as quantitative and mixed methods are discounted.

In chapter 5, the research methodology which builds a corpus of data for analysis and synthesis is introduced. A Modified Qualitative Systematic Literature Review (MQSLR) is presented in order to offer an evidence-based framework for the qualitative research. The choice of a cross-Sectional time horizon rather than longitudinal is confirmed.

In chapter 6, the research methods for data gathering, analysis and synthesis are detailed. Using the MQSLR framework, the chapter starts with methods to identify and select studies based on defined inclusion and exclusion criteria, and on the fit between the MQSLR methodology and Research Questions. The quality assessment and data extraction methods are explained to enable replication of the process. NVIVO is identified as a tool, and the method of its application is described. At the end of this chapter, there is a selected corpus of data for analysis and synthesis.

Chapter 7 introduces the Total Quality Framework. This considers credibility, analysability, transferability, and usefulness as indicators of quality in qualitative research. After that, its use is justified as a tool to enhance the quality of the Modified Qualitative Systematic Literature Review approach.

Chapter 8 describes the 'Conducting the Modified Qualitative Systematic Literature Review Stage', which then generates Third Mission characteristics and themes, thus answering RQ1 and RQ2.

Chapter 9 synthesises the Context-Exposure-Mechanism-Outcome (CEMO) themes and characteristics which were developed in Chapter 8, by following the data synthesis methodology which was introduced in Chapter 6. This enables both a descriptive and interpretive approach in order to construct a new perspective on the Third Mission. Thus, a rich description is formed to inform Chapter 10.

Chapter 10 pulls together the propositions and considerations from Chapter 9, to generate a new proposed framework for the Third Mission activity in universities, in order to answer the RQ3 and RQ4

Chapter 11 concludes the study by answering RQ5, stating the work's contribution to theory and practice, and its limitations and recommendations for future research.

1.12 Next Steps

Having introduced the research goals, questions and objectives, the next chapter lays the foundation context for the DBA. This is generated from a scoping search to create a provisional conceptual framework.

CHAPTER 2 - PROVISIONAL CONCEPTUAL FRAMEWORK

2.1 Introduction

Following a scoping search of the existing literature on university-business collaboration (Appendix A), this chapter introduces the Provisional Conceptual Framework generated as a result, with a view to guiding further research. It details key aspects of the framework, starting with the historical UK Government context of *UK 'university-business collaboration'*. This chapter therefore provides definitions of university, Business School, and business to aid clarification in exploring the Third mission as a multi-level phenomenon. After, the Third Mission concept is identified as the conceptual anchor for the study and a provisional definition of it is formed arising from the scoping search. The term '*collaboration*' is then clarified within the scope of the Third Mission. Previous Systematic Literature Reviews aid in mapping the theoretical landscape towards forming the provisional conceptual framework. Finally, various characteristics emerging from the scoping search help to inform key terms used in the exploration of the Third Mission.

2.1.1 Conclusion of Scoping search

The scoping search had 3 aims:

- Help identify a conceptual anchor for the DBA Research Questions.
- Identify terms and synonyms to be used in the DBA.
- Inform a Provisional Conceptual Diagram.

The conclusion drawn from the scoping search has been that the Third Mission was selected as the conceptual anchor (Section 2.7, p.26). The scoping search revealed that the Third Mission was a complex (Section 2.7.1, p.28) and multi-level phenomenon (2.7.2, p.29) so *navigation tools* to help explore the data were detailed into the DBA as a result. The terms and synonyms were selected (Appendix A), for example the term *collaboration* was defined as *Third Mission Activity*' (Section 2.7.3, p.30). The Provisional Conceptual Framework was defined and visualised in Section 2.2 (p.18). The key terms were defined for example *UK Government* (Section 2.3,

p.21), *University* (Section 2.4, p.23), *Business School* (Section 2.5, p.24) and *Business* (Section 2.6, p.26).

2.2 Provisional Conceptual Framework

Based on the Research Questions (Section 1.6, p.7) and boundaries of this research (Section 1.9, p.12), the focus of this study can be conceptualised in the form of a diagram (Figure 2-1, p.18). This conceptual diagram is only provisional, and it will be updated at the end of the study (Section 10.2, Figure 10-1, p.295).

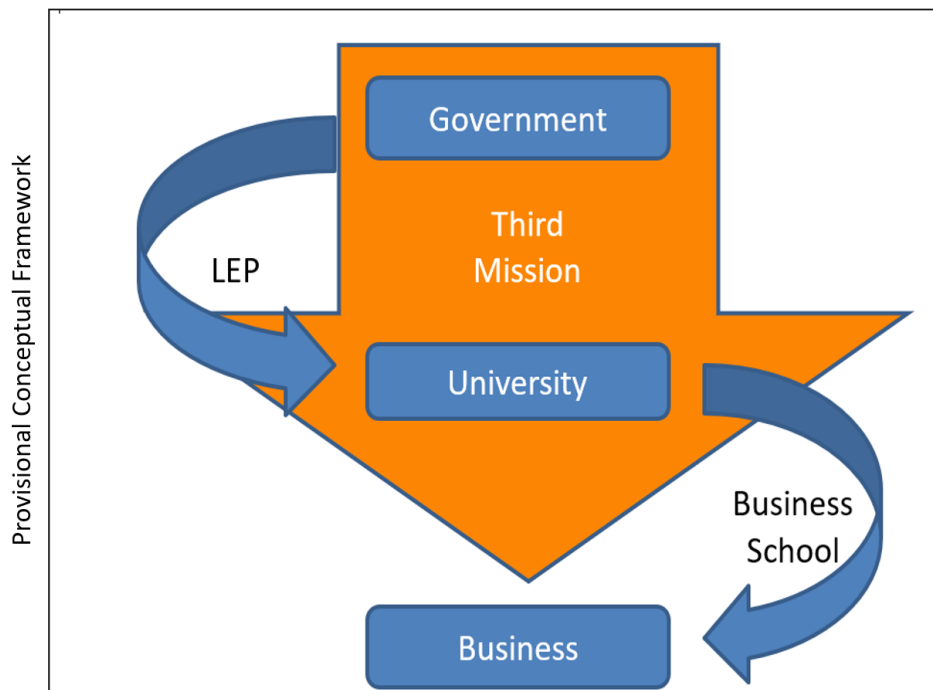


Figure 2-1 Provisional Conceptual Framework

The Provisional Conceptual Framework (Figure 2-1) illustrates the initial scaffold for the study. It shows that the UK Government appear to be directing universities towards adopting the Third Mission. The Third Mission appears to be used by a university as a mechanism to create the appropriate conditions to help achieve socio-economic prosperity. Indicative examples of how these ‘*conditions*’ are being capitalised for university-business benefit include: Warwick, Coventry, and Birmingham (Witty Review, 2013). However, given that not all universities have been

hailed as examples of '*best practice*', suggest incentives and funding alone do not ensure the creation of the so-called *best* conditions for university-business *collaboration*.

The provisional conceptual diagram illustrates that the UK Government uses the Local Enterprise Partnerships as a national scheme to financially monitor and drive economic development in universities. However, how does this 'one-size-fits-all' approach match with the 'one size doesn't fit all' nature of each university's involvement with a business?

Furthermore, universities have been driven towards the so-called Third Mission. The impact of committing to the Third Mission is *change* – change to a university's mission statement and to its values and objectives. This in turn means change to strategy, structure, systems, skills -and ultimately the whole culture of a university.

The challenge for a university in achieving the Third Mission is that there is currently little guidance on what it actually *is* and on how to do it effectively. In particular, university Business Schools were being hailed by Lord Young, as being key in stimulating economic growth (Young Report, 2013). Since then, over the last decade, the National Centre for Universities and Business (NCUB) has been monitoring university-business collaboration (NCUB, 2014, 2015, 2016, 2017, 2018, 2019, 2020) which showcases examples of *best practice* but offers little guidance for how to achieve the Third Mission. Also, the Chartered Association of Business Schools (CABS, formerly ABS) has focussed on universities engaging with the Small Business Charter (SBC, 2022). Furthermore, Universities UK (UUK) who aims "*to help UK universities be the best in the world, through their research and teaching, and the positive impact they have locally, nationally and globally*" (UUK, 2022) has offered little guidance on Third Mission.

Figure 2-2 (p.20) visually summarises the development of key papers and policies towards fostering *university-business collaboration* in the UK over the last twenty-five years, thus providing background context for the Provisional Conceptual Framework (Figure 2-1, p.18) and Sections 2.3 – 2.7 (p.16-25).

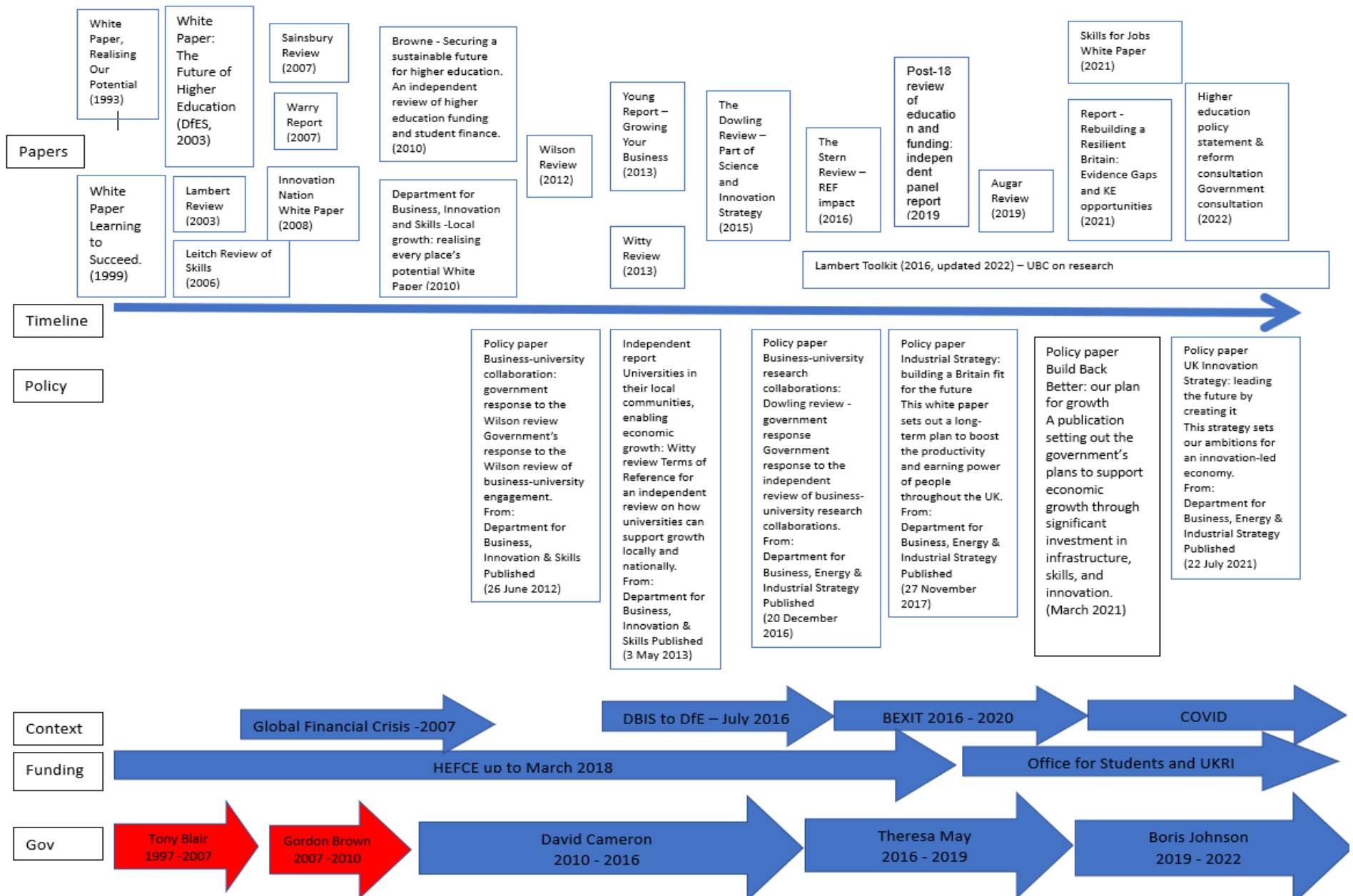


Figure 2-2 UK Policy Timeline. Source: Authors Own

2.3 UK Government

Chronologically (and with reference to Figure 2-2, p.20), in 1997, under a Labour Government, Lord Dearing had a vision for economic and social prosperity based on a knowledge-based economy (Dearing, 1997). Since then, to achieve Lord Dearing's vision "*to be the source of strength in the UK's knowledge-based economy of the twenty first century,*" governments have initiated reviews and policies to boost university and business collaboration. Initiatives by successive governments since the 1990's have further shaped the historical development of the roles of universities in the economic growth agenda for the UK. Such reviews (along with UK Government responses) over the last 20 years since the Dearing Report of 1997 are shown in Figure 2-2. Of note, the Lambert Review, the Wilson Review (Section 1.3, p.4 & 1.8, p.9), the Witty Review, the Young Report (Section 2.5, p.24) and the Dowling Review acted as *catalysts* towards the Third Mission in policy (Dowling Review, 2015; Lambert Review, 2003; Young Report, 2013; Wilson Review, 2012; Witty Review, 2013). I note the dates of these reviews are all before 2016, due to a shift in focus towards the term '*knowledge exchange*' after this period (Section Exposure Theme 1c, p.215).

The Lambert Review was published under a Labour Government and signalled:

"Although there is much good collaborative work underway already, there is more to be done. Universities will have to get better at identifying their areas of competitive strength in research. Government will have to do more to support business-university collaboration. Business will have to learn how to exploit the innovative ideas that are being developed in the university sector." (2003, p.2).

The Lambert Toolkit was later published under a Conservative Government, by the UK Intellectual Property Office in 2016 (IPO, 2016a, 2016b, 2016c, 2016d, 2016e, 2016f). Its focus has been on the disciplines of STEM - managing intellectual property (IP) of patents and consultancy and providing some templates e.g., non-disclosure agreements. The Lambert Toolkit has endured since the review in 2003 and remains in use in the UK.

The Witty Review (2013) was published under the Conservative and Liberal Democrat Coalition Government. It referred to the Third Mission and recommended that:

“Universities have extraordinary potential to enhance economic growth. Incentives should be strengthened to encourage maximum engagement in an enhanced Third Mission alongside Research and Education, and universities should make facilitating economic growth a core strategic goal” (Witty Review, 2013, p.17).

And:

“Universities should report their Third Mission activity, for inclusion in an annual report to the Government which also identifies impediments to this activity, with recommendations as to where the Government could act to remove these. Each year the Government should publish its response to these reports and recommendations.” (Witty Review, 2013, p.6).

In 2015, the UK Government Response to the House of Commons BIS Committee Report on Business-University Collaboration (BIS, 2015a) highlighted initiatives, including: Catapult Centres, Innovate UK and the Research and Development Scorecard. The focus was based on STEM innovation.

Also in 2015, the Dowling Review (2015) highlighted a need for the UK Government to ‘*foster the conditions*’ for successful university-business collaborations:

“It is clear that the UK has played host to many successful business-university collaborations. Yet it is also clear that the UK is not reaping the full potential provided by the opportunity to connect innovative businesses — from the UK and overseas — with the excellence in the UK’s academic research base. Government has a crucial role in ‘fostering the conditions’ under which these collaborations can happen at scale and deliver enduring impacts for all parties involved.” (Dowling Review, 2015, p.2).

It is noted that the focus of the Dowling Review was focussed on the disciplines of STEM innovation, with the Royal Academy of Engineering being a key contributor.

As mentioned in Section 1.2 (p.1), these reviews came as a result of a landmark UK Government change for university-business collaboration, as it *combined industry and education ministries*, meaning that policy would come from one single UK Government Department. This single UK Government Department was split in July

2016 however, with the BIS becoming the BEIS (Department for Business, Energy, and Industrial Strategy) and the remit for higher education was moved to the Department for Education (DfE) instead. The BEIS was formed under a conservative Government with the aim of:

“Leading economy-wide transformation by backing enterprise and long-term growth, generating cheaper, cleaner, homegrown energy and unleashing the UK as a science superpower through innovation.” (BEIS, 2022).

The DfE has aimed to *“Drive economic growth through improving the skills pipeline, levelling up productivity and supporting people to work”* (DfE, 2022a), with support from the BEIS. This has changed the funding landscape for a university.

2.3.1 UK Government Funding

Since early 2000, the Higher Education Innovation Fund (HEIF) has significantly shaped university-business collaboration. The HEIF’s first round of funding was launched in 2001 to finance projects that income-generate through university-business interaction, especially in STEM, to encourage business competitiveness.

Historically, the Higher Education Funding Council for England (HEFCE) and the Research Councils through (RCUK) developed funding opportunities with a view to encouraging university-business collaboration, particularly around research, to create an *‘ecosystem of university-business interactions’* (Wilson Review, 2012). The HEFCE and RCUK closed in 2018 and was superseded by the Office for Students (OfS) and the UK Research and Innovation (UKRI). In 2022, the OfS has been reporting to the Department of Education (DfE) and UKRI has been *“sponsored by the Department for Business, Energy and Industrial Strategy (BEIS)”*. Also operating since April 2018, Research England has been the council (part of UKRI) that oversees the funding of university research and knowledge exchange (KE), including the Research Excellence Framework (REF).

2.4 University

The Oxford English Dictionary (OED, 2022) defines *‘university’* as a *“high-level educational institution in which students study for degrees and academic research is*

done". This definition refers just to *learning and research*. An alternative definition is offered by Perkmann et al.:

"Universities are organisations that perform a key role within contemporary societies by educating large proportions of the population and generating knowledge. Recently, often on the initiative of policymakers, many universities have taken action to develop a 'Third Mission' by fostering links with knowledge users and facilitating technology transfer" (Perkmann et al., 2013, p.421)

Perkmann et al. highlighted the role of universities in generating knowledge and refer to the Third Mission. Witty (2013) also referred to the Third Mission and stretched the definition of '*university*' further by relating them to economic growth and small and medium enterprises (SMEs):

"Universities have an extraordinary potential to enhance economic growth. The full diversity of institutions has a role to play from local SME support and supply chain creation to primary technology leadership and breakthrough invention. Incentives should be strengthened to encourage maximum engagement from Universities in the Third Mission alongside Research and Education." (Witty Review, 2013, p.4).

Universities are diverse, depending on their history and location as well as ethos, cultures, norms, priorities, and preferences. Within the context of university-business collaboration, the role of a university appears to be broader than teaching and research. For the purposes of this study, universities are defined as: "*organisations that educate via teaching (First Mission), generate knowledge via research (Second Mission) and share knowledge via collaboration (Third Mission).*"

2.5 Business School

In the discipline of B&M, there has been a UK Government focus on driving the one hundred and thirty UK Business Schools to take a lead in *commercialisation and engagement activities* together with business. For example, Lord Young stated in his report that:

"Business Schools play a variable role in the local economy [...] I believe Business Schools are underselling themselves in terms of their expertise" (Young Report, 2013, p.17).

And:

"Business Schools should act as anchor institutions, supporting economic development on a sustainable basis" (Young Report, 2013, p.17).

To affect this change, the UK Government tasked the Association of Business Schools (ABS), to set up the ABS Innovation Taskforce. Later in 2015 the ABS became chartered (CABS). The CABS represents Business Schools and independent management colleges in the UK with a mission in *“Supporting and championing business schools for the benefit of business and society.”* (CABS, 2022). Currently the CABS has one hundred and twenty members focused on Business and Management education and *“to maintain world-class standards of teaching and research and help shape policy and create opportunities through dialogue with business and government.”* (CABS, 2022). An example is the Small Business Charter (SBC), initiated by Lord Young, the BIS, and the CABS, to build links between small business and Business Schools and their faculties and students. The SBC offers awards to Business Schools to recognise those *“that play an effective role in supporting small businesses, local economies and student entrepreneurship.”* (SBC, 2022).

In addition to the CABS, the registered charity *Universities UK* (UUK) represents one hundred and forty UK universities. The UUK mission is *“to help UK universities be the best in the world, through their research and teaching, and the positive impact they have locally, nationally and globally.”* (UUK, 2022b). Reports focussing on the *value* of higher education to drive business growth (UUK, 2011a, 2011b, 2021, 2022a) have been used to campaign as *the voice* of higher education in the UK.

The formation of Local Enterprise Partnerships (LEPs) superseded the Regional Development Agencies as voluntary partnerships between business and local government. According to Schmuecker and Cook: *“These changes could present an opportunity for universities to increase their influence and impact on their local economy”* (Schmuecker & Cook, 2012, p.2).

The dictionary definitions of *‘Business School’* do not go far enough to define what a *University Business School* is. Looking at examples of definitions in literature demonstrates that it is difficult concisely to define a Business School. However, According to Yazdani, Business Schools *can* be categorised by identifying the main focus of their work and their interaction methods with stakeholders. The diversity of

Business Schools appears to have been shaped by culture, role, location, and operating mechanisms in their markets. These pressures, together with market choices, include price positioning, rankings, and institutional focus. Yazdani defined three categories: Research Focused, Teaching Focused and Integrationists (Yazdani, 2012, p.36). Another definition was offered in the CABS report called '*The Impact of Business School Research: Economic and Social Benefits*' (CABS, 2015). CABS suggested:

“Our Business Schools genuinely shape the intellectual frameworks used by academics to think about and understand business. The creation of original knowledge is something that UK Business Schools excel at. But they also excel at “impact”, taking that academic work and turning it into knowledge that is useful and used by business, government, and society more broadly”.

So, for the purpose of this study, '*Business Schools*' will be defined as: *“a university faculty/department, dedicated to the subject disciplines of business administration and management, and may include delivery of marketing, human resources, accountancy, leadership and IT”.*

The scoping search identified no specific studies about Third Mission and Business Schools. Therefore, the Research Questions were adapted to broaden them to university level, with an emphasis on searching for: Business School, business, and management-related context. This kept the focus away from STEM transfer which is outside the scope of this study.

2.6 Business

For the purposes of this study, the Oxford English Dictionary's definition of '*a business*' is used: *“a commercial operation or company”* (OED, 2022). The following words have also been included in the definition: industry, firm, company, SME, trade, corporation, and enterprise.

2.7 Third Mission

For this study, the '*Third Mission* ;(TM) has been provisionally defined as *“a university's target to create the appropriate conditions to collaborate with businesses, to create economic growth”*. The UK Government aimed to build on universities' strengths, namely education (First Mission) and research (Second

Mission), which would in turn “*create the best conditions for universities and businesses to work together to create prosperity over the next decade*” (BIS, 2012, p.5). Thus, the UK Department for Business, Energy, and Industrial Strategy (formerly the Department of Business, Innovation and Skills) placed pressure on universities to connect the existing university traditions of education and research with a growing focus on collaborating with business to drive economic growth (BEIS, 2017).

The scoping search illuminated the European Commission’s aim to drive Third Mission activity:

“Entrepreneurship and new ways of engaging will be required at every level to bring in the necessary resources (financial, collaborations, access to facilities, etc.) from different sources. Rich and multiple mutually beneficial engagements with society are essential for all kinds of university in this context, and success in this endeavour can be both profoundly motivating and liberating.” (Carrión García et al., 2012, p.5)

They attempted to define the Third Mission as being ‘*a way of doing*’ or ‘*mindset*’ while accomplishing the first and second missions:

“We have adopted a classification of this ‘Third Mission’ into activities related to research (technology transfer and innovation, etc.), to education (lifelong learning/ continuing education, training, etc.), and to social engagement (public access to museums, concerts and lectures, voluntary work and consultancy by staff and students, etc.) – a variety of activities that involves many constituent parts of universities”. (Carrión García et al., 2012, p.6)

The European Commission study further highlighted a social purpose to the Third Mission:

“This Green Paper represents a small part of a widespread movement to restore the priority given to those social purposes – the diffuse and hard-to-characterise ‘Third Mission’, which is not a separate mission at all, but rather a way of doing, or a mindset for accomplishing, the first two”. (Carrión García et al., 2012, p.8)

Whilst the UK left the European Union in 2020, the UK was still part of this contextual driver back in 2015. The UK definition of the Third Mission appears to indicate a commercial underpinning rather than being purely a ‘*social*’ phenomenon (Martin & Turner, 2010; Perkmann et al., 2013; Woollard et al., 2007).

2.7.1 Third Mission Characteristics (CEMO)

I utilised the CIMO model (Context-Intervention-Mechanism-Outcome) proposed by Denyer et al. (2008). The framework was adapted to CEMO (Context-Exposure-Mechanisms-Outcome) - to act as a navigation tool to explore the complex phenomenon of the Third Mission. It helped clarify the scope of the *exploration* of the characteristics of the Third Mission (Table 2-1).

CIMO/CEMO	Considerations	This study
<i>Context</i> 'Under what conditions...'	<ul style="list-style-type: none"> • What is the context of my study? • Which individuals, relationships, institutional settings, or wider systems are being studied? 	<ul style="list-style-type: none"> • The Business and Management focus within social science context for university-business-collaboration within the UK. • Consideration of Third Mission as a multi-level phenomenon - SOGI levels: <i>Society, Organisation, Group, Individual</i> • (Section 2.7.2, p.29)
<i>Intervention (a planned procedure) – Or Exposure (an unintentional occurrence or happening)</i>	<ul style="list-style-type: none"> • What ways are you intervening in the situation? • Exposure for non-intervention studies • The effects of what event, action or activity are being studied? 	<ul style="list-style-type: none"> • Aimed to be a non-intervention study therefore <i>Exposure</i> rather than <i>Intervention</i>. • Third Mission was considered a <i>Complex Exposure (Exposure that contains several interacting components)</i>: e.g., 'multi-level' and affects more than one outcome. • Definition of Third Mission.
<i>Mechanism</i>	<ul style="list-style-type: none"> • What mechanisms explain the relationship between <i>Exposure</i> and <i>Outcomes</i>? • Under what circumstances are these mechanisms activated or not? 	<ul style="list-style-type: none"> • The <i>Mechanism</i> characteristics of the Third Mission enabled answering the Research Questions..
<i>Outcome</i>	<ul style="list-style-type: none"> • How is it measured? • What are the effects? • How will the outcomes be measured? 	<ul style="list-style-type: none"> • The <i>Outcome</i> theme characteristics of the Third Mission enabled answering the Research Questions.

Table 2-1 Defining CEMO. Source: Adapted from Bryman and Bell (2015, p.107)

The CEMO framework provided a structure for the exploration of the complex Third Mission phenomenon, as: “*Just because an intervention is complex doesn’t mean your review question must adopt a complex perspective*” (Petticrew et al., 2013, cited in Booth et al., 2016, p.89). There was potential for high heterogeneity (*extent to which there is variability*) of research on the Third Mission and the use of CEMO offered a simple framework with which to approach said exploration.

2.7.2 Third Mission as a Multi-level Phenomenon (SOGI)

The Third Mission phenomenon has been identified as ‘*multi-level*’. Bryman and Bell cite the SOGI framework as a method of exploring a multi-level phenomenon (2015, p.75). The ‘SOGI’ (Society-Organisation-Group-Individual) framework has been adopted to provide a structure to explore this concept where the SOGI definitions are:

2.7.2.1 Society (S)

The European Commission defined ‘*society*’ within the university context in this way:

“And finally, we use the word society. We picture a university as a multifaceted social organism with a discrete ecology that is connected in many ways, recognised and unrecognised, to the wider social ecosystems of its city, its region, nation state and, for some universities, other national communities, and supra-national institutions.”
(Carrión García et al., 2012, p.6).

For this study, ‘*Society Level*’ (S) has been defined as: “*external entities to a university within the UK*”.

2.7.2.2 Organisation (O)

An ‘*organisation*’ has been defined as “*a Group of people who form a business, club, etc. together in order to achieve a particular aim*” (OED, 2022). For the purposes of this study, ‘*Organisation Level*’ (O), refers to a university (Section 2.4, p.23).

2.7.2.3 Group (G)

The Oxford English Dictionary (OED, 2022) defines a ‘*Group*’ as “*a number of people or things that are together in the same place or that are connected in some way*”. For

this study, a Business School, Department, and Centre for Enterprise has been classified at ‘*Group Level*’ (G), because they operate within a university.

2.7.2.4 Individual (I)

For the purposes of this study, the ‘*Individual Level*’ (I) refers to an ‘*academic*’, a word which is defined using the Oxford English Dictionary definition as: “*connected with education, especially studying in schools and universities*” (OED, 2022). The SOGI levels to explore the Third Mission as a multi -level phenomenon have been summarised in Table 2-2.

SOGI	Macro/ Meso / Micro Levels	Definition	Level for this Study
<i>Society</i>	Macro	Focus on national, political, social, environmental, and economic contexts	UK universities
<i>Organisation</i>	Meso	Workplace is the principal unit of analysis	Universities as workplaces
<i>Groups</i>		Focus on certain types of Groupings e.g., HR Department or Board of Directors	Business Schools within UK universities
<i>Individuals</i>	Micro	Focus on specific kinds of individuals e.g., managers	University Practitioners within UK university Business Schools

Table 2-2 SOGI To Explore Third Mission as a Multi-level Phenomenon.
Source: Adapted from Bryman and Bell (2015, p.75)

2.7.3 Collaboration (Third Mission Activity)

To define ‘*collaboration*’ within the context of this study, several synonyms were used in the scoping search. They included: engagement, partnership, alliance, relationship, cooperation, association, liaison, link, correlation, enterprise, connection, initiative, scheme, programme, and project.

The scoping search (Section 1.2.1, p.3) indicated the Third Mission was associated with *economic prosperity* via university commercial activity. ‘*Commercialisation*’, in a university context, has been interpreted in this study using Perkmann et al. (2013) definition. It is when: “*an academic invention is exploited with the objective to reap*

financial rewards” (2013, p.424). Therefore, the interpretation of collaboration (within the context of the provisional Third Mission definition) has been narrowed down to ‘*Third Mission activity*’ for the purposes of this study. *Third Mission activity* has been defined as a “*knowledge-related activity between universities and businesses, to achieve a return on expectations/investment*”. It has been noted that none of these definitions fully explain the phenomenon of Third Mission or *Third Mission activity* and that RO5 aims to tackle this (Section 1.6, p.7). The scoping search (Appendix A) indicated that some characteristics of Third Mission *activity* are as follows: contract research, collaborative research, consultancy, professional development, training, research and development, innovation, IP, placements, internships, work-based learning, KTP, facilities and equipment.

2.8 Previous Systematic Literature Reviews

Research on *university-business collaboration* by academics and policy formers is not a new phenomenon. There have been systematic literature reviews too. However, they have only explored specific aspects of university-business collaboration. For example, Pittaway and Cope (2007) used a Systematic Literature Review to explore different themes within ‘*entrepreneurship education*’. The findings of this research highlighted a lack of consensus on what *entrepreneurship* or *enterprise* education actually is. Woollard (2010) conducted a Systematic Literature Review towards a theory of ‘*University Entrepreneurship*’ by developing a theoretical model named ‘3S’ (systemic, significant, and sustained). This is discussed further in Section 9.4 (p.238). Perkmann et al. (2013) conducted a Systematic Literature Review on *academic scientists*’ involvement in ‘*academic engagement*’ activities, with a focus on how academic engagement differs from commercialisation. They suggested that engagement is *multi-level*:

“Academic engagement is a multi-level phenomenon, in the sense that it is determined by both the characteristics of individuals as well as the organisational and institutional context in which they work”. (Perkmann et al., 2013, p.429).

In 2021, Perkmann, Salandra, Tartari, McKelvey, and Hughes (2021) conducted a Systematic Literature Review titled: *Academic engagement: A review of the literature 2011-2019*. This focussed on *academic scientists* rather than Business and Management academics. Other Systematic Literature Reviews have focused on

technology transfer including a Systematic Literature Review on ‘Universities-Industry Collaboration’ (Ankrah & Al-Tabbaa, 2015) and a Systematic Literature Review on ‘Public Policy Measures’ in support of *knowledge transfer activities* (Kochenkova, Grimaldi, & Munari, 2016).

A Systematic Literature Review specifically on the Third Mission was published in December 2020 entitled *The Third Mission of the University: A systematic literature review on potentials and constraints* (Compagnucci & Spigarelli, 2020). The Systematic Literature Review focussed on the ‘*potentials and constraints on the enactment of the Third Mission*’ across the world and offered “*an innovative framework towards the policymaking process and fostering of Third Mission*” (Compagnucci & Spigarelli, 2020, p.1). The Systematic Literature Review concluded that “*universities may need to tailor their functions, strategies, and management, and even to prioritize some specialisations.*” (2020, p.1). This study did not specifically focus on UK, nor set a conceptual framework that specifically explored the UK policy drivers towards the Third Mission in UK universities. More broadly, Stolze (2021) conducted a meta-ethnography on HEIs’ transformation into more *entrepreneurial institutions* by exploring the *entrepreneurial transformation* journey of thirty-six HEIs across eighteen countries. This did not focus on Third Mission as the conceptual anchor.

To the best of my knowledge, no Systematic Literature Review has been carried out specifically within a *UK context*, through a lens of the *social science* discipline of B&M, and with a particular focus on UK universities (in particular Business School *activity*) and which utilises *CEMO* and *SOGI*, with Third Mission as the conceptual anchor.

2.9 Next Steps

Having confirmed the provisional conceptual framework, the next chapter defines my research philosophy to ensure alignment with the Research Questions.

CHAPTER 3 - RESEARCH PHILOSOPHY

3.1 Introduction

To answer the Research Questions posed in Section 1.6 (p.7) I developed my own approach, informed by the research design (Figure 3-1). This approach started with Research Philosophy (Chapter 3), Research Approach (Chapter 4), Research Methodology (Chapter 5), Data Synthesis Methodology (Chapter 6), Quality considerations (Chapter 7) and Research Methods (Chapter 8). My approach links with my personal positioning (Section 1.5, p.6) where I tackle complex problems by utilising existing frameworks to unpick the complexity of a problem. By doing so a complex problem can be simplified (in terms of defining and contextualising a problem) in order to put a change management plan in place.

This chapter starts with a brief consideration of paradigms leading to my chosen definition for this research. This is followed by deliberation of a constructivist ontological position and epistemology, with justifications. The chapter ends with a justification for the choice of an inductive research approach and why abductive and deductive approaches were not used.

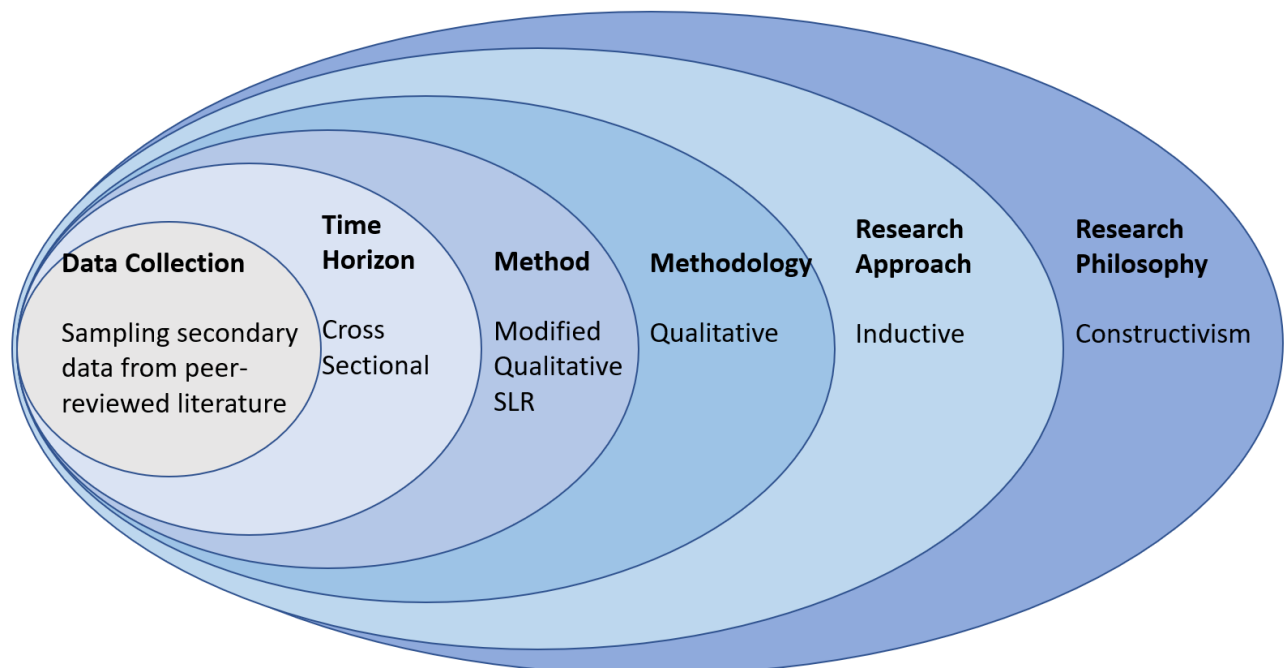


Figure 3-1 Research Design. Source: Adapted from Saunders, Lewis & Thornhill (2009, p138)

3.2 Paradigm

The term '*paradigm*' was first devised by Kuhn in 1962 to describe a basic set of scientific assumptions which researchers share (Kuhn, 1962). In 1994, Guba and Lincoln stated that a "*Paradigm offers ways of categorizing a body of complex worldviews that guide action*" (1994, p.108). They went on to suggest that a paradigm contains three sets of beliefs: ontology, epistemology, and methodology (Guba & Lincoln, 1994). Much later, Morgan supported this by suggesting that a paradigm offers a '*tripartite linkage*' of ontological, epistemological, and methodical questions (Morgan, 2007, p.58). Table 3-1, adapted from Guba and Lincoln (1994, p.108), shows this tripartite linkage of paradigm questions.

Ontological questions	Epistemological question	Methodical question
What is the nature of reality? (What can we know about?)	What is the nature of the relationship between knowledge and the knower (or would-be knower)?	How can we find out?

Table 3-1 Paradigm Questions. Source: Adapted from Guba and Lincoln (1994, p.108)

The definitions stated above, however, partly define a paradigm for this research. Some researchers include a reference to '*assumptions*' or '*laws*' accepted by specific communities when defining what a paradigm is. For example, Bryman and Bell offered a definition as a:

"Cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, and how results should be interpreted" (Bryman & Bell, 2015, p.726)

'*Beliefs*' could also be viewed as '*values*'. For example, Bazely stated a paradigm can:

"Describe a coherent understanding of the nature of reality, of what constitutes and justifies knowledge, and sometimes, also, of methods and 'values' to guide research practice or purpose (ontology, epistemology, methodology and axiology, respectively)" (Bazely, 2021, p.31).

Taking into account Bazely and others' definitions, for this study, I adopted a definition of a paradigm as: *"a cluster of beliefs/values, with accepted guidelines within a specific community, that offers a framework of how research should be approached"*.

Howell (2013) discussed that the term '*paradigm*' in social sciences has twenty-one different uses. This demonstrates that one single agreed definition is unlikely to be found. Therefore, for this study, I believe my chosen definition is fit for purpose.

3.3 Ontological Position

Ontological positioning is defined as *"the underlying belief system about what is the nature of reality"* for this research. Guba and Lincoln (1994) introduced a generally accepted consensus of basic '*underlying beliefs*' of alternative inquiry paradigms (p.109). Much later, Onwuegbuzie, Johnson, and Collins (2009, p.122) discussed five '*underlying belief*' systems of contemporary research paradigms. They were post positivism, constructivism, critical theory, participatory and pragmatism. Later, Howell (2013, p.29) highlighted four paradigms of inquiry: positivism, post-positivism, critical theory and constructivist/participatory. These underlying belief systems fundamentally differ (dependent on ontological positioning); however, there has been at least *some* consensus on the definitions of positivism, post positivism, constructivism, and critical theory. Table 3-2 (p.32) shows an adaption of these four paradigms.

On consideration of the various paradigms, the constructivist paradigm reflected my underlying belief system for the exploration of the development of a theoretical and practical framework for university and business collaboration, with a view to achieving the Third Mission. My view of the world is that I believe *"meanings are constructed by human beings as they engage with the world they are interpreting"* (Crotty, 1998). In particular, I subscribe to Crotty's ideas that: *"we do not create meaning we construct meaning"* (Crotty, 1998). I refute the proposition that social sciences are *"objective entities that have a reality external to social actors"* and support the idea that *"social phenomena and their meaning are continually being accomplished by social actors"* (Bryman & Bell, 2015, p.33). In addition, I am

persuaded by Maxwell, who suggested “*our understanding of this world is inevitably our construction, rather than [a] purely objective perception of reality, and no such construction can claim the absolute truth*” (Maxwell, 2012).

Item	Positivism	Post-Positivism	Critical Theory	Constructivist
Ontology	<ul style="list-style-type: none"> Reality can be totally understood. 	<ul style="list-style-type: none"> Reality may only be understood imperfectly and probabilistically. 	<ul style="list-style-type: none"> Reality is shaped by history. Formed by values that are crystallised over time. 	<ul style="list-style-type: none"> Reality is constructed. Based on experience shared with others. Dependant on person/group. Changeable.
Epistemology	<ul style="list-style-type: none"> The investigator and investigation are totally separate. Objectivity pursued. Truth is a possibility. 	<ul style="list-style-type: none"> Abandonment of total separation of investigator and investigation. Objectivity still pursued. 	<ul style="list-style-type: none"> The investigator and investigated linked. Accepts historical values which influences the inquiry. Results objective. 	<ul style="list-style-type: none"> As critical theory, however the findings are created as the investigation proceeds. No absolute truth.
Methodology	<ul style="list-style-type: none"> Scientific experiments based on hypothesis. Primarily quantitative. 	<ul style="list-style-type: none"> Multiple modified scientific experiment. Pursues falsification of hypotheses. May include qualitative methods. 	<ul style="list-style-type: none"> Needs dialogue between investigator and subject of investigation. Structures may be changeable. Actions affect change. Primarily qualitative. 	<ul style="list-style-type: none"> Creates consensus through multiple individual constructions. Primarily qualitative.

Table 3-2 Paradigms of Enquiry. Source: Adapted from Howell (2013)

3.3.1 Constructivist Ontological Position

Based on reflections from Section 3.2 (p.34) and 3.3 (p.35), the research design for this work started with the constructivist ontological positioning, as it best reflected my underlying belief system (Section 3.3, p.35). Constructivists are open to new views of the world (Guba & Lincoln, 1994, p.113) and for this research, new views of Third Mission. Constructivists assume that people want to understand the world they are a part of (Creswell, 2009). With this in mind, I aimed to build a theoretical and practical framework that would be informed throughout the research process, to create a fresh new perspective on extant knowledge about university and business Third Mission activity. I *'constructed'* knowledge and new meaning from interacting with the corpus of data I synthesised. Thus, I undertook research within the constructivism paradigm, where, according Bazely: *"knowledge is 'constructed' rather than 'received' or discovered, and our concepts, beliefs, and theories about the objects and experiences with which we engage will be continually modified in the light of new experience."* (Bazely, 2021, p.32). So, my aim was to *'construct'* new insight from the data collected, rather than just *'receive knowledge'*. Thus, I aligned with the constructivist philosophy.

3.4 Epistemology

Epistemology is concerned with knowledge and how a researcher constructs knowledge. Bazely defines epistemology as *"the theory of knowledge, [which] addresses issues of the nature of truth and knowledge, and how we interpret and justify knowledge"* (Bazely, 2021, p.30).

Much earlier, Wisker included the words *'construct'* and *'interpret'* in their definition: *"Epistemology is knowledge, most particularly of the ways in which different disciplines construct, interpret and represent knowledge in the world."* (Wisker, 2008, p.68). Saunders et al. proposed a broader description. They said that epistemology: *"concerns what constitutes 'acceptable' knowledge in the field of study."* (Saunders, Lewis, & Thornhill, 2007, p.102). I adapted a hybrid interpretation, inspired by Bazely, Wisker and Saunders, Lewis & Thornhill, to define *'epistemology'* for this research:

“Epistemology is acceptable knowledge, within the context of study, of the nature of the relationship between knowledge and an individual to construct, interpret and represent knowledge in the world.”

This definition included consideration of contextualised construction of knowledge, and therefore aligned with my personal constructivist world view (Section 3.3.1, p.35). Table 3-3 highlighted the various epistemological viewpoints based on paradigms taken from Table 3-2 (p.37).

Item	Positivism	Post-Positivism	Critical Theory	Constructivist
Epistemology	<ul style="list-style-type: none"> The investigator and investigation are totally separate. Objectivity pursued. Truth is a possibility. Objectivist: findings true 	<ul style="list-style-type: none"> Abandonment of total separation of investigator and investigation. Objectivity still pursued. Modified objectivist: findings probably true 	<ul style="list-style-type: none"> The investigator and investigated linked. Accepts historical values which influence the inquiry. Results objective 	<ul style="list-style-type: none"> As critical theory, however the findings are created as the investigation proceeds. Subjectivist: created findings

Table 3-3 Epistemological Viewpoints. Source: Adapted from (Bazely, 2021; Howell, 2013)

As my world view is aligned with the constructivist paradigm, the nature of the relationship between ‘*acceptable knowledge*’ (in the Third Mission context) and ‘*myself*’ is subjective rather than objective.

Objectivism is a world view that states that social entities can be an ‘*object*’ that is external to an individual (Bryman & Bell, 2015, p.32) and Subjectivism proposes the opposite view. I support the view that:

“All knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world and developed and transmitted within an essentially social context”
(Crotty, 1998).

3.5 Inductive Research Approach

Having confirmed the use of a constructivist research philosophy, this section justifies an inductive research approach and discounts abductive and deductive ones.

Induction starts with what we know (Provisional Conceptual Framework, (Chapter 2). With induction, it is not possible to predict in advance what may be uncovered as a study progresses, because you start with a '*hunch*' based on personal experience (Section 1.5, p.6). This differs from abduction, which includes inference towards an explanation.

Using reflective reasoning, alongside a systematic approach, can lead to characteristics and themes being generated from the data collected. As is the nature with induction, this study uncovered contradictory characteristics. I did not aim to make any prior inferences about what may emerge from the data, because I had chosen to discount abduction as my research approach. Neither did I aim to conduct an '*experiment*' to test hypotheses via a deductive approach. Bryman and Bell (2015, p.25) stated that: "*the process of induction involves drawing of generalizable inferences out of observations*". I have aimed to make '*contextual inferences*' rather than '*generalisable inferences*'.

Constructivists believe findings cannot be explicitly seen as '*evidence*', rather they can just be used as an '*indicator*' or '*characteristic*' towards evidence. Using an inductive approach has enabled characteristics, indicators, and themes to form from the data. This links to my axiology, defined as my "*qualitative assumption [that] holds that all research is value laden and includes value systems of the inquirer, the theory [and the] paradigm used*" (Robson, 2011, p.323). As described in my personal positioning (Section 1.5, p.6), my axiology is informed by my experiences and career to date and thus influence my world view and choices. Reflections on my development as a result of this thesis are in the Conclusion Chapter (Section 11.6, p. 317). Table 3-4 justifies the induction approach for this study, aligned with the Research Questions (Section 1.6, p.7).

Research Question	Research Objective	Research Approach justification
RQ1	RO1	Inductive approach enables characteristics to form from the data.
RQ2	RO2	Inductive approach enables characteristics to be analysed for patterns that can be Grouped into themes.
RQ3	RO3	An inductive approach enables a framework to be constructed from themes and characteristics.
RQ4	RO4	An inductive approach enables practitioners to view the characteristics, themes, and framework in the context of the Research Questions..
RQ5	RO5	An inductive approach enables definitions to be constructed, within the context of the Research Questions.

Table 3-4 Inductive Approach for Research Questions: Justification

3.6. Reflections from Chapter 3 – Research Philosophy

- My paradigm involved consideration of ontology, epistemology, and methodology in a tripartite linkage.
- Ontology – my underlying belief system is constructivist.
- Epistemology – I believe knowledge is constructed socially.

Gaining an understanding of the contrasting beliefs of a positivist and constructivist world view helped shape the Research Questions in developing a framework for university and business Third Mission activity. This approach aimed to ‘*explore*’ rather than ‘*hypothesise*’ and aimed to ‘*contextualise*’ rather than ‘*generalise*’.

I adopted constructivism as my paradigm, because my belief system aligned most closely with the accepted guidelines within that community. It offered a clear framework for how my research should be approached. Ontologically and epistemologically, my world view and how I build knowledge aligned with the paradigm of constructivism.

The influence of ontological and epistemological positioning of this research design impacted the chosen methodological approach adopted for this study. The design

avoided an *experimental* approach of positivism and instead adopted methodology generally accepted within a constructivist paradigm.

3.7 Next Steps

In Chapter 3, the definition of a paradigm and epistemology were clarified within the context of this research and a constructivist ontological position was justified. An inductive research approach was chosen as it aligns with the research philosophy.

In Chapter 4, the qualitative research strategy is aligned with the identified constructivist philosophy and inductive approach from this chapter. Of key importance is developing a strategy that is aligned with the Research Questions (Section 1.6, p.7).

CHAPTER 4 - QUALITATIVE RESEARCH STRATEGY

4.1 Introduction

Following confirmation of the Research Questions (RQs) in Section 1.6 (p.7), and after choosing a constructivist research philosophy and an inductive research approach (Chapter 3), this chapter focuses on the establishment of the qualitative research strategy.

Chapter 4 begins with an explanation of the overarching purpose of this study. This is followed by consideration of the characteristics of qualitative research strategies aligned to the Research Questions. Quantitative and mixed method research strategies are discounted.

The chapter continues with consideration of which type of qualitative approach to use, by evaluating the relevance of narrative research, phenomenology, grounded theory, ethnography, and case study, before rejecting all these options because they do not align with the Research Questions..

The chapter finishes with reflections on the objectives of this research and the move towards a Qualitative Systematic Literature Review.

4.2 Purpose of Research

Linking back to the research boundaries (Section 1.7, p.9) this section further clarifies the purpose of this research. Saunders, Lewis, and Thornhill suggested that there were three main purposes of research: exploratory, descriptive, and explanatory (2009). Robson defined *exploratory* studies as “*Research simply concerned with exploring phenomena.*” (Robson, 2011, p.525), whereas ‘*descriptive*’ research was defined as “*Research simply concerned with providing descriptions of phenomena.*” (2011, p.524). According to Bazely, *explanatory* research considered ‘*establishing causality*’ (Bazely, 2021, p.316) and moved beyond ‘*description*’, in order to seek to explain patterns and trends observed. The ‘*exploration*’ of emergent themes was chosen for this study, as it aligned with the Research Questions and as I

sought to explore new insights and meaning from a corpus of articles on the Third Mission. Therefore, the overarching idea behind this study was for an *exploration* of emergent themes. The work has also been descriptive - part of the analysis process was to provide a '*rich description*' to help form a new conceptual framework. The research did not aim to be explanatory, as it did not intend to consider cause and effect.

4.3 Qualitative Approach

With the exploratory stance confirmed a qualitative approach was investigated. A definition of qualitative research was offered by Braun and Clarke (2013, p.3) namely that "*it uses words as data, collected and analysed in all sorts of ways*". I aimed to use '*words*' as data for the study. Creswell and Creswell advised that "*qualitative research is exploratory and is useful when the researcher does not know the important variables to examine.*" (2018, p.19). Creswell (2007) provided a useful table (Table 4-1) which categorised qualitative characteristics, based on work by LeCompte and Schensul (1999), Marshall and Rossman (2006) and Hatch (2002):

Characteristics	LeCompte & Schensul (1999)	Marshall & Rossman (2006)	Hatch (2002)	DBA
Natural setting (field-focussed), a source of data for close interaction	Yes	Yes	Yes	
Researcher as key instrument of data collection			Yes	Yes
Multiple data sources in words or images	Yes	Yes		Yes
Analysis of data inductively, recursively, and interactively	Yes	Yes	Yes	Yes
Focus of participants' perspectives, meanings, and subjective views	Yes		Yes	
Framing of human behaviour and belief within a social-political/historical context or through a cultural lens	Yes			
Emergent rather than tightly preconfigured design		Yes	Yes	Yes
Fundamentally interpretive inquiry – researcher reflects on own role, role of reader, and role of participants		Yes		Yes
Holistic view of social phenomena		Yes	Yes	Yes

Table 4-1 Characteristics of Qualitative Research. Source: Adapted from Creswell (2007)

Table 4-1 was adapted to include a column for this DBA, identifying me as a key instrument in data collection. Also, I identified that I used an *emergent* rather than a tightly preconfigured design, I accessed multiple data sources in words, within the context of the Third Mission, and I aimed at gaining a *holistic* (Section 9.2, p.140) view of a social phenomenon.

4.3.1 Reasons for Using Qualitative Approach

My Research Questions are exploratory (Section 4.2, p.43) and require an inductive rather than deductive approach. They do not aim to test hypotheses, are highly contextualised within the Third Mission and aim to be interpretive rather than experimental. The following Sections detail the reasons for using a qualitative approach.

4.3.1.1 Inductive Approach

Marshall and Rossman (2021, p.68) suggested that many qualitative studies are descriptive and exploratory: “*they build rich descriptions of complex circumstances that are unexplored in the literature*”. This study aimed to build such a description of complex and possibly opposing views on the same phenomenon of the Third Mission, inductively rather than deductively. Creswell and Creswell (2018) suggested that a key strength of qualitative research is developing understanding inductively. Bryman and Bell also suggested that a qualitative approach “*predominately emphasises an inductive approach to the relationship between theory and research, in which the emphasis is placed on the generation of theories*” (2015, p.38).

4.3.1.2 Moving Towards Theory Generation

My research objectives and questions generated new insight (via propositions and considerations) that may in the future contribute to new theory generation, rather than to test a theory. As qualitative research is more often used for theory generation and exploring new topics, a qualitative methodology was deemed most suitable for this study by gathering an archive of data for secondary document analysis.

4.3.1.3 Contextualised Findings

This study aimed to provide answers to a series of questions, specifically within the context of the Third Mission. At no time was any attempt made to generalise the findings beyond this context.

4.3.1.4 Qualitative Sensibility

A ‘*qualitative sensibility*’, according to Braun and Clarke (2013, p.9), refers to “*an orientation towards research – in terms of research questions and analysing data – that fits within the qualitative paradigm*”. I have adopted a qualitative sensibility by focusing on process and meaning in preference to cause and effect, while also not taking data at face value, and while moving beyond description towards interpretation instead. This develops “*a double-consciousness or an analytical ‘eye’ or ‘ear’, where you can listen intently, and critically reflect on what is said*” (Braun & Clarke, 2013, p.9). Thus, I enable a focus on both content and potential analytical ideas.

4.3.1.5 Fundamentally Interpretive Inquiry

Reflecting on my role, I stated my personal position in Section 1.5 (p.6), and I am the key maker of every decision about what to include or exclude in this research.

Creswell and Poth assert that:

“Qualitative research today involves closer attention to the interpretive nature of enquiry and situating the study within the political, social, and cultural context of the researchers, and the reflexivity or ‘presence’ of the researchers in the accounts they present.” Creswell and Poth (2018, p.43)

I provide reflections in the Conclusion Chapter (Chapter 11), to help position myself in the study and I interpret the information as it emerges throughout the work. This reflexivity is adopted as I support Creswell and Poth who also state, “*qualitative researchers today are much more self-disclosing about their qualitative writings than they were a few years ago*” and “*no longer is it acceptable to be the omniscient, distanced qualitative writer*” (Creswell & Poth, 2018, p.228).

Reflecting on the role of my reader, I considered ‘*applicability*’. Booth et al. (2016, p.301) suggested applicability is “*the application of results from individual studies or from a review of studies of a study population to individual people, cases or settings in a target population*”. As applicability is a term more often used in quantitative research this study defines ‘*applicability*’ as “*likely to impact on practice*”, where ‘*impact*’ is subjective rather than objective. My readership will interpret my study based on their own skills, knowledge, experience, expertise and needs, for their own research and work practice. They will need to adapt and improve my outputs to enable ‘*application*’ for their goals. I therefore aim for ‘*transferability*’ and ‘*usefulness*’ (Section 7.6, p.97) of my research for the workplace and ask my audience to consider the extent to which my research may have relevance to their situations. For this study, ‘*Transferability*’ refers to “*the extent to which qualitative design and findings can be transferred to other people and contexts*” (Roller & Lavrakas, 2015, p.363). My role therefore is to present my specific context so the reader “*can determine the applicability [...] by way of a thick description*” (Roller & Lavrakas, 2015, p.363).

Other reasons for a qualitative research strategy are informed by Braun and Clarke (2013) and extracts are used to exemplify (Table 4-2).

Qualitative aspect	Exemplar extract
No single answer	<i>“It is generally agreed upon that there is more than one way of making meaning from the data that we analyse, which means there isn’t a single ‘right’ answer.”</i> (Braun & Clarke, 2013, p.21).
Context is important	<i>“Information and knowledge always come from somewhere”</i> and there is no such thing as ‘uncontaminated’ knowledge. (Braun & Clarke, 2013, p.21).
Critical qualitative research	<i>“Takes an interrogative approach to data” – “the analysts interpretations become more important than the participants”</i> in order to construct new meaning within the context of the Third Mission. (Braun & Clarke, 2013, p.21).
Uses all sorts of data	<i>“Data are the bedrock of the social sciences – they are what we use to answer the questions we have and generate new and useful understandings of phenomena in the world.”</i> (Braun & Clarke, 2013, p.33)
Values subjectivity and reflexivity	Subjectivity is the “ <i>idea that what we see and understand reflects our identities and experiences</i> ” (Braun & Clarke, 2013, p.21). “ <i>Subjectivity is positively valued in the qualitative paradigm</i> ” (Braun & Clarke, 2013, p.36).

Reflexivity	<i>“Process of critically reflecting on the knowledge we produce and our role in producing that knowledge” (Braun & Clarke, 2013, p.37).</i>
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Table 4-2 Qualitative Aspects of the Study. Source: Adapted from Braun and Clarke (2013)

4.4 Conclusions About My Research Strategy

In summary, a qualitative methodology was more aligned to the objectives and Research Questions than a quantitative or mixed methodology, due to the questions being more suited to an exploratory approach rather than explanatory. This linked with an inductive rather than deductive approach.

4.5 What Type of Qualitative Approach?

The search for a qualitative approach for this research design was time consuming and confusing, as many books referred to specific characteristics of qualitative research, but none seemed to align well with my developing research strategy. Following much reading, I came across the *Contrasting Characteristics of Qualitative Research* compiled by Creswell (2007, p.28) which helped to clarify my approach. I adapted Table 4-4 by assessing each characteristic of a qualitative approach, then RAG rated them (Red/Amber/Green) in relation to my Research Questions and objectives. I RAG rated: green for ‘aligned to my research objectives,’ amber as ‘may be related to my research objectives’ and red as ‘not aligned to my research objectives’. In the sub-sections below, I evaluated and justified my decisions on my qualitative approach in relation to judgements made in Table 4-3.

RAG rating Key for Table 4-3:

Aligned to my research objectives and questions	
may be related to my research objectives and questions	
not aligned to my research objectives and questions	

Characteristics	Narrative Research	Phenomenology	Grounded Theory	Ethnography	Case Study
Focus	Exploring the life of an individual	Understanding the essence of an experience	Developing a theory grounded in data from the field	Describing and interpreting a culture-sharing Group	Developing an in-depth description and analysis of case or multiple cases
Type of problem best suited for design	Needing to tell stories of individual experiences	Needing to describe the essence of a lived phenomenon	Grounding a theory in the views of participants	Describing and interpreting the shared patterns of culture and sociology	Providing an in-depth understanding of a case or cases
Discipline background	Drawing from humanities including anthropology literature, history, and sociology	Drawing from philosophy, psychology, and education	Drawing from sociology	Drawing from anthropology and sociology	Drawing from psychology, law, political science, medicine
Unit of analysis	Studying one or more individuals	Studying several individuals that have a shared experience	Studying a process, action or interaction involving many individuals	Studying a Group that shares the same culture	Studying an event, a programme, an activity, more than one individual
Data Collection forms	Using primarily interviews and documents	Using primarily Interviews with individuals although documents, observations and art may also be considered	Using primarily interviews with 20-60 individuals	Using primarily observation and interviews, but perhaps collecting other sources during extended time in the field	Using multiple sources such as interviews, observations, documents, and artefacts
Data Analysis Strategies	Analysing data for stories, 'restorying' stories, developing	Analysing data for significant statements, meaning, units,	Analysing data through open coding, axial	Analysing data through description of the culture-	Analysing data through description of the case and themes of the

	themes, often using a chronology	textural and structural description, description of the 'essence'	coding, selective coding	sharing Group; themes about the Group	case as well as cross-case themes
Written report	Developing a narrative about the stories of an individual's life	Describing the 'essence' of the experience	Generating a theory illustrated in a figure	Describing how a culture-sharing Group works	Developing a detailed analysis of one of more cases

Table 4-3 Assessment of Contrasting Characteristics of Five Qualitative Approaches. Source: Adapted from Creswell, (2007, p.28)

4.5.1 Qualitative Characteristic: Focus

In terms of qualitative characteristics (Table 4-4), the Research Questions initially seemed most suited to a Grounded Theory (GT) or Case Study (CS) approach.

GT is a qualitative strategy in which the “*researcher derives a general, abstract theory of a process, action, or interaction grounded in the views of participants in the study*” (Roller & Lavrakas, 2015, p.248). Developed in the 1960’s by Glaser and Strauss, it is an approach, rather than just an analysis method which constructs theory from data. Although it is popular in the social sciences and has also been developed into a constructivist approach in the 1990’s by Corbin and Strauss (2015). The relevance of GT was that theory would develop from the data found through an *archival study*, rather than exploring the experience of an individual (narrative research) or analysing a culture-sharing Group (ethnography). However, I did not wish to ground the theory in the views of the participants, nor use interviews as a data collection method. Rather, I wished to synthesise data through open coding, and I did not aim to generate a new theory, but only to generate new ideas.

The CS approach meant developing an in-depth description and analysis of a case or of multiple cases. At first glance, it appeared this method may be too specific in focus for an exploratory inquiry (Section 4.2, p.43), however, (Robson, 2011, p.138) noted that case study types could in fact be a study of a broad range of things, e.g., events, roles, or relationships; it did not have to be specific in nature, like an individual or institutional case study.

4.5.2 Qualitative Characteristic: Discipline Background

I aimed to draw emergent insight about Third Mission through exploring social science literature, especially the discipline of Business and Management (Section 1.7, p.9). I note however that when reviewing Table 4-4, the discipline backgrounds also referred to sociology, anthropology, education, psychology history and political science. I therefore appeared to align loosely with narrative research in terms of discipline background, however I did not aim to explore the life of an individual or tell

a story about an individual experience. The discipline background of social sciences (and more specifically - Business and Management and Education) was more relevant for my Research Questions.

4.5.3 Qualitative Characteristic: Unit of Analysis

When reviewing Table 4-4 the Research Questions seemed mostly to agree with the CS and GT unit of analysis, as my research entailed analysis/synthesis of a phenomenon involving multiple individuals. Where my research differed was that I was not conducting primary research through interviews but reviewing other researchers' primary research as a secondary analysis. The GT approach at first glance appeared to align well with my Research Questions and objectives as it sought to: "*generate new theory which relates to a particular situation forming the focus of study*" (Robson, 2011, p.146). On further review though, it became clear that it was not possible to commence with GT without some pre-existing theoretical ideas and assumptions – I did not have these before starting this research.

The CS approach requires "*Doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence*" (Robson, 2011, p.136). This suited my research well, as it relied on the collection of evidence about what is going on and focused on a phenomenon in context. The risk of using a CS approach was that it has surplus meanings from previous usages, so the term '*case study*' may have different connotations in different contexts. Also, Robson warns that in exploratory research (Section 4.2, p.43), I would need to be less discerning in data selection, as "*anything might be important*". I wished to be more purposive in my sampling method (Section 7.3.1, p.93) – which agrees more with the GT. For reasons discussed above, neither the CS nor the GT approach was well aligned for the Research Questions.

4.5.4 Qualitative Characteristic: Data Collection Forms

With reference to Table 4-4, my research was not suited to any of the data collection forms of: narrative research, phenomenology, GT, and ethnography because they used interviews as a primary method. Narrative research did however refer to the

use of documents, as did phenomenology, meaning these were appropriate for the study to some extent.

4.6 Reflections – Qualitative Research Strategy

- The purpose of this study has been exploratory (Section 4.2. p.43) leading to a rich description of Third Mission (Chapter 9).
- The research strategy has been qualitative, which aligns with an inductive research approach and a constructivist philosophy.
- Selecting the right type of qualitative research strategy has been challenging as none completely aligned to the research questions.

Having considered qualitative options in this chapter, I concluded that none of the identified qualitative approaches *fully* aligned with my Research Questions and objectives, so I discussed with my Network of Interest (Section 5.5, p.64) and started to consider the use of a *Qualitative Systematic Literature Review* (Tranfield, Denyer and Smart, 2003) as my methodology (Chapter 5) instead.

4.7 Next Steps

Chapter 5 details the research methodology to build a corpus of data for analysis and synthesis via a *Modified Qualitative Systematic Literature Review*. It is *modified* to mitigate for the limitations of Systematic Literature Review (Section 5.2.1, p.55, Section 5.4.3, p.61).

CHAPTER 5 – RESEARCH METHODOLOGY

5.1 Introduction

This chapter is about how I got to my own approach of a Modified Qualitative Systematic Literature Review (MQSLR). As required with a Systematic Literature Review (Tranfield, Denyer and Smart, 2003), this Chapter was key in ensuring the *process* of the Modified Qualitative Systematic Literature Review was replicable and transparent.

In previous chapters, a constructivist philosophy, and an inductive research approach (Chapter 3) with a qualitative research strategy (Chapter 4) have been selected. In Chapter 5, the research approach of building a corpus of articles (data set) for analysis and synthesis with which to answer the Research Questions (RQs) (Section 1.6, p.7) is introduced.

The chapter starts with an overview of Systematic Literature Reviews as a methodology, where '*methodology*' refers to "*the framework within which our research is conducted*" (Braun & Clarke, 2013, p.31). Due to the positivistic origins of Systematic Literature Reviews, the chapter then explores a Qualitative Systematic Literature Review (QSLR) methodology. This leads to the design of a hybrid or '*Modified*' Qualitative Systematic Literature Review (MQSLR) methodology, along with its justification and reasoning, to better align with the Research Questions.

The chapter continues with the context-based definition and adoption of a Network of Interest (Section 5.5, p.64) to support the Modified Qualitative Systematic Literature Review, discounting the more traditional Review Panel and a Community of Practice approach. The chapter finishes with a consideration of the choice of a cross-sectional time horizon rather than a longitudinal one.

5.2 Systematic Literature Review

Tang et al. stated a systematic literature review is a "*comprehensive, synthesising and integrated research procedure that uses a set of replicable methods to locate,*

search for, and review research or related literature” (2021, p.2). A Systematic Literature Review methodology could be adopted, with mitigations, to answer the Research Questions. According to the Cochrane Handbook for Systematic Reviews of Interventions, a Systematic Literature Review has certain features. It has: firstly, a clear set of objectives with *a priori* eligibility criteria, secondly, an explicit, producible method, thirdly, a comprehensive search that attempts to find all eligible studies, fourthly, assessment of validity of included studies, and fifthly, a systematic presentation and synthesis of findings of included studies (McKenzie & Brennan, 2019).

5.2.1 Limitations of a Systematic Literature Review

Because the Research Questions and the approach are constructivist, inductive and qualitative, the above-named features posed a problem. Thus, a Systematic Literature Review methodology that was able to provide a systematic approach whilst still enabling subjective prominence to the most relevant studies was required instead.

Hammersley raised concerns about a Systematic Literature Review methodology. He stated: *“the concept of systematic review was itself subjected to criticism by many social scientists, for example being treated as reflecting an outdated positivism”*. (Hammersley, 2020, p.9). Therefore, it was clear that, challenges would be posed in using a Systematic Literature Review methodology in a qualitative research strategy in terms of relevance and quality (Chapter 9).

5.3 Qualitative Systematic Literature Review as a Methodology

Due to the poor fit of other qualitative research strategies (Chapter 4) and because the traditional Systematic Literature Review is positivistic in origin and purpose (Section 5.2, p.55), I discounted those and started my exploration of a Qualitative Systematic Literature Review (QSLR) as a research methodology instead. Tranfield et al. (2003) advised that a systematic literature review should be *‘transparent, scientific and replicable’*. I also took from their work the warning that a systematic literature review would be more challenging for my research as it is usually used in the field of ‘B&M’. The framework has three stages and nine phases (Figure 5-1):

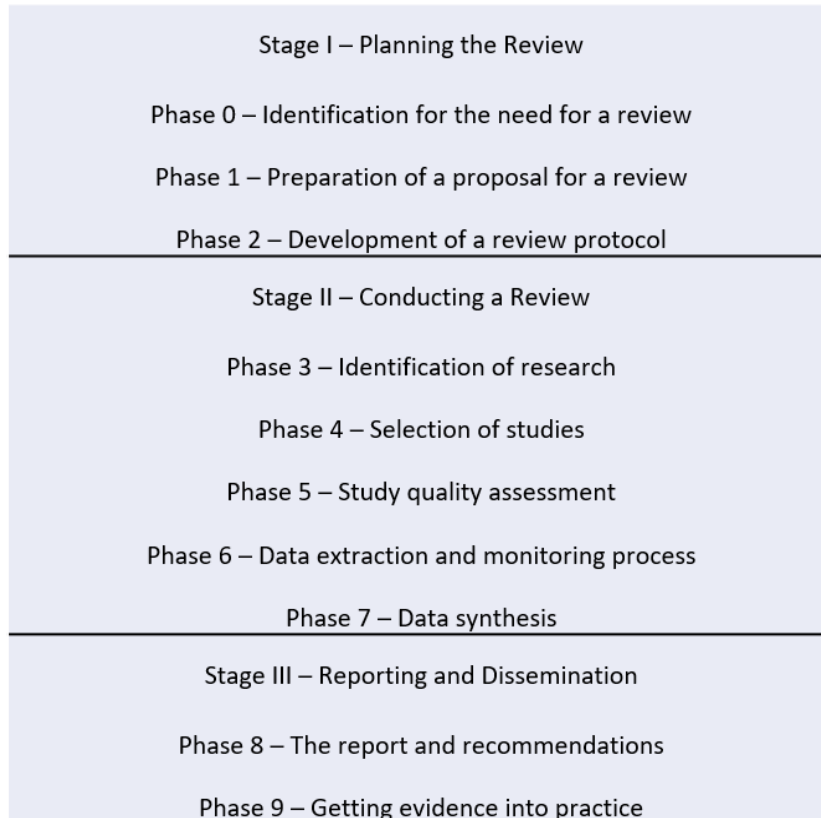


Figure 5-1 Qualitative Systematic Literature Review Approach. Source: (Tranfield et al., 2003)

A QSLR approach would support a retrospective, literature review-based approach of peer-reviewed academic papers. I could build replicable structured approach and explore the existing theory on topic in a systematic way (Torgerson, 2003). A QSLR would allow for purposive sampling (Section 7.3.1, p.93), quality assessment of documents using pre-defined eligibility criteria (Chapter 9), and a systematic approach to enable replicability in future studies (Tranfield et al., 2003). However, the consideration of CEMO (Section 2.7.1, p.28) and SOGI (Section 2.7.2, p.29) led me to ‘*modify*’ the QSLR approach, to make a better fit.

5.4 Modified Qualitative Systematic Literature Review (MQSLR)

5.4.1 Modified Qualitative Systematic Literature Review Framework

As discussed in Section 5.2 (p.55) and 5.3, applying any Systematic Literature Review methodology outside ‘*hard sciences*’ required modification. Bazely (2021,

p.11) stated that: “*there is no single right way to approach any particular research problem*” and (Patton, 2015, p.521) that: “*no formula exists to transform data into findings*”. I therefore chose ‘*methodological appropriateness*’ for the Research Questions by ‘*modifying*’ the QSLR framework (Table 5-1):

Number	Modification
1	The first modification related to the purpose of the MQSLR methodology. For this study it was to ensure an ‘ <i>indicator-informed</i> ’ framework was established to answer the Research Questions (Chapter 1) as a <i>modification</i> . Nutley, Davies, and Walter suggested: “ <i>The terms ‘evidence informed’ or even ‘evidence aware’, rather than ‘evidence based’ may be more appropriate in the management field</i> ” (Tranfield, Denyer, & Smart, 2003, p.219). Hence, I avoided the term <i>evidence</i> and opted for ‘ <i>indicator</i> ’ as the term aligned with my research approach.
2	Another modification was to only use academic journals as they “ <i>have credibility due to the process of peer review</i> ” (OU, 2022). This caused the MQSLR’s focus to be on academic literature through research databases.
3	A third modification was to include discussion with the <i>Network of Interest</i> (Section 5.5, p.64).
4	Fourth was to make modifications to the MQSLR approach including: Stage I (Planning a MQSLR Review), Stage II (Conducting the MQSLR) and Stage III (Discussion and Conclusions). Figure 5-2 below displays each stage of the MQSLR with a summary of the mitigating activities undertaken in this study.

Table 5-1 Modification for Modified Qualitative Systematic Literature Review

Ultimately, I adapted the Tranfield et al. (2003) framework into a MQSLR methodology, to provide a visual guide. The stages were repeatable and accepted within the context of the Research Questions (Section 1.6, p.7) and they allowed for a flexible and iterative approach. For the purposes of this study ‘*iterative*’ is defined as a cyclic process of “*incorporating what you learn at one point in the research process into the remainder of the research*” (Lee, Langthorn and Huang, (2019).

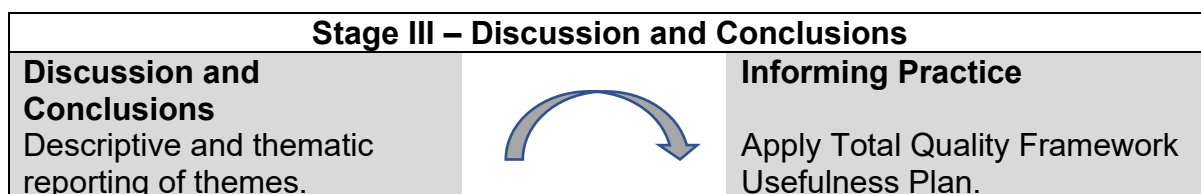
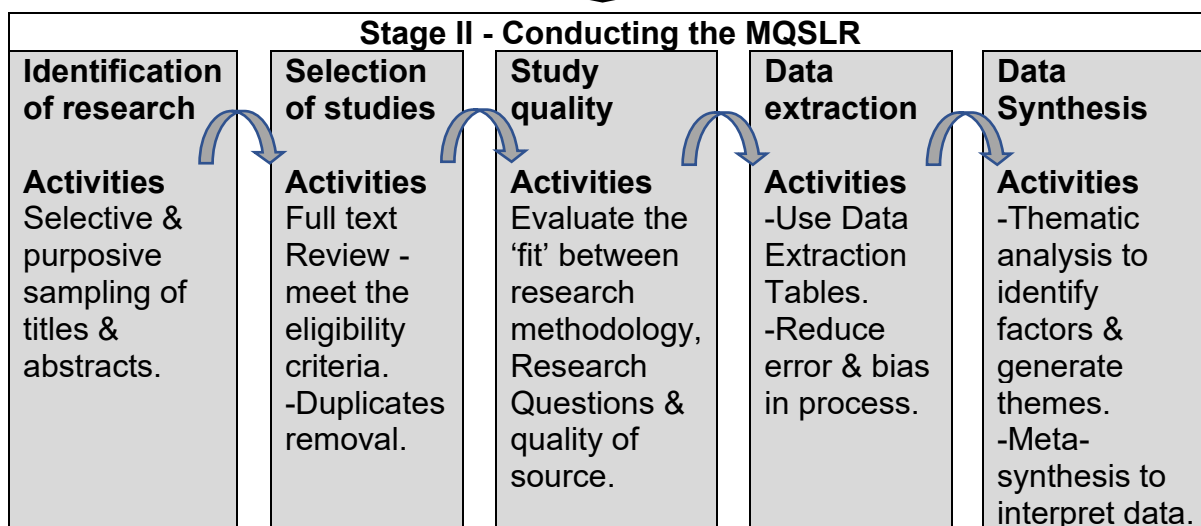
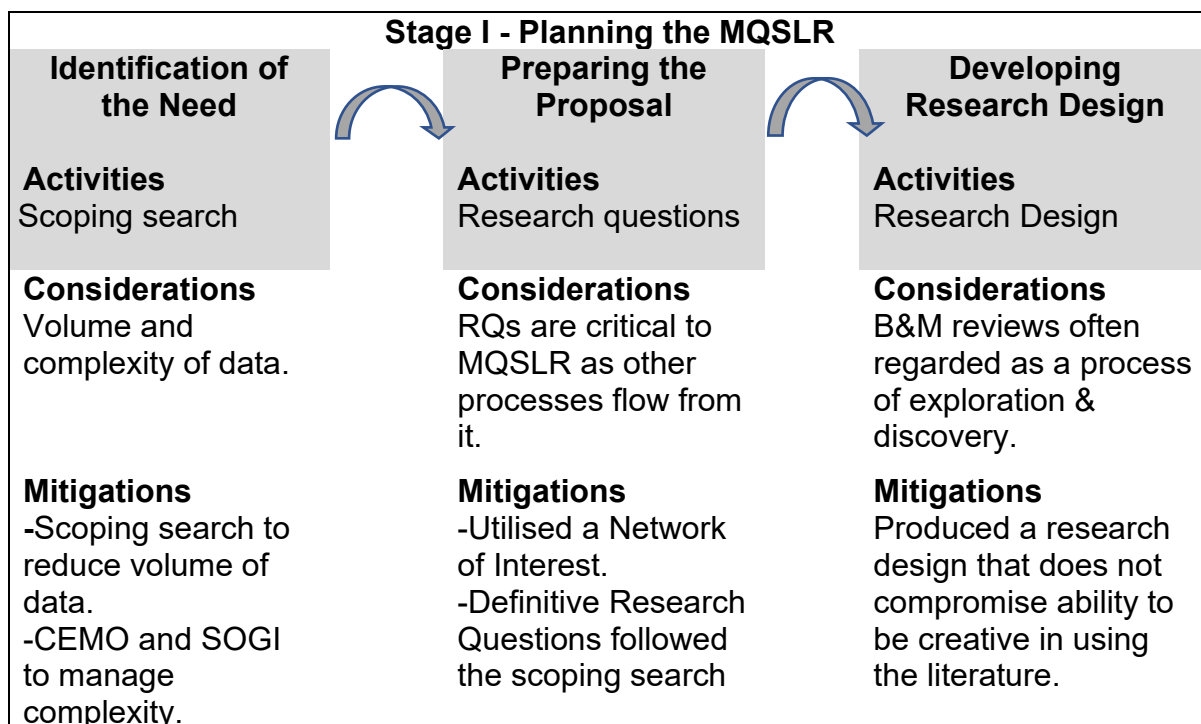


Figure 5-2 Modified Qualitative Systematic Literature Review (MQSLR) Methodology. Source: Adapted from Tranfield et al. (2003)

This MQSLR framework included modifications of the 'Data Synthesis Phase' to include meta-synthesis, Thematic Analysis, and NVIVO (Chapter 6). Also, in Chapter 7, the Total Quality Framework (Roller & Lavrakas, 2015) was incorporated into the

MQSLR methodology to enhance credibility, analysability, transparency, and usability of the methodology.

5.4.2 The Fit

Braun and Clarke emphasised *“for qualitative research the topic and research question need to ‘fit’ with the framework you are using”* (Braun & Clarke, 2013, p.44). Without *modification* of the QSLR methodology there would have been alignment issues in the analysis/synthesis approach of this study. In 2003, Tranfield, Denyer and Smart advised:

“Management research is a relatively young field, far less well developed in terms of agenda and question formulation than much of medical science. As a result, there tends to be low consensus concerning key research questions in management research. Studies in the field rarely address identical problems and share a research agenda or, more importantly, ask the same questions.” (Tranfield et al., 2003, p.212).

Therefore, I evaluated the MQSLR as to whether it was ‘fit’ to answer the Research Questions. I adapted Table 4-3 (p.49) to include a new column for ‘Modified Qualitative Systematic Literature Review’ (Table 5-2). Also, I compared the MQSLR ‘characteristics’ with GT and CS qualitative research strategies.

RAG rating Key for Table 5-2:

aligned to my research objectives and questions	
may be related to my research objectives and questions	
not aligned to my research objectives and questions	

Characteristics	Grounded Theory	Case Study	Modified Qualitative Systematic Literature Review – based on (Tranfield et al., 2003)
Focus	Developing a theory grounded in data from the field	Developing an in-depth description and analysis of case or multiple cases	Developing a conceptual idea from studies with apparently conflicting findings to help explore new themes.
Type of problem best suited for design	Grounding a theory in the views of participants	Providing an in-depth understanding of a case or cases	Exposing gaps in knowledge and helping identify general patterns to findings from multiple examples of research in the same area
Discipline background	Drawing from sociology	Drawing from psychology, law, political science, medicine	Drawing from literature, education, B&M, political science, history, psychology, sociology
Unit of analysis	Studying a process, action or interaction involving many individuals	Studying an event, a programme, an activity, more than one individual	Studying a collection of evidence about what is going on and focussing on the phenomenon of the Third Mission within the context of university and business collaboration
Data Collection forms	Using primarily interviews with 20-60 individuals	Using multiple sources such as interviews, observations, documents, and artefacts	Using primarily documents
Data Analysis Strategies	Analysing data through open coding, axial coding, selective coding	Analysing data through description of the case and themes of the case as well as cross-case themes	Meta-synthesis and thematic analysis of data
Written report	Generating a theory illustrated in a figure	Developing a detailed analysis of one or more cases	Developing conceptual and theoretical ideas

Table 5-2 Characteristics of a Qualitative Approach for the Research Context of: Towards the Third Mission: An Exploration of University and Business Collaboration. Source: Adapted from Table 4-4 (Section 4.6, p.45) and Tranfield et al. (2003)

The review in Table 5-2 confirmed that the MQSLR research methodology aligned with my constructivist research philosophy, inductive approach, qualitative research strategy and data synthesis approach, thus enabling me to answer the Research Questions. I also reviewed discipline backgrounds and confirmed I would draw from literature predominantly from the discipline backgrounds of B&M, education, political science, history, psychology and sociology.

The strengths of the MQSLR as a methodology included: firstly, the MQSLR enabled collection of relevant references whilst ensuring the review focussed on the Research Questions in the process, secondly, the MQSLR identified themes and gaps that could contribute to future reviews, thirdly, the data synthesis was not limited to strictly comparable studies (Section 6.3.1, p.72) , and fourthly, the meta-synthesis approach (Section 6.3.1, p.72) challenged the positivistic nature of a systematic literature review and allowed for an interpretive approach.

5.4.3 Limitations and Mitigations of Modified Qualitative Systematic Literature Review

As with any literature review, the MQSLR methodology had its limitations, for example Tranfield et al. (2003) pointed out that:

“Whereas medical research enjoys considerable and extensive epistemological consensus, this is untrue of management research, in general. The consequential difficulties of establishing agreed thresholds for high-quality work result from this lack of consensus” (Tranfield et al., 2003, p.212).

They indicated that management research is a relatively young field in comparison to medical research and there is a lower consensus *“concerning key research questions in management research”* (Tranfield et al., 2003, p.212). Management studies have rarely concentrated on identical questions or explicitly shared the same research focus. Therefore, for this study, establishing agreed thresholds for high-quality work had to be carefully considered in advance of data gathering (Chapter 7). A Network of Interest was therefore included to build a small circle of consensus (Section 5.5, p.64). Even with this consideration in mind, some practitioners may suggest this is not enough to mitigate my approach, so I also embedded the Roller

and Lavrakas 'Total Quality Framework' to include tactics for credibility, transparency, analysability, and usefulness (Roller & Lavrakas, 2015, p.10).

Other limitations of the MQSLR included time restrictions, word count restrictions, and unobtainable texts.

Given that my approach would be challenged without modifications, I mitigated further by adding supplementary 'systematic' rigour into the Stage II process (Figure 5-3).

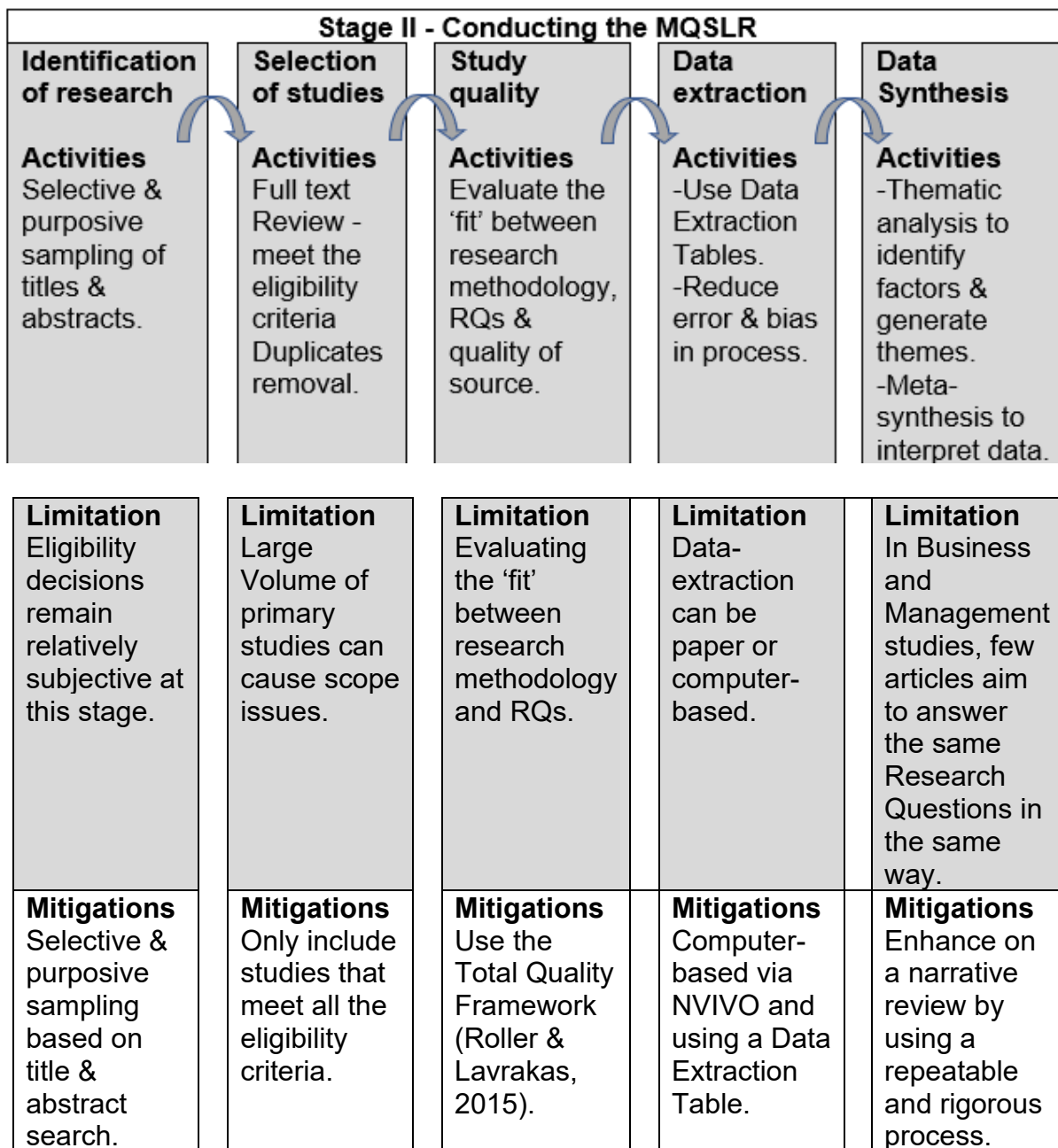


Figure 5-3 Limitations and Mitigations for Conducting the MQSLR

5.4.4 Justification for the Modified Qualitative Systematic Literature Review

Taking the strengths, limitations and mitigations of the MQSLR approach into account, the MQSLR better aligned to my Research Questions than any other qualitative research strategy for the following reasons: firstly, the focus could generate new ideas on the Third Mission without committing to developing a new theory within this research, secondly, it enabled ideas to be generated in preparation for future studies in this field, thirdly, it helped expose gaps in knowledge and identify general patterns, fourthly, it enabled the adoption of Tranfield, Denyer and Smart's approach to data synthesis (2003), which would bind together both synthesis and analysis to form a single integrated and iterative (Section 5.4.1, p.56) phase of the research methodology (Chapter 6).

Other considerations noted by Bazely (2021) helped justify the MQSLR methodology:

- First, there was no hypothesis set- as the study is inductive not deductive (Chapter 3).
- Second, the Research Questions were clearly defined *a priori*, because of a systematic scoping search (Chapter 2).
- Third, not all research was made available for inclusion in the corpus of data, as some primary research documents had costs attached. All literature that was available was explored based on inclusion and exclusion criteria (Section 8.2.2, p.103).
- Fourth, I could challenge my personal bias in the process of data gathering, as the MQSLR pre-stages involved setting up a Network of Interest (Section 5.5, p.64).

Ultimately, the MQSLR was chosen because it matched up the methodology with the Research Questions and objectives, since this was a new study *"to meet a defined 'gap' in the literature, a more systematic literature review process can help to justify/qualify the near/final research question which is posed."* (Tranfield et al., 2003, p.212). I took cautionary notes from other researchers to ensure that the purpose of my study was clear and that my Research Questions aligned.

5.5 Network of Interest

Tranfield et al. (2003, p.214) advised setting up a *Review Panel* prior to launching a Systematic Literature Review; however, this assumed a much larger investigation with multiple researchers. For this study, with only myself as researcher, a group of people – made up not just of my supervisors, but of other academics and practitioners in the field- was formed. They would challenge and query my study, and that is how the MQSLR approach was elected and tailored for this work. However, I first needed to understand the role of a Review Panel.

After some contemplation, I confirmed the following tailored *Review Panel* roles and responsibilities were useful for this research (adapted from (Tranfield et al., 2003, p.214):

- First, to support development of an answerable question.
- Second, to advise on recent systematic reviews.
- Third, to challenge the writing and registering of a proposal and the DBA architecture and thesis.
- Fourth, to support construction of a reproducible search strategy.
- Fifth, to challenge borderline sources as part of inclusion and exclusion criteria.
- Sixth, to advise on the organisation of Discussion (Chapter 9).
- Seventh, to challenge synthesis and analysis decisions.
- Eighth, to question the writing and submission of findings.

Given the scale and scope of this study (Section 1.7, p.9), a full Review Panel was deemed unviable and so I looked to set up a '*Community of Practice*' that could provide a mix of face-to-face and online support (online was the only option during the three UK Covid Lockdowns between 2020 -2022).

Lave and Wenger (1991) first introduced the term Community of Practice (CoP) then Wenger extended the concept in his book '*Communities of Practice*' (Wenger, 1998) and thereafter also with McDermott and Snyder in their 2002 book '*Cultivating communities of practice - A guide to managing knowledge*' (Wenger,

McDermott, & Snyder, 2002). Later, Etienne and Beverly Wenger-Trayner stated that a CoP was a group of people “*who share a concern or a passion for something they do and learn to do it better as they interact regularly*”. (Wenger-Trayner, 2015). As such, a CoP would need to have firstly, ‘*mutual engagement*’ over the Third Mission (establishing norms and building collaborative relationships), secondly, ‘*joint enterprise*’ (creating shared understanding of the Third Mission – shared domain of the community), thirdly, ‘*shared repertoire*’ (communal resources on the Third Mission). For this study, I would not have mutual engagement, nor create shared understanding within a community, nor build communal resources. As a result, I discounted a CoP, as it was not the right fit for this research design.

Closely linked was a ‘*Community of Interest*’, defined as a “*people who meet around a shared passion*.” (Webber, 2016, p.4). I discounted this as the group would not share a ‘*passion*’. Rather than *Community*, for this study I have adopted the phrase *Network of Interest* (NoI). A *network* rather than *community* was a better match as it would allow me to: “*interact with others to exchange information and develop professional or social contacts*” (OED, 2022). This would allow me, to engage with academics and practitioners virtually/remotely in the field, whose role it would be to support my doctorate and fulfil the ‘Review Panel’ activities identified above. It would act as a ‘*knowledge network*’ which would provide different viewpoints to challenge and/or affirm my research design. As in any Systematic Literature Review, the NoI, aided in the scoping of the research, and in the initial stages where they helped in the approach of defining, clarifying, and editing. The membership of the Network of Interest at the start of my DBA in 2014 was:

- Dr Sue Williams - Supervisor
- Dr Rachel Vieira - Supervisor
- Head of Business Innovation at University of Gloucestershire (UOG)
- Consultant Gloucestershire Growth Hub
- Head of Business School at UoG
- Director of Learning (Gloucestershire Framework) at UoG
- Business Development Manager at UoG

I adapted the membership over time to ensure the support always remained relevant to my Research Questions (Section 1.6, p.7). For example, in 2017, I added an NVIVO expert to my Network of Interest after attending an NVIVO training week. Also, in 2021, after an introduction from my supervisor, I connected with a specialist

Librarian and database search expert to support and challenge the development of my '*Data Synthesis and Analysis Strategy*' (Chapter 6).

5.6 Time Horizon

Research can either be “*conducted as a snapshot over a short period of time (cross sectional studies) or as a series of snapshots over a period (longitudinal)*” (Saunders et al., 2009, p.155). For this study, the cross-sectional time horizon was chosen in advance of data gathering as “*they can be used to provide a ‘snapshot’ of a group or society at a specific moment*” (Thomas, 2020). The time between *snapshots* in studies can be seconds, minutes, years, or decades (Taris, 2000, p.2). Since my research did not seek to answer questions based on *success* factors changing over a *period of time*, a cross-sectional study was conducted.

5.7 Reflections - Research Methodology

- The Modified Qualitative Systematic Literature Review approach supported a retrospective literature review-based approach of peer-reviewed academic papers.
- I was able to build a replicable structure into my research methodology and explore the existing theory on topic in a systematic way.
- A Network of Interest (Section 5.5, p.64) was utilised instead of a Review Panel used by Tranfield, Denyer and Smart (2003).
- The Time horizon was cross-sectional Section 5.6 (p.66).

Adopting a Modified Qualitative Systematic Literature Review approach offered a structured process, which aided a comprehensive coverage of the subject area, whilst still offering the flexibility to explore the literature iteratively (Section 5.4.1, p.56). Given the nature of the thesis, one could argue the viability of using a systematic literature review method. However, by using a *Modified Qualitative Systematic Literature Review* approach and a Network of Interest (Section 5.5, p.64) as part of the research design, the limitations were mitigated so the Research Questions could be answered. This enabled me to tackle the complex Third Mission phenomenon by modifying existing frameworks. I was able to unpick the complexity of the Third Mission whilst aligning with my own personal positioning of a structured approach (Section 1.5, p.6).

5.8 Next Steps

In chapter 5, the research methodology (research framework) for Modified Qualitative Systematic Literature Review was introduced in order to build a corpus of data. Chapter 6 details the accompanying *synthesis* methodology.

CHAPTER 6 - DATA SYNTHESIS METHODOLOGY

6.1 Introduction

Having built a research framework in Chapter 5, this chapter details the data synthesis methodology. As a Modified Qualitative Systematic Literature Review (MQSLR) is required to be replicable the detail in this chapter ensures transparency of approach.

Chapter 5 focusses specifically on the design of the '*Data Synthesis Phase*' of the MQSLR Methodology (Figure 6-1, p.69). As warned by my Network of Interest (Section 5.5, p.64), data synthesis is a *key phase* of the MQSLR and should be thoughtfully planned prior to conducting the study. Therefore, the '*framework for analysis and synthesis*' has its own chapter, to provide the needed scene setting before any data is gathered (Chapter 8).

The chapter starts with a consideration of how a *hybrid* of both synthesis and analysis were utilised within the MQSLR, to best answer the Research Questions (Section 1.6, p.7).

The chapter continues with the selection and justification of meta-synthesis, as the synthesis method (Tranfield et al., 2003). Alternatives are disregarded, including narrative review, meta-analysis, meta-ethnography, and realist synthesis.

The chapter then focusses on the use of the Braun and Clarke thematic analysis six-step method (Braun & Clarke, 2013) within the MQSLR.

The chapter finishes with an argument for the use of NVIVO as a Computer-aided qualitative data analysis software (CAQDAS) tool for my data analysis and synthesis.

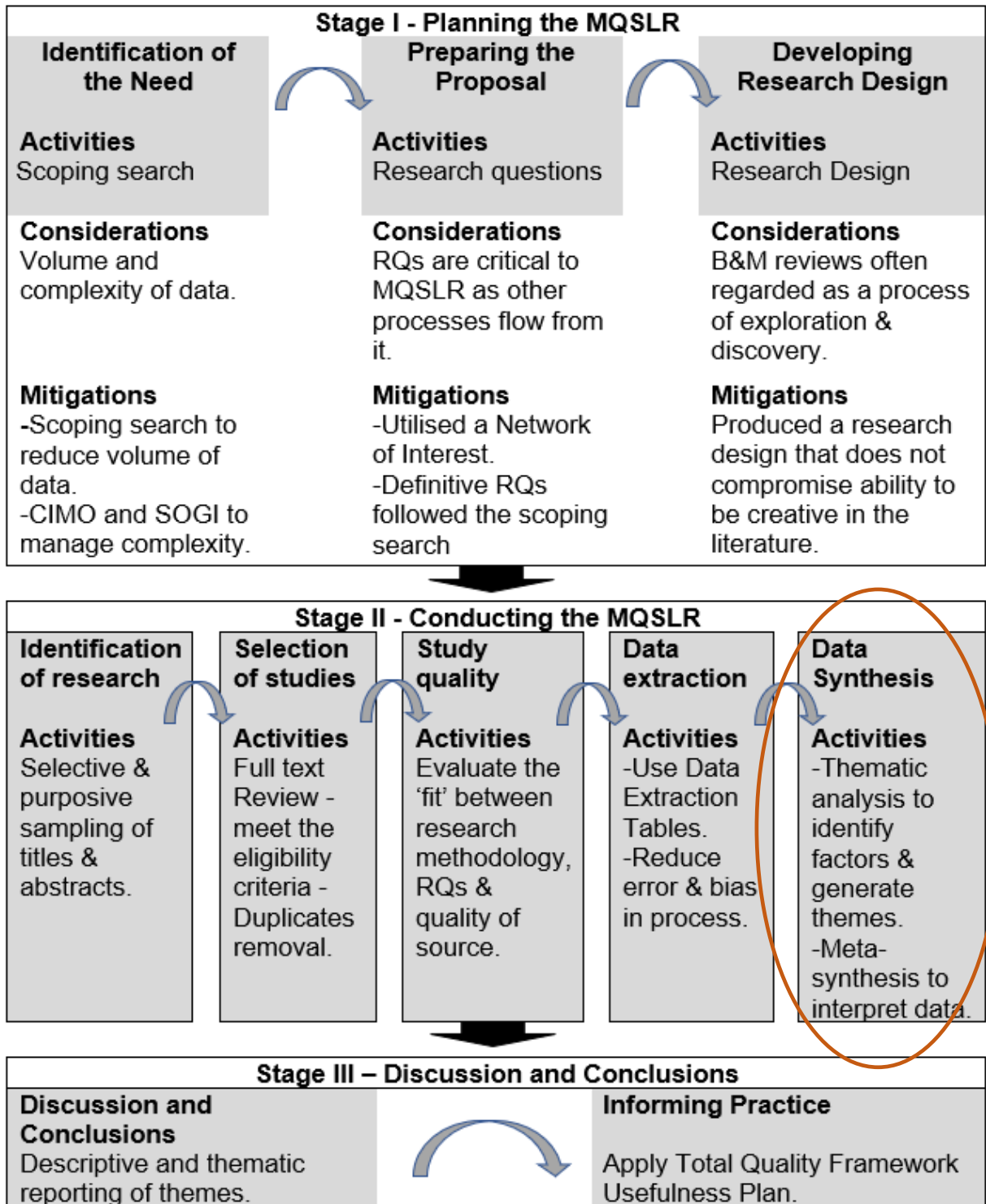


Figure 6-1 Data Synthesis Phase of MQSLR Methodology

6.2 Scoping the Boundaries for Synthesis and Analysis

6.2.1 Saliency/Relevance

As a constructivist (Section 3.3.1, p.33), I adopted the approach that “*avoids the implication that numbers reveal the truth in the data better than other ways of reporting pattern ‘frequency or ‘saliency’*” (Braun & Clarke, 2013, p.262). Buetow used a term called ‘*saliency analysis*’, which indicated that: “*something in data can be important without appearing very frequently*” (2010, p.123). Braun and Clarke also stated: “*frequency does not determine value. Whether something is insightful or important for elucidating our research questions is not necessarily determined by whether large numbers of people said it*” (Braun & Clarke, 2013, p.261). In accordance with this, I have striven to develop an ‘*analytical sensibility*’ by coding data that had relevance/prominence (regardless of frequency) to answer the RQs.

6.2.2 Secondary Data

Words rather than *numbers* were the focus in this study, where “*Words as directly articulated by people (in all their messy and often contradictory glory) are the typical form of data for qualitative research*” (Braun & Clarke, 2013, p.134). Words as ‘*secondary data*’ were analysed (Chapter 8 and 9). This use of: “*pre-existing textual data involves the selection and use of words which already exist in a written form*” (Braun & Clarke, 2013, p.134). The corpus of articles (dataset) was gathered via MQSLR of existing primary research; I had no role in the original production of the data. Braun and Clarke suggested that secondary sources are relatively easy to collect and that for a small project, 1-100 data sources are suitable (2013, p.47).

6.2.3 Description and Interpretation

To answer the Research Questions Braun and Clarke suggested a “*need to take the reader beyond just the words of the participants or the words in secondary texts*” (2013, p.268). They also noted that: “*a good analysis will go beyond just summarising data and be thorough, plausible, sophisticated and most of all interpretive*” (2013, p.268). This led me to consider the approach of ‘*synthesis*’ and

'analysis' of a dataset, in order to gain: *"insights into the meaning of data that go beyond the obvious or surface-level content of the data, to notice patterns or meanings"* (Braun & Clarke, 2013, p.204). This study therefore captured 'noticings' in NVIVO (Appendix E), where 'noticings' have been defined as *"items of note in the dataset, towards answering the research questions."* Noticings are a key tool in thematic analysis (Section 8.7.3, p.120).

6.2.4 Defining Synthesis and Analysis

The data gathering, collation, analysis, and synthesis methods within the MQSLR methodology needed to be structured and flexible, iterative (Section 5.4.1, p.56), and integrated. Braun and Clarke asserted: *"there are some advantages to an integrative approach: it avoids repetition between results and discussion section, and it allows you to develop your analysis more fully, as it happens."* (Braun & Clarke, 2013, p.258).

There were numerous qualitative and inductive ways to capture and synthesise data, but not all would properly address my Research Questions in alignment with the MQSLR methodology. So, I developed an integrated, hybrid data synthesis strategy, as: *"an approach to planning the subsequent synthesis and analysis of a review by attempting to pre-specify review procedures."* (Booth et al., 2016, p.316).

Analysis in this study has been defined as *"unpacking a thing into its constituent parts in order to infer or determine the relationship and/organising principles between them"* (Hart, 2013, p.111). To aid interpretation, analysis was integrated with synthesis. Synthesis has been defined in this study as *"the act of making connections between the parts identified in the analysis"* (Hart, 2013, p.110). This enabled the data synthesis phase to move away from just reconstructing the pieces back into their 'original arrangement' and look for a new perspective, thus extending or generating new knowledge (Section 11.3, p.311).

For this study, analysis focussed on selecting, differentiating, scrutinising, and breaking up the data. Synthesis then focussed on integrating, joining, re-formulating,

and restructuring the data, to identify links that could be used to highlight the Third Mission within the context of this study and arrive at an overall conclusion.

6.3 Data Synthesis Phase

So above, ‘*analysis*’ and ‘*synthesis*’ have been defined within the context of this study. Next, I pondered the Data Synthesis phase of the MQSLR. It involved: *“building a whole from disparate parts; a whole which at first may be completely unclear, because sometimes this whole has properties that cannot be explained by looking at the parts”* (Open Learn, 2022). Tranfield et al. (2003) said that alternative methods of research synthesis have been developed to: *“draw comparisons and conclusions from a collection of studies through interpretative and inductive methods”* (2003, p.214). With these assertions in mind, for this study, analysis and synthesis were purposively integrated and repeatable. This would align with an inductive and interpretive data synthesis approach, in order to *“provide a means of drawing insight from studies and addressing issues pertinent to management research”* (Tranfield et al., 2003, p.217).

The following Sections provide justification of a hybrid Data Synthesis Phase, that allowed the necessary flexibility to cater for a ‘fuzzy’ distinction between data gathering, analysis and synthesis, with a view to ultimately answering the Research Questions.

6.3.1 Meta-Synthesis

Meta-synthesis, according to Purssell and McCrae, was a *“method for reviewing qualitative research findings”* (2020, p.176). Booth et al., added to this by saying it was a *“generic term describing the science of bringing studies together and examining them for shared characteristics and patterns”* (2016, p.310). For this study, I have adopted Purssell and McCrae’s interpretation of a ‘meta-synthesis’. They wrote: *“what began as a distinct approach to integrating findings from multiple qualitative studies, ‘meta-synthesis’ has become a generic term for reviewing qualitative research”* (Purssell & McCrae, 2020, p.104). There were various reasons for selecting meta-synthesis.

- First, Meta-syntheses are designed for the *“qualitative aggregation and interpretation of non-qualitative findings that have been extracted from topically related study reports.”* (Robson, 2011, p.377).
- Second, it is *“not limited to synthesising strictly comparable studies. It enabled the construction of interpretations, not analyses, and [revealed] the analogies between accounts”* (Tranfield et al., 2003, p.218).
- Third, meta-synthesis challenged *“the positivistic orthodoxy that surrounds contemporary approaches to research reviews, demonstrating that a synthesis can be an interpretive, inductive... process”* (Tranfield et al., 2003, p.218).

These reasons link back to Section 5.4.2 (p.59) where ‘*fit*’ was discussed and the MQSLR approach was selected.

6.3.1.1 Limitations and Mitigations

There were limitations, however, because: *“some authors contend that there are a number of philosophical and practical problems associated with ‘summing up’ qualitative studies”* (Sandelowski, Docherty, & Emden, 1997, p.367 *cited in* Tranfield et al., 2003). Ridley supported this perspective and advised: *“It is important that you do not assume a common agreement about the meaning of all the words and phrases that you include”* (Ridley, 2012, p.34). The aim of this study was therefore not aiming to be aggregative. Robson also warned that the *“effort involved in carrying out a meta-synthesis of qualitative findings is considerable.”* (Robson, 2011, p.377). To mitigate the process-based limitations, the MQSLR methodology provided structure and transparency of approach by incorporating Braun and Clarke’s ‘6-step Thematic Analysis’ method (Braun & Clarke, 2013) into the Data Synthesis Phase (Section 6.3.2, p.74). The Total Quality Framework (Roller & Lavrakas, 2015) was also incorporated into the MQSLR methodology (Chapter 7) to enhance *credibility, analysability, transparency, and usability* (2015, p.10).

6.3.2 Thematic Analysis (TA)

To incorporate a repeatable process for '*breaking up*' and coding data into the data synthesis phase of the MQSLR, Thematic Analysis was used. Bazely suggested that: "*by interrogating data, by challenging (loosening, breaking apart) the connections between statements and the components within them, we open the possibility of seeing them in a new way*" (Bazely, 2021, p.2). Bazely also said that using an analysis method would enable "*deconstructing and reconstructing evidence that involves purposeful interrogation of a critical thinking about data.*" This could be built into the MQSLR methodology to yield "*meaningful interpretation and relevant understanding*" in order best to respond to the Research Questions (Bazely, 2021, p.3).

Thematic Analysis was first developed by Holton in the 1970's and has been more recently identified as a formal method "*with [a] clearly outlined set of procedures for the social sciences*" by Braun and Clarke (2013, p.178). The method has been used "*to analyse data and identify themes in primary qualitative research*" (Booth et al., 2016, p.316).

Thematic analysis has a broad appeal to researchers, as it can be used with most types of data, to answer most Research Questions. It can be employed to explore data with both a '*top-down*' (research-driven) and a '*bottom-up*' (data-driven) approach (Chapter 7). It can be applied to generate characteristics and themes, enabling a rich description of the Third Mission, and to extract new meaning through interpretation. Braun and Clarke (2013, p.175) defined thematic analysis as: "*a method for identifying themes and patterns of meaning across a dataset in relation to a research question*". For this study I used an inductive approach (Section 3.7, p.37) which was able to produce an analysis from the bottom-up data. However, I also took a top-down view because: "*analysis is always shaped to some extent by the researcher's standpoint, disciplinary knowledge and epistemology*" (Braun & Clarke, 2013, p.175).

In this study, the analysis followed the '*six-step process*' described by Braun and Clarke (2013). They stated the six-step process is a *method* rather than a

methodology and it is included as such (ie.as a method) within the MQSLR methodology to ensure there is a '*transparent framework*' for repeatability of the analysis process (Table 6-1).

Step	Definition	Activities	Output
Step 1 Familiarisation with data	Braun & Clarke (2013, p.204) state “ <i>The analysis of qualitative data essentially begins with a process of immersion in the data. The aim is to become intimately familiar with your data content, and to begin to notice things that might be relevant to your research question</i> ”	<ul style="list-style-type: none"> • First collating data rather than transcribing, then taking noted items of ‘potential Interest’ as <i>Noticings</i>. • Using NVIVO to complete ‘bottom up’ (data-driven) and a ‘top down’ (research-driven) approach. • Using textual data - reading to gather ‘loose overall impressions’/ ‘conceptual ideas’ about the data 	<ul style="list-style-type: none"> • Record of <i>Noticings</i> become initial blocks in the process of coding then building your final analysis (2013, p.206) • Journal: observational and casual rather than systematic and precise (2013, p.205)
Step 2 Generation of initial codes	Coding is a “ <i>process of identifying aspects of the data that relate to your research question.</i> ” (2013, p.205)	Coding is both semantic (data-derived) and conceptual/theoretical (researcher-derived or latent codes) to interpret the data	<ul style="list-style-type: none"> • Complete Coding (rather than selective coding) across the entire dataset (2013, p.206) • A word or phrase can have multiple codes. • Codes provide building blocks for analysis. • Role of NVIVO (2013, p.218)
Step 3 Searching for Themes	A <i>theme</i> “ <i>captures something important about the data in relation to the research question, and represents some level of patterns response or meaning within the dataset</i> ” (Braun & Clarke, 2013, p.224)	<p>1 Systematically identify ‘salient features’ of the data – it’s about meanings rather than numbers (2013, p.223)</p> <p>2 A <i>theme</i> has a ‘<i>central organising concept</i>’ - meaningful in relation to the RQ whereas a <i>feature</i> may not be (2013, p.224)</p> <p>3 Proactive not passive – themes do not emerge from the data; potential patterns are created rather than discovered.</p> <p>4 Review the collated codes to identify similarities and overlap</p>	<ul style="list-style-type: none"> • “A visual map/ thematic map to explore and refine the connections between elements” (2013, p.232) • Collate all data extracts relevant to each theme.

TA – Step 4 Reviewing Themes	<p><i>“This phase is essentially one of quality control” and “You want your themes to tell a story that rings true with the data”.</i> (Braun & Clarke, 2013, p.233)</p>	<p>Revision for Fit then revision of whole dataset (coded and uncoded) <i>“to ensure that your themes capture the meaning and spirit of the dataset in relation to your research question”</i> (2013, p.234) Review and refine until good fit.</p>	<p>Themes mapped to visualise relationships and distinctiveness to show how they fit together to answer the Research Questions.</p>
TA – Step 5 Definition of Themes	<p><i>“Through an interlinked process of analysis and writing, you transform this mass of (messy) information into complex, nuanced yet streamlined analysis that tells a clear, coherent and compelling story about the data and what they mean”</i> (Braun & Clarke, 2013, p.249)</p>	<p>All about analysis and interpretation of patterns:</p> <ul style="list-style-type: none"> • 1 Clearly define themes. • 2 Select extracts and write a narrative (illustrative and analytical) - <i>the extracts themselves are a crucial part of it”</i>. (2013, p.249) 	<p>State meanings, ideas, or assumptions</p>
TA – Step 6 Report production	<p>A concise, coherent, logical, non-repetitive, and interesting account (including data extracts) of the story that the data tell – within and across themes – should be provided</p>	<p>Link to the Roller and Lavrakas (2015, p.10) Total Quality Framework to embed credibility, transparency, analysability, and usefulness (Chapter 8).</p>	<p>Final analysis and write-up of the report</p>

Table 6-1 Six-Step Thematic Analysis Process. Source: Adapted from Braun and Clarke (2013)

Step 1 emphasised that analysis is not a passive process, rather: *“it is about starting to read data as data [...] reading words actively, analytically and critically, starting to think about what the data mean”* (Braun & Clarke, 2013, p.205). Braun and Clark refer to an *analytical sensibility* (Chapter 7) which *“is essential for moving beyond the surface, summative reading of the data”* (2013, p.205). To aid an analytical sensibility, a data extraction form was designed to contain prompts:

- How does an author make sense of their Third Mission experiences?
- Why might they be making sense of their Third Mission experiences in this way and not in another way?
- In what different ways do they make sense of the Third Mission?
- How would I feel if I was in that Third Mission situation?
- What assumptions do they make in talking about the world?
- What kind of world is revealed through their account?

In addition, the adoption of Roller and Lavrakas’ ‘Total Quality Framework’ (2015, p.10) helped ensure focus on credibility, transparency, analysability, and usefulness, when exploring the Third Mission (Chapter 7).

In Step 2, ‘*complete*’ coding rather than ‘*selective*’ coding was used. Selective coding *“involves identifying a corpus of instances of the phenomenon that you are interested in, and then selecting those out. The purpose here is one of data reduction”* (Braun & Clarke, 2013, p.206). I note that I was ‘*selective*’ in the data gathering stages of the MQSLR, via use of eligibility criteria (Chapter 8) and quality criteria (Chapter 7). However, Step 2 required ‘*complete*’ coding (which is a different process from selective coding), since I aimed to *“identify ‘anything’ and ‘everything’ of interest or relevance to answering [my] research question[s], within [my] entire dataset”* (Braun & Clarke, 2013, p.206). I therefore coded all the data that was relevant (Chapter 7) to my Research Questions in NVIVO.

Step 3 involved sorting the different codes into potential themes, then collating all the relevant coded data extracts within the identified themes. The relationship

between codes, themes, and levels of themes was then explored. I applied saliency analysis at this stage (Section 6.2, p.70).

Step 4 was about 'story-telling' and quality control (see Chapter 7 for definition of 'quality'). I noted, in agreement with Braun and Clark, however, that: *"This isn't about telling the one true story about your data (there's no such thing in qualitative research, but about telling a story that's faithful to the data"* (Braun & Clarke, 2013, p.236). I checked the themes were a good 'fit' (Section 5.4.2, p.59) with the coded data and stopped once my thematic map needed no further substantial changes. Following advice from Braun and Clarke, I completed this step with *"a set of distinctive, coherent themes, and a sense of how they fit together and the overall story they tell about the data"* (2013, p.236)

Step 5 was a checking phase to make sure the *"themes provide a rich, coherent and meaningful picture of dominant patterns in the data that addresses our research question"* (Braun & Clarke, 2013, p.249). I adopted both an illustrative and an analytical approach to writing about the data, to tell a story about both the content and the meaning, using data extracts to highlight examples. The illustrative approach treats extracts as *illustrative examples* or *indicators* (Section 5.4.1, p.56) as discussed by Braun and Clark as *"a more descriptive and often essentialist form of analysis, which aims to closely tell the story of the data, [and which] tends to use extracts more illustratively"* (2013, p.252). The analytic approach provided analysis of the content of the extract itself, offering a *"more conceptual and interpretive, and often constructionist, form of analysis, typically focussing on more latent meanings, that frequently provides a more detailed analysis of particular extracts"* (Braun & Clarke, 2013, p.252). Both a descriptive and interpretivist analysis was key in tackling my Research Questions (Section 1.6, p.7).

Step 6 was linked to the discussion and conclusions (Chapters 9-11) and to Roller and Lavrakas' (2015, p.10) Total Quality Framework, to entrench credibility, trustworthiness, analysability, and usefulness (Chapter 7).

6.3.2.1 Justification

The strengths and limitations of the Braun and Clarke (2013) six-step thematic analysis method are summarised in Table 6-2.

Strengths	Limitations
Qualitative data analysis is easy to learn with the clear six-step method.	It has limited interpretive power if not used within an existing theoretical framework.
Relatively accessible with clear guidance.	Too many extracts can lead to little or no analytical commentary.
It can be research-driven (top-down) – a researcher uses it ‘in the best way to fit within their own research paradigm.’	Poor fit between data and analytical claims.
It is pattern-based - where each theme has a <i>central organising concept</i> that can lead to descriptive and interpretive analysis, based on Research Questions.	Risk of being too descriptive and lacking interpretive analysis.
It can be used to answer almost any type of RQ.	Too many Research Questions can lead to too many themes (thin and scrappy) or too few (unwieldy and overly-complex).
Flexibility – Themes can be identified bottom-up (data-driven) or top-down (research-driven).	Risk of themes overlapping, and the analysis is repetitive as a result.
Systematic, analytical, process-enabling repeatable, transparent approach.	Risks surface skim of the data.
Analytical commentary can provide novel insights into the meaning of the data.	A poor balance between commentary and extracts.
The data are in the wider social context.	Risks a social vacuum.
Can capture stories in the data.	Avoids complexity and contradiction.
Can form a visual map to show relationships between themes.	Themes can be poorly defined and miss key links/relationships.

Table 6-2 Strengths and Limitations of 6-Step Thematic Analysis. Source: Adapted from Braun and Clarke (2013, Table 8.2 p.180 & Table 11.2, p.270)

6.3.2.2 Mitigations

My coding is both semantic (data-derived) and conceptual (researcher-derived), where a 'code' has been defined as: *"a word or brief phrase that captures the essence of why you think a particular bit of data may be useful"* (Braun & Clarke, 2013, p.207). The *"codes identify and provide a label for a feature of the data that is potentially relevant for answering [my] research question"* (Braun & Clarke, 2013, p.207). I therefore coded the data based on *relevance and fit* to the Research Questions (Section 6.2.1, p.70). The 'chunks' of codes were between one line and twenty (to ensure contextualisation), and unrelated items were not coded at all. Ultimately, of course, the data was gathered to contribute towards answering the Research Questions because, as Braun and Clark stated, *"Analysis needs to be driven by the question 'so what?' - what is relevant or useful here to answering my question?"* (2013, p.254).

6.3.3 Justification of Data Synthesis Methodology

The Data Synthesis Phase of the MQSLR facilitated the answering of the Research Questions for a few reasons:

- First, Data Synthesis was both structured and in line with the MQSLR Methodology (Figure 6-1, p.69), to offer a holistic approach to reviewing data (Section 4.3, p.44). It was particularly useful for the Third Mission context, because the phenomenon was not completely clear in practice or theory.
- Second, I wished to interpret data extracts from a wide range of research and articles on Third Mission activity in UK university Business Schools, since: *"within management research, few studies address the same research question and measure the phenomenon in the same way"* (Tranfield et al., 2003, p.217).
- Third, I wanted to identify characteristics of Third Mission activity and generate themes with a view to building a practical framework which would offer support to a university Business School in creating the appropriate conditions in which to achieve the Third Mission. During the data synthesis

phase, I would define new meanings (within the dataset) for the Third Mission and Third Mission activity, so as to answer RQ5.

- Fourth, the use of meta-synthesis as a method for the MQSLR Data Synthesis Phase is justified in Section 6.3.1 (p.74). However, (Sandelowski et al., 1997, p.367) warned that: *“many of the techniques of meta-synthesis remain ‘either relatively untried and undeveloped, and/or difficult to codify and understand’”*, and with this in mind, I embedded Braun and Clarke’s (2013) Thematic Analysis Six-Step method into my methodology (Section 6.3.2, p.74). This mitigated my research design by providing structure, rigour and transparency for coding and analysing data, and was compatible with the MQSLR methodology (Chapter 5).
- Fifth, I took an integrated, iterative (Section 5.4.1, p.56), and repeatable view of synthesis and analysis, something which is frowned upon in quantitative research, where: *“analysis generally only begins once all data have been collected. In qualitative research, it isn’t essential to have all your data collected to start your analysis”* (Braun & Clarke, 2013, p.204). Table 6-3 illustrates the integration and alignment of the data synthesis phase within the whole research design.

RQ (Section 1.6, p.7)	Research Objective (Section 1.6, p.7)	Research Paradigm (Ch 3, p.28)	Research Strategy (Ch 4. p.39)	Research Methodology	
				Data Gathering (Ch 5, p.52)	Data Synthesis (Ch 6, p.65)
RQ1	RO1	Constructivism	Qualitative	Modified Qualitative Systematic Literature Review	Meta Synthesis & Thematic Analysis
RQ2	RO2				
RQ3	RO3				
RQ4	RO4				
RQ5	RO5				

Table 6-3 Integration and Alignment of Data-gathering, Analysis and Synthesis to Research Questions

This clarifies the boundaries of the methodology and methods of this study (Section 1.7, p.7).

6.4 NVIVO

One particular risk of the MQSLR methodology was the potential for a staggering volume of data to synthesise. Ridley (2012, p.63) expressed this as follows: *'at first, it is not unusual to feel overwhelmed by the quantity and variety of literature available'*. The use of computer-aided qualitative data analysis software (CAQDAS) reduced this feeling of inundation in the mechanics of analysis and synthesis. CAQDAS has been defined as *"computer programmes that can facilitate qualitative content analysis, particularly when dealing with a large volume of complex data"* (Roller & Lavrakas, 2015, p.351). NVIVO was selected to support the data synthesis, as it is a useful tool for the gathering, coding and analysis of qualitative data. NVIVO facilitated management of both data and ideas, and was used to query, visualise, and report on the data (Jackson & Bazely, 2019, p.9).

The benefits of using NVIVO to support the MQSLR methodology enabled me to explore the phenomenon of the Third Mission. I could build findings and noticings and become increasingly interpretive while I moved iteratively (Section 5.4.1, p.56), through the research process. There were many other benefits detailed in Table 6-4:

NVIVO Benefits	
1	First, NVIVO aided data synthesis by allowing electronic collation and management of documents that were “ <i>already in the public sphere</i> ” (Jackson & Bazely, 2019, p.7), including PDFs and Microsoft Word.
2	Second, NVIVO accelerated the searching and coding of text.
3	Third, NVIVO assisted the building of linkages between literature and notes.
4	Fourth, NVIVO formalised <i>annotation</i> of data to support the reading and interpreting of text.
5	Fifth, it facilitated the creation of memos to capture reflections and <i>noticings</i> , where ‘memos’ are: “ <i>notes written during the research process that reflect the process or that help shape the development of codes and themes</i> ” (Roller & Lavrakas, 2015, p.248).
6	Sixth, the software provided organisational systems and automation facilities that aided the qualitative analysis.
7	Seventh, the software was easily available and for me easy to learn as it “ <i>mimic[ked] manual strategies for handling qualitative data</i> ” (Jackson & Bazely, 2019, p.8).

Table 6-4 Benefits of NVIVO

Ultimately, NVIVO was suitable for the *MQSLR methodology* (Figure 6-1, p.69), because it is a software that organises unstructured data to structured information. Ridley wrote that: “*an important way to cope with the large quantity of reading is to adopt efficient approaches and techniques, first in the selection of the most relevant material to read and, second, when actually reading this text in detail*” (Ridley, 2012, p.63).

Whilst NVIVO assisted with the automation of obtaining and processing data, the actual analysis and synthesis and interpretation of said data was completed by myself.

To get the most out of the NVIVO tool, I attended a week of NVIVO training in 2017 as part of the DBA. In fact, the trainer became part of my Network of Interest (Section 5.5, p.64) to help inform my data synthesis methodology. Overall, NVIVO

enabled quicker searching, management, comment, interpretation, and review of material making the MQSLR viable within the timescales of the study.

6.5 Reflections – Data Synthesis Methodology

- The Modified Qualitative Systematic Literature Review *Data Synthesis Phase* used a mix of analysis (to break apart) and synthesis (to build a new interpretation) of data, based on requirements of the Research Questions.
- The Thematic Analysis six-step framework (Braun & Clarke, 2013) provided clear process to the *analyse* the data.
- Meta-synthesis provided an interpretive approach to *synthesise* the data.
- The systematic process was transparent.
- The flexibility of the process enabled inductive exploration of the data.
- NVIVO accelerated the speed of data processing.

In chapter 6, the research methods for data gathering, analysis and synthesis were detailed. Using the Modified Qualitative Systematic Literature Review framework, the process to identify and select studies (based on defined inclusion and exclusion criteria) was confirmed. The fit between the Modified Qualitative Systematic Literature Review methodology and Research Questions was confirmed. As required with Systematic Literature Review (Tranfield, Denyer and Smart, 2003), the quality assessment and data extraction methods were explained to enable replication of the process.

6.6 Next Steps

As required in the Modified Qualitative Systematic Literature Review, the next chapter articulates the approach to boost credibility, analysability, transferability, and usefulness as indicators of quality in this qualitative research.

CHAPTER 7 - TOTAL QUALITY FRAMEWORK

7.1 Introduction

Given my constructivist philosophy (Chapter 3) and Research Questions (RQs) (Section 1.6, p.7), I have shaped the research design into a qualitative research strategy with an inductive approach and using MQSLR methodology (Chapters 3-6). To ensure the research design is 'fit for purpose,' this chapter aims to boost the confidence of the reader in the 'quality' of the research process. This exploration leads to the justification of the use of the Total Quality Framework (Roller & Lavrakas, 2015), which provides *indicators* (Section 5.41, p.55) of quality through tactics for: credibility, analysability, transferability, and usefulness (2015, p.10).

7.2 Quality

Roller and Lavrakas (2015, p.15) state that "*there remains a lack of agreement among qualitative researchers about how quality should be defined and how it should be evaluated*". It has been accepted that qualitative and quantitative approaches are -from an ontological, epistemological positioning at least- quite different. Therefore, it is understandable that they would have alternative approaches for establishing 'quality.'

7.2.1 Confidence

With qualitative studies, the aim is often to "*help the consumers of a given research study to form a sense of 'confidence' from not at all confident to extremely confident about the study's validity and usefulness*" (Roller & Lavrakas, 2015, p.16). There has been a variety of academic discussions in relation to research quality in qualitative studies. Table 7-1 shows five different approaches of establishing and assessing quality in qualitative research, to boost confidence in the quality of the research. This table is not exhaustive, it is only indicative of perspectives.

Le Compte and Goetz (1982)	Lincoln and Guba (1985)	Yardley (2000)	Morse et al. (2002)	Roller and Lavrakas (2015, p.10)
Reliability – internal and external	Trustworthiness <ul style="list-style-type: none"> • Credibility • Transferability • Dependability • Confirmability 	Sensitivity to context	Reliability through verification	Credibility
Validity – internal and external	Authenticity	Commitment and Rigour	Validity through verification	Analysability
		Transparency and coherence		Transparency
		Impact and importance		Usefulness

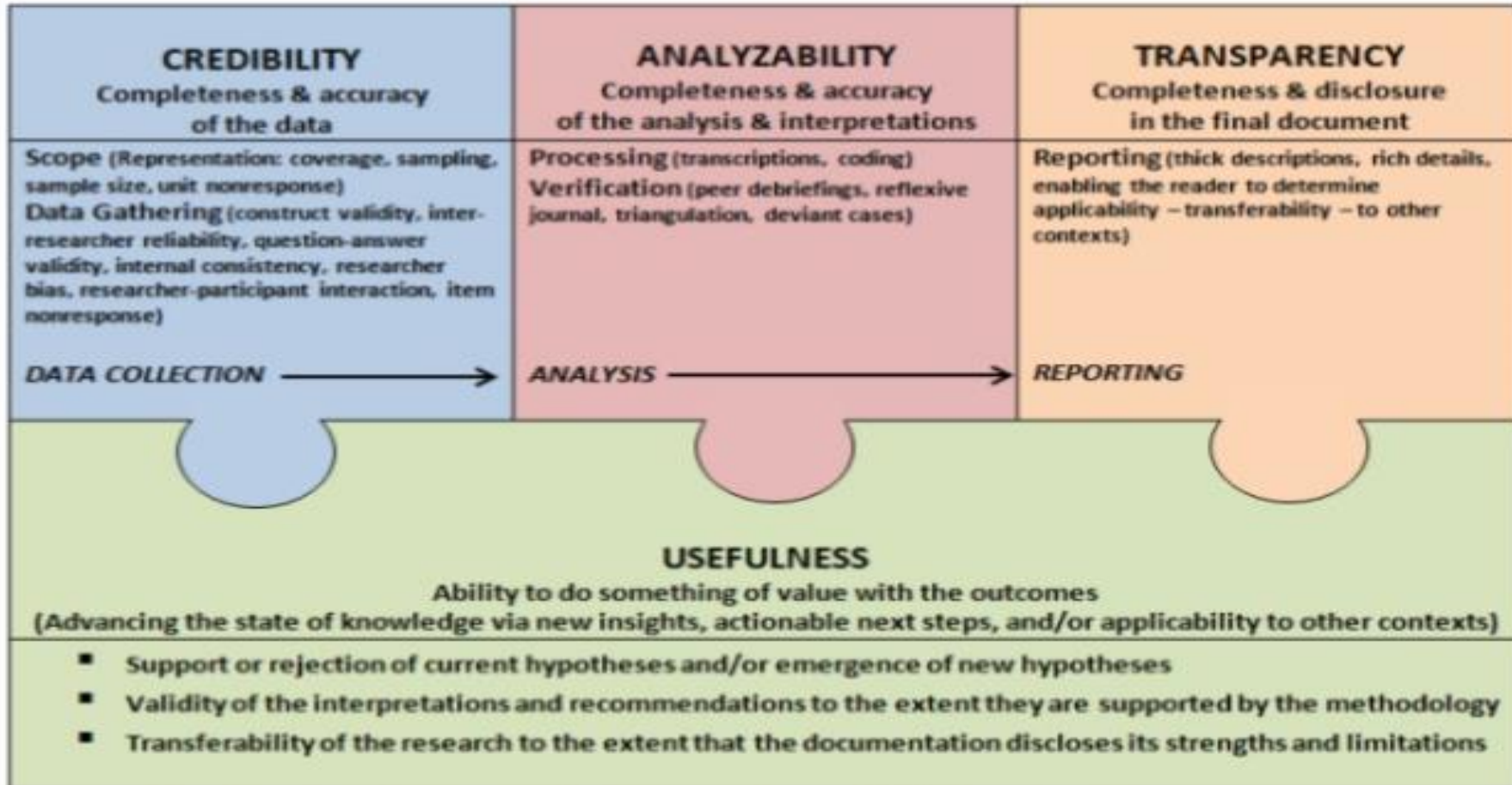
Table 7-1 Quality Assurance Approaches. Source: Adapted from (Bryman & Bell, 2015; Roller & Lavrakas, 2015)

Taking the considerations above into account, the quality assurance approaches adopted in this study needed both to use language associated with a qualitative approach and to consider applicability, value, and usefulness to advance the state of knowledge.

7.2.2 Total Quality Framework

With reference to *confidence* (Section 7.2.1, p.86), I looked for a quality approach embedded the Roller and Lavrakas (2015) Total Quality Framework (TQF) into my research design (Figure 7-1, p.88). This helped me take a holistic approach (Section 4.3, p.44) to considering four interconnected components: credibility, analysability, transparency, and usefulness, throughout all stages of my research design.

The Total Quality Framework



From: *Applied Qualitative Research Design: A Total Quality Framework Approach* (Roller & Lavrakas, 2015)

Figure 7-1 Total Quality Framework Schematic. Source: (Roller & Lavrakas, 2015, p.23)

Firstly *Credibility* (Section 7.3, p.88), focussed on the completeness and accuracy of the data as well as scope and gathering of data. Secondly, *Analysability* (Section 7.4, p.94), concentrated on the completeness and accuracy of the analysis and interpretations with a focus on processes and verification. Thirdly, *Transparency* (Section 7.5, p.96), regarded completeness and disclosure in reporting, with reference to applicability and transferability. Finally, *Usefulness* (Section 7.6, p.97), joined these components together to translate the research into something that had 'value' for advancing the state of knowledge of the Third Mission, by providing actionable insights for the next steps. Overall, then, the Total Quality Framework helps users of research "*form a sense of confidence...about the validity and usefulness of the study's findings*" (Roller & Lavrakas, 2015, p.16). The Total Quality Framework assisted me to think critically about risks and issues that could undermine the perceived value of my research by helping me consider *completeness* and *accuracy*.

Completeness is defined in the Oxford English Dictionary as: '*the fact of including all the parts, etc. that are necessary; the fact of being whole*' (OED, 2022). From a constructivist perspective, like 'truth', 'completeness' is subjective, therefore we look at '*indicators*' (Section 5.4.1, p.56) in order to judge completeness. Roller and Lavrakas (2015) wrote that research studies using Total Quality Framework "*are more likely to (a) gather high-quality data, (b) lead to more robust and valid interpretations of the data, and (c) ultimately generate highly useful outcomes*" (2015, p.47). To work towards *completeness*, I started with immersion in the data to gain '*intimate familiarity with the dataset*' (Braun & Clarke, 2013, p.205). I then adopted the data synthesis approach (Chapter 6), where the analysis and synthesis of qualitative data was a "*multi-layered and involved process that continually builds upon itself until meaningful and verifiable interpretation is achieved*" (Roller & Lavrakas, 2015, p.7). Thus, my research design worked towards 'completeness' to enable a more 'verifiable interpretation'. Likewise, I adopted tactics throughout each phase of the MQSLR for credibility, analysability, transferability, and usefulness (Sections 7.3-7.6). Examples of 'completeness' in the data- gathering phase were 'saturation' or 'adequacy' of indicators (Section 7.3, p.88), while in the analysis phase, 'completeness' was about 'triangulation' of indicators (Section 7.4, p.94).

Having multiple ‘completeness’ strategies for each phase was key to increasing ‘the likelihood’ of a quality study.

Accuracy is defined in the Oxford English Dictionary as: “*the state of being exact or correct; the ability to do something with skill and without mistakes.*” (OED, 2022). For this study I aimed for ‘methodological accuracy’, however interpretation is an art as well as a science and is therefore subjective. The Total Quality Framework therefore aided methodological accuracy through the deployment of credibility, analysability, transparency, and usefulness tactics (Section 7.3 – 7.6).

7.3 Credibility Tactics

Selected *credibility* tactics (Table 7-2) were incorporated to increase the likelihood of ‘completeness’ and ‘accuracy’ of the research (Section 7.2, p.86). These techniques were adopted during scoping and data-gathering (when conducting the MQSLR phases) to boost perceived quality.

Credibility Tactics	Considerations from other researchers	How the credibility tactics are integrated to increase the likelihood of completeness and accuracy of data.
1. Scope – Sample must be appropriate		
Eligibility	“ <i>The researcher could mention the list that will be used to select a sample</i> ” (Roller & Lavrakas, 2015, p.342)	Scoping search (Chapter 2) informed keywords for MQSLR while the Research Questions (Section 1.6, p.7) informed scope of eligibility criteria (Chapter 8.2.2, p.102). CEMO and SOGI have clarified the scope for secondary data collection (Section 2.7.1, p.28). This aided the creation of a Data Eligibility Form (Appendix C) to build a corpus of data (Appendix B).
Scoping Search	Scoping is “ <i>concerned with how well a qualitative research study ends up representing the population of humans and/or the documents the study is</i>	The scoping search (Appendix A) acted as a pilot of a ‘systematic search’ and informed the design of the Data Eligibility Form (Appendix

	<i>investigating</i> " (Roller & Lavrakas, 2015, p.362)	C), the key words and the MQSLR scope.
Appropriateness	<i>"Good qualitative work aims for sample appropriateness and adequacy rather than a specific sample size"</i> (Lee, Langthorn and Huang, 2019)	<ul style="list-style-type: none"> • Secondary analysis of extracted 'text' selected via eligibility criteria as part of the MQSLR. • MQSLR used purposive sampling (Section 7.3.1, p.93) and snowballing (Section 7.3.2. p.94). • Published and peer-reviewed literature.
Adequacy of Unit of Analysis		A phrase or paragraph -rather than single words- has been a rough unit of analysis. However, 'adequacy' has been informed by the characteristics of the data that emerged.
Applying Construct Validity	Warning from Robson: <i>"Construct and face validity of research is a goal of quantitative research as well as measuring of validity and reliability [which] are historically from quantitative research [and so] cannot be applied to qualitative research and there are ongoing discussions of what terminology is appropriate to evaluate qualitative research."</i> (Robson, 2011, p.87)	The terminology used in this study is informed by the Roller and Lavrakas Total Quality Framework (2015) and is aligned to a constructivist philosophy, an inductive approach (Chapter 3), and a qualitative research strategy (Chapter 4).
Audit Trail	<i>"Researchers using flexible designs do need to seriously concern themselves with reliability of their methods and research practices"</i> (Robson, 2011, p.159)	Adopting MQSLR as a structured methodology (Chapters 5 and 6) to qualitative study enables an audit trail of decisions made.

2. Data gathering		
Data collection Instrument -	<ul style="list-style-type: none"> • Researcher as an instrument in qualitative studies – <i>“the researcher is at the centre of data-gathering and is ultimately the ‘instrument’ by which information is collected”</i> (Roller & Lavrakas, 2015, p.5) 	Recognition of bias in data collection. I used saliency/ relevance (Section 6.2, p.70), purposive sampling (Section 7.3.1, p.93) and snowballing (Section 8.5, p.114) as tools of ‘selection’ during sampling along with a Data Eligibility Form (Appendix C) and Network of Interest (Section 5.5, p.64).
	<ul style="list-style-type: none"> • <i>“Subjectivity refers to the idea[s] that what we see and understand reflects our identities and experiences”</i> (Braun & Clarke, 2013, p.21) • <i>“Qualitative research does not treat this subjectiveness as bias to be eliminated from research, but tends to involve contextualised analysis, which takes this into account”</i> (Braun & Clarke, 2013, p.21) 	Contextualised data-gathering via screening of titles and abstracts in relation to data eligibility criteria was conducted (Chapter 8). Section 7.7 (p.100) discusses ethical considerations.
Internal generalisability	Refers to generation of conclusions within the setting studied and excludes external generalisability i.e., generalisations beyond the scope of that setting.	Internal generalisability adopted (within context of the data extracts, selected as a result of eligibility criteria (Chapter 8).
Method coherence	<ul style="list-style-type: none"> • Alignment between Research Questions and research design. • <i>“For qualitative research both the topic and the RQ need to fit with the framework you are using”</i> (Braun & Clarke, 2013, p.44) 	The Research Design Fig. demonstrates alignment between Research Questions/objectives, philosophy, approach, methodology, methods and data collection, and analysis. Each is interrelated.

Collecting and analysing data concurrently	<ul style="list-style-type: none"> • Iterations “<i>incorporating what you learn at one point in the research into the remainder of the research, instead of following rigid linear steps. It is key to generating richer and more useful qualitative data</i>” (Lee et al.,2019). • “<i>We strongly advocate for moving away from a strictly linear approach when bringing qualitative work into your projects, to enable valuable iteration</i>” (Lee et al., 2019) 	<ul style="list-style-type: none"> • Data collection and analysis has been an iterative process (Section 5.4.1, p.56). The data that emerged informed further purposive sampling (Section 7.3.1, p.93) via snowballing of the reference list. This avoided data gathering as a linear process where all data is collected before analysis begins. • Qualitative data is unpredictable, especially secondary data (that was produced for another research purpose).
Secondary Sources	“ <i>With secondary sources it is important to collate data items systematically as you collect them and give each data item an ID Code</i> ” (Braun & Clarke, 2013, p.155)	I used a Data Extraction Form with unique identifiers (Appendix D).

Table 7-2 Credibility Tactics Adopted During Scoping and Data Gathering

In the data-gathering phase, *completeness* could have been achieved via ‘saturation’, defined in this study as ‘*hearing the same thing over and over again*’. Various researchers suggest saturation is difficult to recognise, and therefore, to mitigate. This research aimed for *adequacy* which relates to the overall “*degree of richness and/or scope of the data*” as described by (Booth et al., 2016, p.248) but unlike their definition does not relate to “*the ‘quantity’ of data supporting ‘a’ review finding*”. Therefore, to attain adequacy, I used a combination of *purposive* sampling (Section 7.3.1, p.93) via MQSLR and *snowball* sampling (Section 7.3.2, p.94), to build the corpus of data to the point where nothing new was being gained.

7.3.1 Purposive sampling

Purposive sampling in the ‘Identification of Research’ phase of the MQSLR (Section 8.2, p.103) involved non-random selection, based on the characteristics that were

deemed relevant for the Research Questions of this study (Section 1.6, p.7). The eligibility criteria are detailed in Chapter 8 (p.97).

7.3.2 Snowballing

Snowballing, via the reference lists in the selected documents, enabled me to seek out another associated research. This sampling required the MQSLR methods to be followed, and, from identified articles, I could identify additional articles to add to the corpus of data. This was useful to build a corpus of data, given the limited existing Systematic Literature Reviews of the Third Mission (Chapter 2).

7.4 Analysability Tactics

Selected *analysability* tactics, via ‘processing’ and ‘verification’ of data (Table 7-3), were integrated within this research, in order to increase the likelihood of completeness and accuracy of the ‘synthesis, analysis and interpretation’. These tactics were adopted in the Data Synthesis stage of the MQSLR, to improve perceived quality.

Analysability tactics	Considerations from other researchers	How the analysability tactics are integrated to increase the likelihood of completeness and accuracy of the analysis and interpretation.
1. Processing		
Data Synthesis	<p><i>“The researcher should discuss the process that will be taken to identify categories and themes”</i> (Roller & Lavrakas, 2015, p.241)</p>	<ul style="list-style-type: none"> • The Data Synthesis methodology has a dedicated chapter (Chapter 6) to detail the process for identifying characteristics and generating themes in relation to the Research Questions. • Thematic Analysis process used Braun and Clarke six-step thematic analysis process (Section 6.3.2, p.74). • Meta Synthesis was used to re-interpret meaning across many qualitative studies.
2. Verification (<i>mechanisms utilised to incrementally contribute to ensuring reliability and validity and thus the rigor of the study</i>)		

Triangulation/ Crystallisation	<ul style="list-style-type: none"> • “<i>Triangulation involves using more than one method or source of data in the study of a social phenomenon</i>” (Bryman & Bell, 2015, p.402) • “<i>With crystallization there is an invitation for the researcher to immerse themselves through exploration of competing ideas, perceptions and assumptions</i>” (Stewart et al., 2017, p.9) 	<ul style="list-style-type: none"> • Triangulation is a way of developing ideas where “<i>more than one method would be employed in the development of measures, resulting in greater confidence in findings</i>” (Bryman & Bell, 2015, p.402) • Crystallisation offers an “<i>interwoven research process with emphasis on investigation, discovery, reflection, interpretation and representation</i>”. (Stewart, Gapp & Harwood, 2017, p.9). • Both refer to evidence/indicator-informed analysis (Section 3.7, p.37). I adopted both a thematic analysis (Section 6.3.2, p.74) and a meta-synthesis (6.3.1, p.69) approach.
Analytical Sensibility	“ <i>Need to have a double consciousness and analytical eye where you focus on content and possible analysis ideas within it</i> ” (Braun & Clarke, 2013, p.9&10)	I have aimed to become a ‘cultural commentator’ and develop the ability to reflect on and step outside my cultural membership, so that I can question assumptions and values.
Thinking Theoretically	Emerging concepts and themes contribute towards new concepts and themes.	Data-driven and research-driven (Section 6.3.2, p.74)
Reflexive Notes	<ul style="list-style-type: none"> • Reflexivity relates to the “<i>presence’ of the researcher in the accounts they present</i>”. • (Creswell & Poth, 2018, p.43) 	The Conclusion (Chapter 11) includes reflexive notes where I share my experience and how these shaped my interpretation.
Critical Thinking	“ <i>Flexible way to focus on quality issues, examine sources of variability and possible bias in their qualitative methods</i> ” (Roller & Lavrakas, 2015, p.9)	Applied the Total Quality Framework, because it “ <i>provides the basis by which researchers can develop their critical thinking skills necessary for the execution of high calibre qualitative research designs</i> ” (Roller & Lavrakas, 2015, p.9)

Table 7-3 Analysability Tactics (via Processing and Verification)

7.5 Transparency Tactics

Selected *transparency* tactics were considered (Table 7-4) to increase the potential for ‘*completeness*’ and ‘*disclosure*’ in the Discussion and Conclusion stage of the MQSLR, to boost perceived quality. Disclosure was defined in this study as: “*the act of making something known or public that was previously secret or private.*” (OED, 2022).

Transparency tactics	Considerations from other researchers	How the transparency tactic is integrated to increase the likelihood of completeness and disclosure in the final document.
1. Reporting		
Use rich and thick description	<p>“<i>Many qualitative studies are descriptive and exploratory: they build rich descriptions of complex circumstances that are unexplored in the literature</i>” (Marshall & Rossman, 2021, p.68)</p>	<ul style="list-style-type: none"> • Data extracts from the data set in Chapters 8 and 9 highlighted the CEMO of the Third Mission and provided a rich and thick description. • Primarily an exploratory study (Section 4.2, p.43).
Clarify Bias/ personal positioning	<ul style="list-style-type: none"> • “<i>How we write is a reflection of our own interpretation based on cultural, social, gender, class, and personal politics that we bring to research. All writing is “positioned” and within this stance.</i>” • (Creswell & Poth, 2018, p.228) 	Personal positioning as a constructivist researcher is stated in Section 1.7 (p.9) and in Chapter 3 (p.28).
Enable reader to determine A/applicability to own context	Applicability is “ <i>the application of results from individual studies or from a review of studies of a study population to individual people, cases or settings in a target population</i> ” (Booth et al., 2016, p.301)	A new theoretical and practical framework is disclosed (Chapter 10).
Enable reader to determine the	Transferability is “ <i>the extent to which a review</i>	<ul style="list-style-type: none"> • Chapter 10 showed how the framework can be tailored for use

transferability of the report to other contexts	<i>invites its readers to make meaningful connections between elements of the review and their own experiences</i> " (Booth et al., 2016, p.317)	in heterogenous contexts. As a DBA, this study has 'real-world' transferability with a framework that can be tailored. <ul style="list-style-type: none"> The methodology and methods are transferable, which enables similar studies to use the approach for their own studies.
Report Findings and Recommendations	The author should " <i>explain the various ways in which the research is likely to be disseminated</i> " (Roller & Lavrakas, 2015, p.341)	The Conclusion (Chapter 11) presents a contribution to theory and practice, limitations, and implications for future study.

Table 7-4 Transparency Tactics for Discussion and Conclusion

7.6 Usefulness Tactics

I singled out certain *usefulness* tactics (Table 7-5) for use in this research, to expand the potential range of possibilities of 'doing something of value' with the outcomes. These tactics were adopted in the discussion and conclusion phases, to improve peoples' perception of quality. Ultimately, the goal of this was to determine: "*the extent to which the data collection methods, the findings, interpretations, and recommendations of a qualitative research study provide value not only to the researchers and theory sponsors but also to users of the research*" (Roller & Lavrakas, 2015, p.45).

Usefulness tactics	Considerations from other researchers	How Usefulness tactics are used to increase the likelihood of doing something of value with the outcomes.
1. Advance State of Knowledge via new insights		
Re-interpret current knowledge to create new contextualised meaning	<ul style="list-style-type: none"> "<i>Interested in meaning not numbers</i>" and "<i>record[s] the messiness of real life, puts an organisational framework around it and interprets it in some way</i>" (Braun & Clarke, 2013, p.20) "<i>Knowledge is always perspectival and</i> 	This study gathered disparate concepts in a new way, to create an original understanding of the Third Mission (within the limits of the dataset) to provide novel insight to others.

	<i>therefore a singular, absolute truth is impossible</i> " (Braun & Clarke, 2013, p.30)	
Secondary sources	The secondary sources " <i>are valuable because we access people's experiences and perspectives without shaping their responses through our data collection questions and methods</i> " (Braun & Clarke, 2013, p.153)	Provides new insight of existing published and peer-reviewed literature, via MQSLR methodology.
2. Emergence of new hypotheses		
New Research Questions.	<ul style="list-style-type: none"> • "<i>Qualitative data are seen to be produced in particular contexts, by participants who come from, and are located within, specific contexts</i>" (Braun & Clarke, 2013, p.21) 	New and emerging issues worthy of further investigation and explanation were brought to the surface (Chapter 11).
Meaning not numbers	<ul style="list-style-type: none"> • "<i>It is generally agreed that there is more than one way of making meaning from the data that we analyse, which means there isn't a single 'right' answer</i>" (Braun & Clarke, 2013, p.20) • "<i>Qualitative research does not assume the 'same' accounts will always be generated, every time, by any researcher</i>" (Braun & Clarke, 2013, p.20) 	<ul style="list-style-type: none"> • Focussed on a re-interpretation of words rather than numbers.
3. Validity of interpretation and recommendations		
Extent to which interpretation of outcomes is supported by the methodology	<ul style="list-style-type: none"> • "<i>It's generally agreed upon that there is more than one way of making meaning from the data that we analyse, which means there isn't a simple 'right' answer</i>". • (Braun & Clarke, 2013, p.20) 	<ul style="list-style-type: none"> • Any reader will make their own "<i>interpretation of the account and may form an entirely different interpretation than the author or participants</i>" (Cresswell and Poth, 2018, p228). • Other researchers or practitioners can use outcomes to challenge or

	<ul style="list-style-type: none"> • <i>“Reality, meaning and expression for people often tend to be messy and contradictory; qualitative research can ‘embrace this messiness’”</i> (Shaw et al., 2008, p.158) 	support the findings in relation to their own context.
4. Transferability - Discloses strengths’ extent and limitations		
Extent to which the documentation discloses its strengths and limitations		Strengths and limitations of methodology and interpretation are presented throughout the chapters and concluded in Chapter 11.
Application of outcomes in other contexts	<p>Applicability can be:</p> <ul style="list-style-type: none"> • <i>“open-ended, exploratory, organic and flexible”</i> • <i>“Scope of knowledge and understanding open[s] up considerably in comparison to quantitative [approach]”</i> (Braun & Clarke, 2013, p.24) 	<ul style="list-style-type: none"> • Identifies new knowledge, extended knowledge, and knowledge gaps for future research. • Offers recommendations for action that are worthy of further investigation. • Affirms that the study demonstrates the value of using a refined MQSLR methodology and showcases methods for gathering and analysing qualitative data.
Actionable next steps	<p>Recommendations:</p> <p><i>“What can and should be done with the study now it has been completed?”</i> (Roller & Lavrakas, 2015, p.45)</p>	See Conclusion (Chapter 11).

Table 7-5 Usefulness Tactics

7.7 Ethics

Braun and Clarke (2013, p.330) defined 'ethics' as: "*theory, codes, and practices concerned with ensuring we do research in a moral and non-harmful manner*". They state that secondary sources: "*sidestep some ethical concerns because you do not directly interact with participants to generate data*" (Braun & Clarke, 2013, p.155) However, ethics covers a broad spectrum, from the methods and methodologies adopted, to relationships with academic communities and the wider world in which the study is conducted. The 'process ethics', at all stages of the MQSLR, adheres to the Total Quality Framework, and aims to be credible and transparent in approach.

7.8 Reflections - Total Quality Framework

The Total Quality Framework (Roller and Lavrakas, 2015) was used to 'boost confidence' in terms of credibility, analysability, transparency, and usefulness as indicators of quality in the study. My research aimed to gather 'quality' data to be interpreted.

Applying verification tactics alone may have contributed to a boost in reader confidence in terms of process and rigour. However, given that this study has been about potential application to practice, 'transparency' and 'usefulness' have been key considerations. Thus, the Total Quality Framework has informed the quality of this study. For example:

- Research '*Credibility*' (Section 7.3, p.90), was enhanced by adopting scoping and data gathering tactics to boost the completeness and accuracy of the data whilst conducting the Modified Qualitative Systematic Literature Review.
- Research '*Analysability*' (Section 7.4, p.94), was enhanced by adopting process and verification tactics to boost the completeness and accuracy of the analysis and interpretations.
- Research '*Transparency*' (Section 7.5, p.96) was enhanced by adopting applicability and transferability tactics to boost the completeness and disclosure in reporting findings.

7.9 Next Steps

This chapter completed the planning stage of the Modified Qualitative Systematic Literature Review. The next chapter follows the repeatable steps in conducting the Modified Qualitative Systematic Literature Review, which generates Third Mission characteristics and themes to answer RQ1 and RQ2 (Section 1.7, p.9).

CHAPTER 8 - RESEARCH METHODS (CONDUCTING THE MODIFIED QUALITATIVE SYSTEMATIC LITERATURE REVIEW)

8.1 Introduction

After considerable *planning* of the Modified Qualitative Systematic Literature Review (MQSLR) in Chapters 3-7, this chapter *conducts* it. This leads to the generation of Third Mission characteristics and themes, thus answering RQ1 and RQ2 (Section 1.7, p.9). Figure 8-1 (p.102) visualises the steps taken to conduct the MQSLR to meet the MQSLR requirements of the process being repeatable (Section 5.4, p.56).

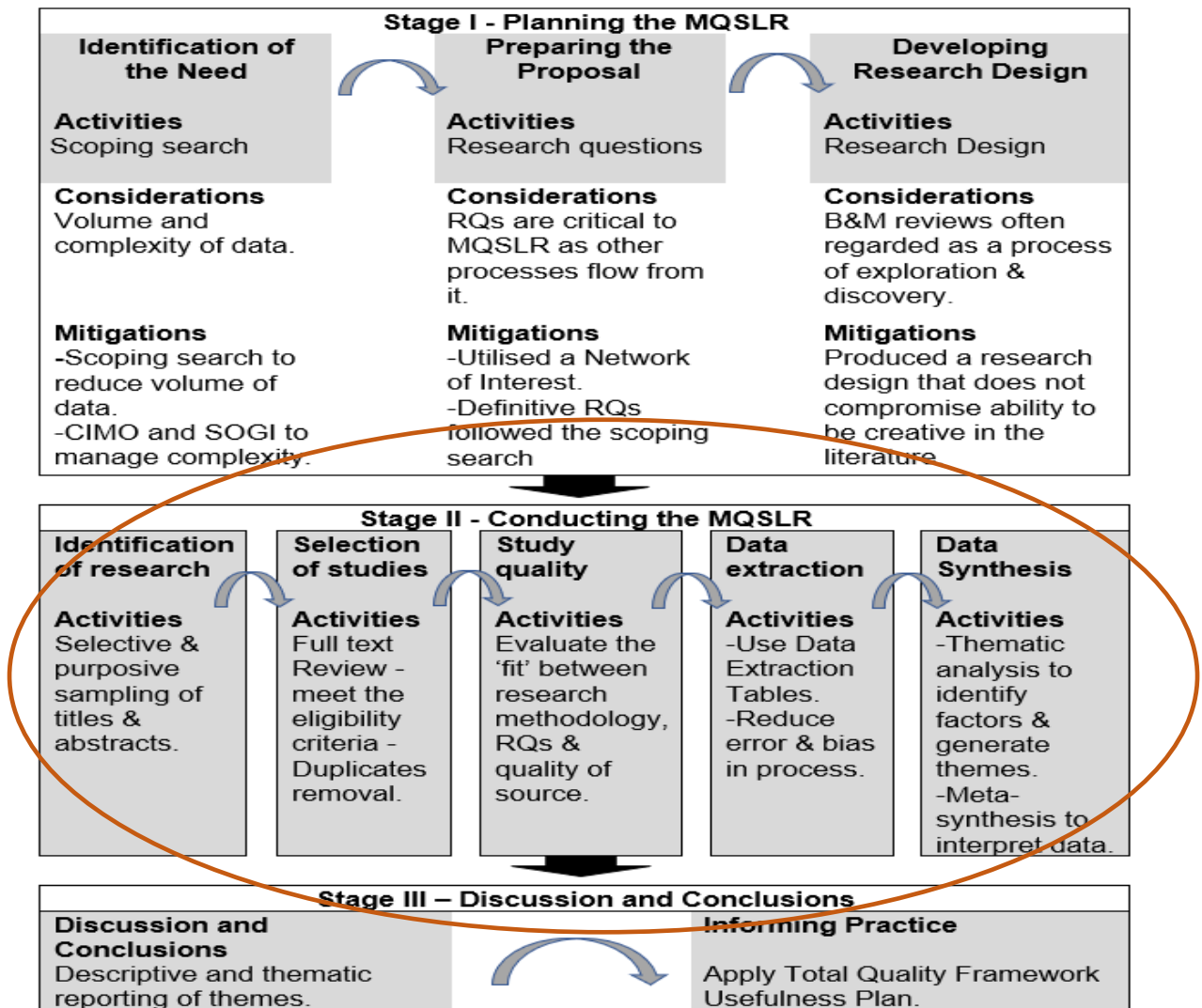


Figure 8-1 Conducting the MQSLR – Overview of Phases

8.2 Conducting the MQSLR - Identification of Research Phase

The aim of this phase was for selective and purposive sampling of titles and abstracts, based on pre-configured search strings. Figure 8-2 (p.102) illustrates how this phase fits into the MQSLR approach.

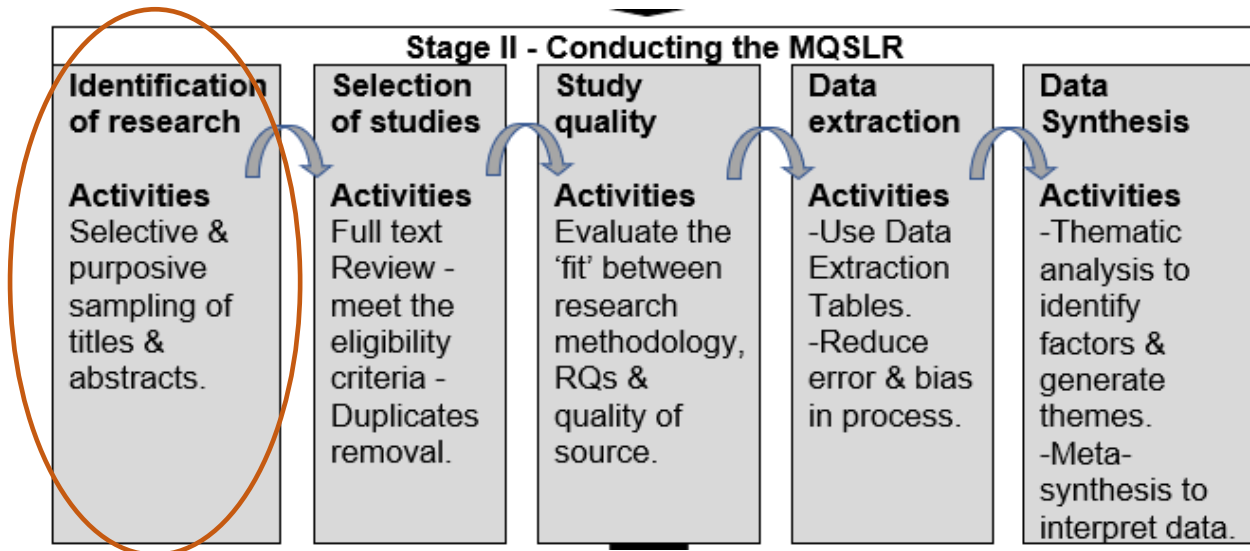


Figure 8-2 Conducting the MQSLR - Identification of Research Phase

8.2.1 Links to Scoping Search

The scoping search (Appendix A) aided planning of this phase by informing the eligibility criteria for the MQSLR. It also helped identify the key words to use in search strings and acted as a 'trial run' for a systematic searching approach of literature from which lessons to apply in this MQSLR would be learned. An example of this 'learning on-the-go' was the term 'Third Mission' resulted from the scoping search, which led to overall clarity of the Research Questions and indeed of title of this whole research. The key word 'collaboration', used in the scoping search, was too broad in scope and so was refined to the term 'Third Mission activity'.

8.2.2 Eligibility Criteria

The eligibility criteria were informed by the scoping search (Appendix A), the Provisional Conceptual Framework (Chapter 2) and discussions within the Network

of Interest (Section 5.5, p.64). I used the selective methodological criteria of 'inclusion' and 'exclusion'.

Exclusion criteria have been defined in this study as: *“the standards used to determine whether an individual paper is disqualified from inclusion in systematic review.”* (Booth et al., 2016, p.305) The exclusion criteria are certain characteristics that would mean excluding an article from the corpus of data. Inclusion criteria, on the other hand, are defined in this study as: *“the standards used to determine whether an individual study is eligible for inclusion”* (Booth et al., 2016, p.307). The inclusion criteria identified characteristics of an article that made it suitable for further analysis within the study. Table 8-1 and Table 8-2 show the inclusion and exclusion criteria which were pre-determined, following scoping search (Chapter 2).

Criteria	Reason for exclusion
Publications written in any language other than English	Language not understood by author
Study conducted before 2007	Outside timeframe for contemporary cross-Sectional study
Not peer-reviewed	Only peer-reviewed journal articles allowed in MQSLR
Studies based in non-UK countries (not UK or Great Britain or England or Wales or Scotland)	Beyond the scope of this study with regards to Context
Publications which do not refer to one or more of the following key phrases: 'Third Mission', 'university-business collaboration', 'Business School'.	Outside scope of Research Questions (Chapter 1) and the Context
Non-B&M subject area, including Science, Manufacturing, Engineering, Health, Tourism, and Creative Arts.	They do not focus on B&M, so are not aligned with Business School activity and are beyond the scope of the Context
Studies about traditional full-time university student learning/ placements/ internships or entrepreneurial programmes.	Beyond the scope of the Context. Focus is on Third Mission activity, commercialisation activity and collaboration activity directly with businesses
Employer-employee relationships	Beyond the scope of the Context. They do not highlight university collaboration
University-to-school (1-16yrs) and FE/ Colleges relationships	Beyond the scope of the Context. They do not focus on university-business collaboration.

University-technology transfer	Beyond the scope of the Context. They do not focus on Business and Management discipline and are not aligned with Business School activity.
No reference to 'collaboration' (or synonyms from key words column 3) at any SOGI level (Society, Organisation, Group or individual).	Beyond the scope of exposure to the Third Mission.
No mechanisms/characteristics for the relationship between interventions/exposure and outcomes explained.	Beyond the scope of the Research Questions - to seek the mechanisms/characteristics to achieve the Third Mission (SOGI – Chapter 2).

Table 8-1 Exclusion Criteria

Criteria	Reason for inclusion
Since 2007	Historical context: scoping search started from the date of the Robbins report (1963). This MQSLR undertakes a contemporary cross-Sectional approach over the last 15 years, i.e.. since the 2007 global financial crisis.
Draw on peer-reviewed articles.	Database searches include only peer-reviewed articles.
All industries/businesses	Study includes any businesses with which a UK University collaborates.
B&M Subject area	Study is focused on subject area of Business and Management that is normally led by a University Business School.
Barriers and constraints	To identify factors that inhibit success
Enablers and opportunities for success	To identify factors that contribute to success
Frameworks for evaluation	To identify frameworks for evaluation
Quantitative and qualitative	To capture all relevant evidence

Table 8-2 Inclusion criteria

Context-based criteria were used as an initial screen of titles and abstracts for 'Identification of Studies'. The criteria were used hierarchically, starting with 'must be written in English' and 'must be within the cross-Sectional timeframe'. Only studies that met all the inclusion criteria specified (and none of the exclusion criteria) were kept for the next stage of the MQSLR. As decisions regarding inclusion and

exclusion remained relatively subjective, the criteria used in the MQSLR, by contrast, were informed by the use of the Roller and Lavrakas (2015) 'Total Quality Framework' to mitigate my being a solo researcher (Chapter 7). Any borderline decisions were retained and recorded as a 'maybe' at this phase for discussion with the Network of Interest (Section 5.5, p.64).

8.2.3 Databases Searched

The MQSLR searches were based on bibliographic databases using peer-reviewed journals. To meet quality requirements (Section 7.2, p.86), the primary sources of data came from published studies. Discussion with the Network of Interest (Section 5.5, p.64) led to collection of supplementary grey material, which was collected using searching websites and which could be used in future research. In agreement with the Total Quality Framework (Chapter 7), the search strategy was reported in sufficient detail to enable replication of the process by another researcher in the future. The following bibliographic databases were searched between October 2021 – March 2022:

- ABI/Inform Global (Accessed through ProQuest Platform)
- ERIC (Accessed through EbscoHost Platform)
- Science Direct Journals
- Business Source Complete
- SAGE Journals
- Oxford Journals
- Emerald Group Publishing Ltd
- EBSCO – Business Source Complete
- WorldCAT.org
- JISC CORE
- Social Sciences Citation Index™ (publons.com)

Inclusion of JISC CORE, SAGE Journals and Science Direct Journals were included, following discussion with the Network of Interest (Section 5.5, p.64).

8.2.4 Search Strings Used

The eligibility criteria and the findings from the scoping search (Appendix A) advised the formulation of search strings. The keywords included the term “*Third Mission*” as the key conceptual anchor (Chapter 1), and they were all based on the relevance to the Research Questions (Section 1.6, p.7):

- “Third Mission”
- “Third Mission” and “UK”
- “Third Mission” and “Universit*”
- and “UK”
- Identification of alternative phrases for “Third Mission”, “University”, and “UK”
- Business Schools
- When database allows - Use of Boolean tool OR for alternative spellings and synonyms
- When database allows – use of Boolean tool AND to link keywords (Table 8-3)

Key Word 1	Keyword 2	Keyword 3	Keyword 4	Keyword 5	Keyword 6
Third Mission	UK	Universit*	Business School	Business	Collaboration
	United Kingdom	HEI*		Industry	Engagement
	Great Britain			Company	
	GB			Organisation	
	England			Management	
	Wales				
	Scotland				

Table 8-3 Key Words and Search Strings

During the Identification of Studies phase, there was a low return of articles when using keywords 1,2 and 3 and no returns when adding key word 4.

8.2.5 Supplementary Data

Supplementary data through web search engines like Google Scholar was not used for the MQSLR, as it did not meet the eligibility criteria. This is because crawler-based *web search engines* perform differently from *bibliographic databases*, which have a carefully chosen directory of information.

8.2.6 Data Gathering

A Microsoft Excel spreadsheet log was kept of all search strings used (Appendix C – Data Eligibility Form). Where the relevance of the title of the literature was poor, keywords 3, 4, 5 and 6 were used to provide more clarity and focus to the search. Each database search yielded different results from the same search strings.

8.2.7 Outputs - Bibliographic Database Search (peer-reviewed)

With the use of keyword search strings, 119 documents were identified. Through removal of thirty-three duplicates and extensive online screening of titles and abstracts, thirty documents were excluded (based on eligibility criteria Table 8-1). The corpus of articles was reduced further to fifty-six for the next phase of the MQSLR. For example, any references that were conducted before 2007, not written in English and did not address the research topic title and questions were discounted. Where the database search allowed, pre-2007 references and non-English references were removed at the outset of the search. The results from the different databases were merged to create a single excel Data Eligibility Form (Appendix C).

Considerations during this phase included: firstly, with regards to subjectivity, decisions regarding eligibility remained relatively subjective as I was reviewing abstracts and titles of published research. Secondly, with regards to quality, the strict criteria used in systematic review are linked to the desire to base reviews on the 'best-quality' evidence. Defining 'best' quality is difficult and so I used the Roller and Lavrakas (2015) Total Quality Framework to mitigate (Chapter 7). The Network of Interest (Section 5.5, p.64) aided decision-making on 'maybe' articles; Thirdly, with

regards to reduction, the aim was to reduce the identified 119 articles based on relevance and fit to the Research Questions. Fourthly, the aim was to avoid information overload, defined as: *“the point at which an individual has too much information and is therefore unable to process it effectively”* (Booth et al., 2016, p.308). These considerations were adopted throughout this phase to inform the selection of studies.

8.3 Conducting the MQSLR - Selection of Studies Phase

This phase involved a full text review of the remaining fifty-six studies that were selected from the abstract and title search (Section 8.2, p.103). It was a ‘sifting’ phase, where previously defined eligibility criteria were used to study *“the relevance of studies retrieved in the literature search, to identify those appropriate for inclusion in [my] systematic review”* (Booth et al., 2016, p.314). Figure 8-3 illustrates how this phase fits into the MQSLR approach.

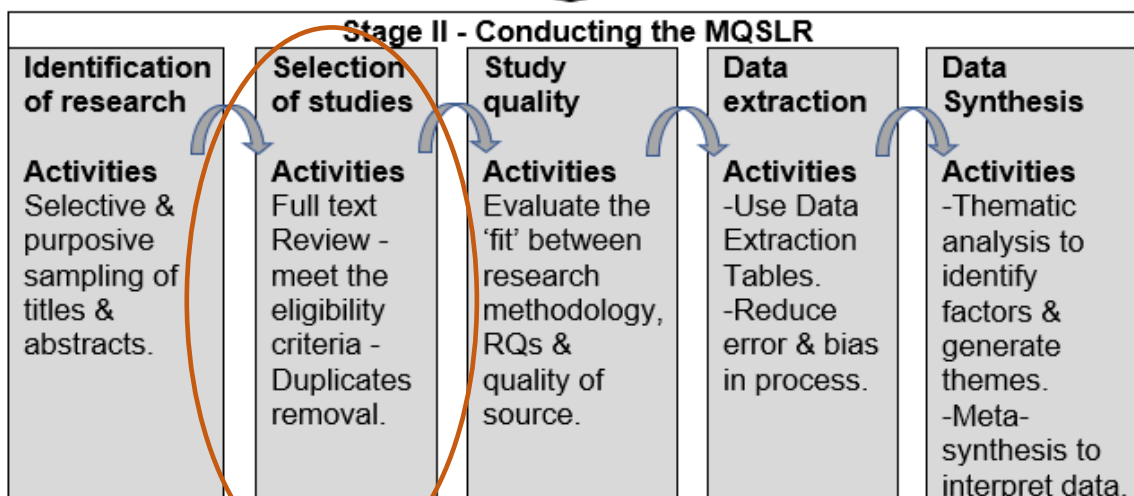


Figure 8-3 Conducting the MQSLR - Selection of Studies Phase

Purposive sampling was applied to ensure the text selected was directly relevant to the Research Questions (Section 1.6, p.7). This MQSLR did not aim to test statistical significance of a large number of studies.

8.3.1 Data Eligibility Form

Using a Data Eligibility Form (Appendix C), the number of sources either included or excluded at each stage of the review was documented with the reasons for exclusions given. Only studies that met all the inclusion criteria and none of the exclusion criteria were incorporated into the corpus of data. All duplicates were removed.

The process of selecting studies involved several stages of 'sifting' (Figure 8-4, p.111): Following this sifting process, two duplicates were removed, and twenty-seven articles were excluded.

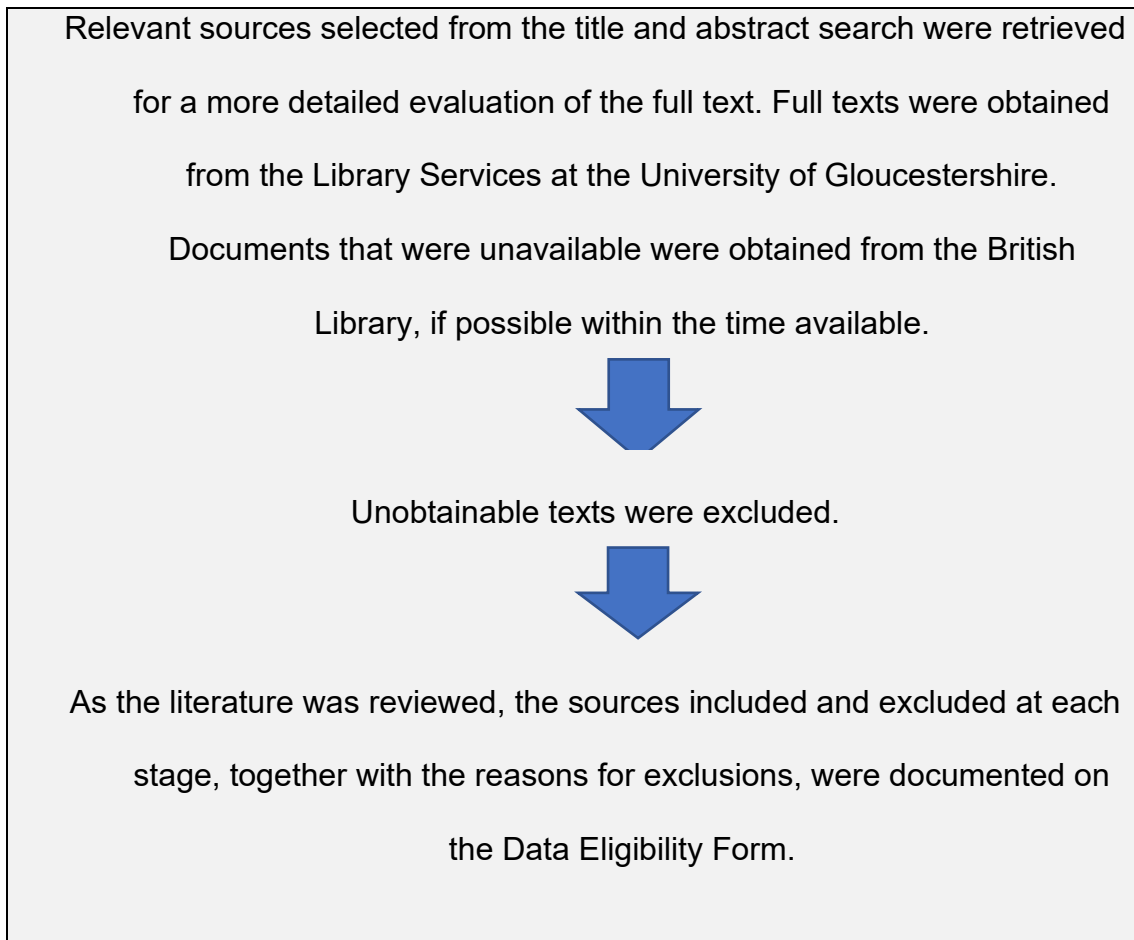


Figure 8-4 Selecting Studies - Sifting Process

8.3.2 Outputs of Selection of Studies Phase

At the end of the Study Selection Phase, a list of twenty-five articles was collated in the Data Eligibility Form, ready for the Study Quality Assessment phase (Appendix C1).

8.4 Conducting the MQSLR - Study Quality Assessment Phase

This phase focussed on quality assessment of the twenty-five selected studies. Following the MQSLR approach, the quality assessment of the research articles was evaluated by the 'fit' between research methodology and Research Questions and by application of the Total Quality Framework approach (Chapter 7). This ensured alignment with eligibility (Section 8.2.2, p.103) and relevance (Section 8.4.1, p.111). Figure 8-5 shows how this phase fits into the MQSLR approach.

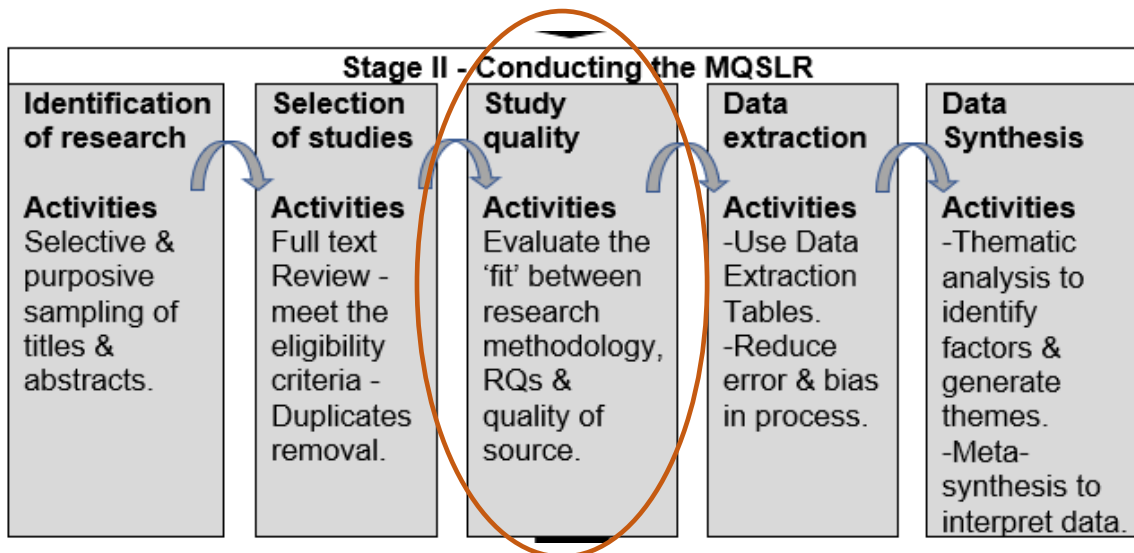


Figure 8-5 Conducting the MQSLR – Study Quality Phase

8.4.1 Fit/ Relevance

This phase involved reviewing each article to evaluate the 'fit' between research methodology and Research Questions. The evaluation is recorded in the Data Eligibility Form (Appendix C). Where an article did not meet relevance-to-research criteria, it was excluded.

8.4.2 Quality of Source

This phase focussed on quality assessment, but before that the quality of the documents was first pre-assessed during the Identification of Studies phase, because only peer-reviewed articles have been included. The peer review process varies depending on journal of publication, weight of evidence, soundness of studies and appropriateness of the design and analysis for the review question.

To assess the quality of each article, I utilised a hybrid of Total Quality Framework (Chapter 7), Mays and Pope (2000) and the Critical Appraisal Skills Programme Tool, designed to *"appraise the quality of primary qualitative research studies"* (CASP, 2017).

Total Quality Framework (Roller & Lavrakas, 2015)	May and Pope (2000)	CASP (2017)
Credibility in data gathering	A primary marker: is the article aiming to explore the subjective meanings that people give to particular experiences and interventions?	Are the outputs of the article valid? Did the article address a clearly-focused question?
	Context sensitive: has the article been designed in such a way as to enable it to be sensitive/flexible to changes occurring during the study?	
Analysability	Sampling strategy: has the study sample been selected in a purposeful way, shaped by theory and/or attention given to the diverse contexts and meanings that the study is aiming to explore?	
	Data quality: are different sources of knowledge/understanding about the issues being explored or compared?	
Transparency	Theoretical adequacy: do researchers make explicit the process by which they move from data to interpretation?	What are the results?
Usefulness	Generalisability: if claims are made to generalisability, do these follow logically and/or theoretically from the data?	Will the results help locally? Were all important outcomes considered?

Table 8-4 Assessing Quality of Each Article

Mays and Pope (2000) presented a range of criteria that might be used to appraise and evaluate qualitative studies, including: a primary marker, context sensitivity, sampling strategy, data quality, theoretical adequacy, and generalisability. CASP asked questions of the researcher. Both were mapped to align with the Total Quality Framework (Table 8-4). By creating a *hybrid* approach, I aimed to mitigate for the varied nature (methodologically) of articles gathered, thus boosting confidence in the quality of the source (Section 7.2.1, p.86).

8.4.3 Outputs of Quality Assessment Phase

During this phase, no further duplicates were identified and no 'maybes' were highlighted. Six articles were excluded, and all decisions were documented in the Data Eligibility Form (Appendix C2). Nineteen documents were copied to a new spreadsheet entitled 'Data Extraction Form' (Appendix D), since they formed the selected 'Corpus of Articles' for use in the Data Synthesis Phase.

8.5 Snowball

Whilst conducting the MQSLR, additional articles were identified while citation searching in the selected articles. Decisions were tracked in the Data Eligibility Form (Appendix C) on the 'Snowball' tab. Table 8-5 summarises the decisions made in the identification, selection, and quality assessment phases.

Phase	Total Identified	Include	Maybe	Duplicates	Exclude	Continue to Full text Review
Identification of Studies	30	8	3	0	19	11
Selection of Studies	11	6	0	0	5	6
Study Quality Assessment	6	2	0	0	4	2

Table 8-5 Decisions Made in Snowball Phases

8.6 Corpus of Articles – Descriptive Mapping

In the end, a total of twenty-one articles were therefore selected as the Corpus of Articles (Appendix B) for the *Data Extraction Phase* of the MQSLR. These articles were exported to NVIVO to enable data manipulation. A Descriptive Map illustrates the Article Titles, Authors and Year of Publication and shows where authors have had multiple publications (Figure 8-6, p.115).

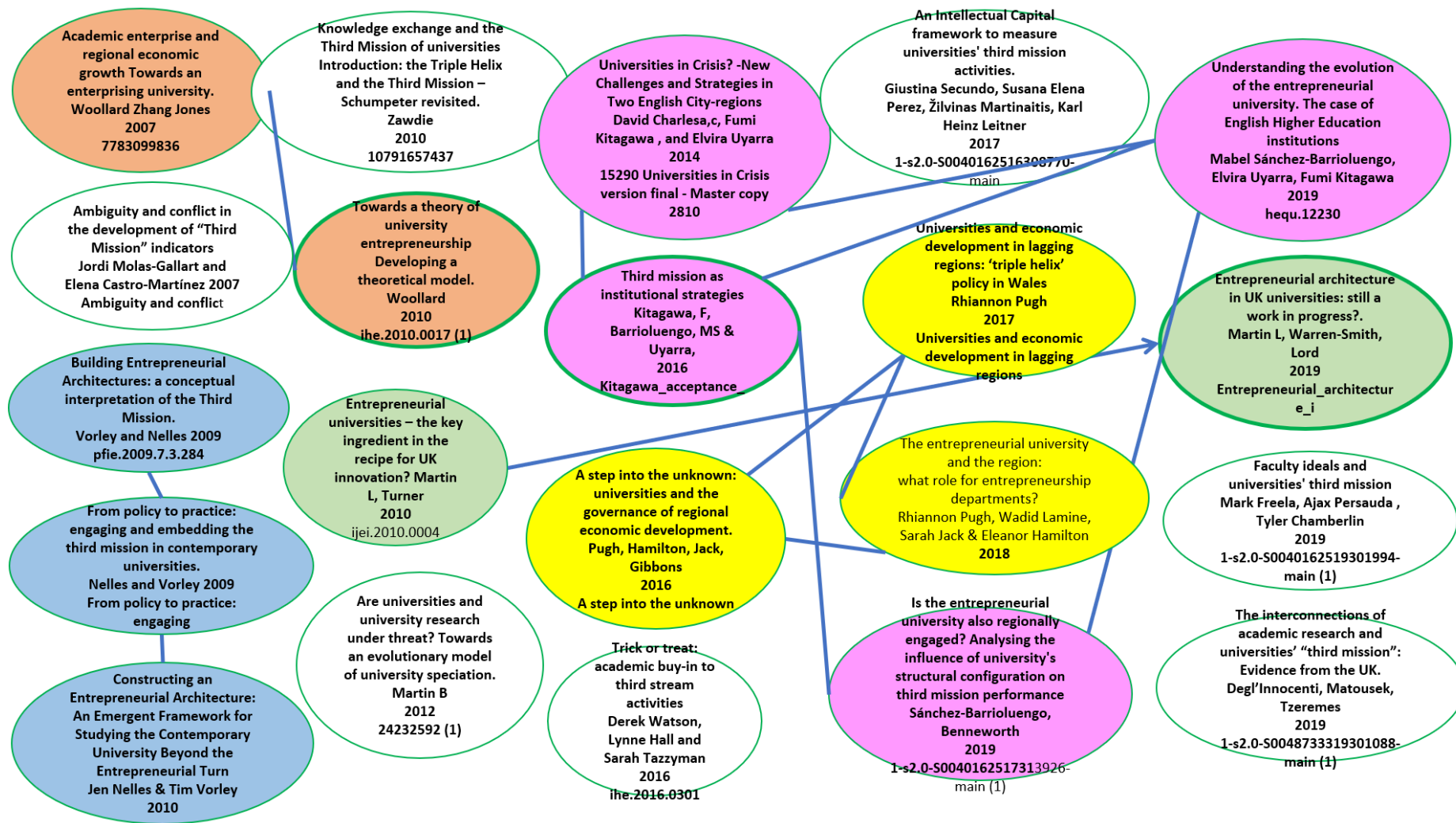


Figure 8-6 Descriptive Map of Corpus of Articles

8.6.1 Article Titles – Descriptive Mapping Using CEMO

The article titles have been descriptively mapped in the following Sections, based on 'CEMO' - Context, Exposure, Mechanisms, and Outcomes (Section 2.7.1, p.28):

8.6.1.1 Context of Third Mission

Of the twenty-one article titles, nine (43%) included the term 'Third Mission' in the title. 18 Articles (86%) included the term 'university' or 'HEI' or 'institution' in the title. Five Articles (24%) included term 'UK', 'United Kingdom', 'Wales' or 'England'. None used the term 'Business School', 'Business', or 'Industry'. Some articles that I wanted to include were actually excluded as they did not meet the eligibility criteria. For example, (Perkmann et al., 2021; Perkmann et al., 2013) conducted research on *academic engagement* in the Third Mission, but the focus was on academic *scientists* from the discipline of STEM rather than the discipline of B&M.

Geographical Level Context

No article titles referred to international, national, or local levels. Two article titles referred to region (Woollard, Zhang, Jones, 2007; Pugh, Hamilton, Jack, Evans, 2016).

The term *collaboration* was not referred to in any article title. Broader synonyms were used in three article titles, where the term 'engag*' was used (Vorley & Nelles, 2009; Sánchez-Barrioluengo, Benneworth, 2019) and 'interconnection' (Degl'Innocenti, Matousek, Tzeremes, 2019). Two article titles were broader still, in referring to *activities* - 'Third Mission activities' (Secundo, Perez, Martinaitis, & Leitner, 2017) and 'third-stream activities' (Watson, Hall, & Tazzyman, 2016).

8.6.1.3 Exposure to Third Mission

Eight article titles (38%) used term 'entrepreneur/ entrepreneurial' in the title, whereas only one article (0.5%) employed the word 'enterprise'. Two article titles referred to 'economics' but none to 'commercialisation' (Woollard, Zhang, Jones, 2007; Pugh, 2017). Two paper titles alluded to 'research' (First Mission) (Martin,

2012; Degl'Innocenti, Matousek, Tzeremes, 2019), but none to 'teaching' (Second Mission). Two article titles referred to (10%) 'Triple Helix' (Zawdie, 2010 and Pugh, 2017). One article title included 'knowledge exchange' (Zawdie, 2010). One article title mentioned 'Third Stream' (Derek Watson, Lynne Hall, and Sarah Tazzyman, 2016). Lastly, one article title specified 'innovation' (Martin & Turner, 2010).

8.6.1.4 Mechanisms of Third Mission

Overall, there were thirteen allusions in the article titles to *mechanisms*: 'framework' (Nelles & Vorley, 2010; Secundo, Perez, Martinaitis, Leitner, 2017), 'architecture' (Nelles & Vorley, 2010; Martin, Warren-Smith & Lord, 2019), 'structure' (Sánchez-Barioluengo & Benneworth, 2019), 'model' (Woollard, 2010), 'measure' (Secundo, Perez & Martinaitis, Leitner, 2017), 'indicators' (Molas-Gallart & Castro-Martínez, 2007), 'evidence' (Degl'Innocenti, Matousek & Tzeremes, 2019), and 'strategies' (Charles, Kitagawa & Uyarra, 2014).

In terms of 'using' mechanisms (i.e., words describing actions), seven article titles referred to 'building' (Vorley & Nelles, 2009), 'developing' (Jordi Molas-Gallart & Elena Castro-Martínez, 2007) 'constructing' (Nelles & Vorley, 2010), 'towards', [in the sense of 'working towards'] (Woollard, Zhang & Jones, 2007; Woollard, 2010 & Martin, 2012) and 'embedding and engaging' (Vorley & Nelles, 2009). All these articles were pre- 2012; no post-2012 articles referred to action verbs.

8.6.1.5 Outcomes of Third Mission

Keywords referring to potential outcomes (from extracted data) were as follows: one article title mentioned 'growth' (Woollard, Zhang & Jones, 2007), whilst one article title referred to 'concept' (Vorley & Nelles, 2009), and one article title cited 'theory' (Woollard, 2010). Not one article title referred to 'impact' or 'value'.

8.6.2 Article Titles – Descriptive Mapping Using SOGI levels.

At *Society level*, not one article title referred to 'society', while at an *Institutional level*, two articles used the word 'institution' as a synonym of 'organisation' (Kitagawa, F,

Barrioluengo, MS & Uyarra, 2016; Sánchez-Barrioluengo, Uyarra & Kitagawa, 2019) and seventeen out of twenty-one articles alluded to 'university' or 'HEI'. At a *Group level*, two articles referred to faculty/Department (Freel, Persaud, & Chamberlin, 2019; Pugh, Lamine, Jack, & Hamilton, 2018). Finally, at *Individual level*, three article titles used the terms academ* (Woollard, Zhang & Jones, 2007; Watson, Hall & Tazzyman, 2016; Degl'Innocenti, Matousek & Tzeremes, 2019).

8.6.3 Description of Article Methods

Of the articles selected, sixteen out of twenty-one (76%) conducted a qualitative study and five out of twenty-one (24%) conducted a quantitative study. Of the twenty-one articles:

- six conducted a Case Study (29%)
- six compiled a documentary analysis/literature review (29%)
- two used survey/questionnaire method (10%)
- two conducted factor analysis (10%)
- one compiled a conference paper.
- one compiled a discursive paper.
- one used Frontier technique
- one used a phenomenological
- one used Grounded theory

8.7 Conducting the MQSLR - Data Extraction Phase

The dataset of twenty-one articles was exported to NVIVO for data extraction. Figure 8-7 below shows how this phase fits into the MQSLR approach.

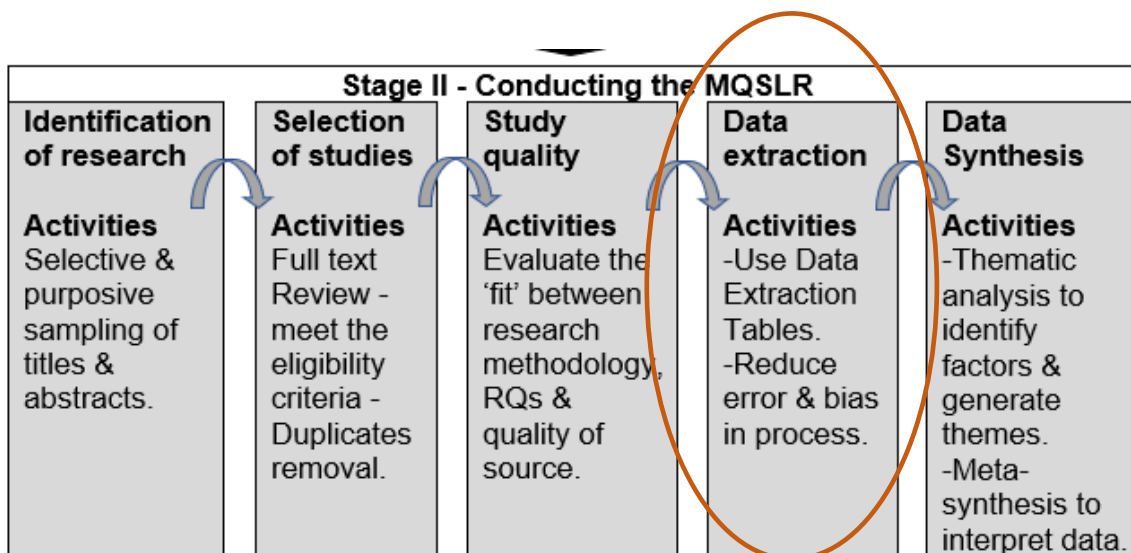


Figure 8-7 Conducting the MQSLR - Data Extraction Phase

Data extraction for this research has been defined as “*the process of retrieving and coding relevant variables from primary studies in order to facilitate comparison and observation of patterns, themes or trends*” (Booth et al., 2016, p.304). This involved extracting citations from the dataset of twenty-one articles, using Braun and Clarke’s Thematic Analysis Six-Step approach (Braun & Clarke, 2013).

8.7.1 Data Extraction Form

A data Extraction Form (Appendix D) provided the framework that served three important functions. Firstly, the data extraction form has been directly linked to the formulated review questions. Secondly, the data extraction form has acted as a historical record of the decisions made during the process. Thirdly, the data extraction form has been the data-repository from which the analysis emerged (Booth et al., 2016, p.218).

The Data Extraction Form included descriptive Sections about each article in the dataset: bibliographic information, study focus, method, findings, and analysis, so that data, general information (title, author, publication details), study features and specific information (details and methods) could all be extracted consistently. The form also included features such as context of the study, methodology and *noticings* on emerging themes (Colum AU), as advised by Tranfield, Denyer & Smart (2003).

8.7.2 Data Extraction Process

The data extraction process followed the Braun and Clark Thematic Analysis (TA) 6-steps approach (Section 6.3.2, p.74).

8.7.3 TA Step 1 – Familiarisation with Data

Step 1 focussed on familiarisation of data, where each file that was exported to NVIVO was explored with ‘*noticings*’ put into memos (Appendix E).

8.7.4 TA Step 2 – Data Extraction

Step 2 focussed on data extraction to build a data set for the Data Synthesis phase. Extracted data was organised in NVIVO as *nodes*, in line with what Braun and Clarke (2013, p.154) advised for secondary sources: “*it is important to collate data items systematically as you collect them, and to give each data item an ID code*”. Each node contained data extracts of interest for answering the Research Questions (Section 1.6, p.7). At this stage, the nodes were not yet organised into themes.

8.7.5 Limitations

I did not do a double extraction process due to time constraints and independent assessor availability. I did, however, utilise my Network of Interest (Section 5.5, p.64) on borderline cases during extraction.

8.8 Conducting the MQSLR - Data Synthesis Phase

Following extraction of data into NVIVO, the next and final MQSLR phase was to conduct Data Synthesis (Figure 8-8).

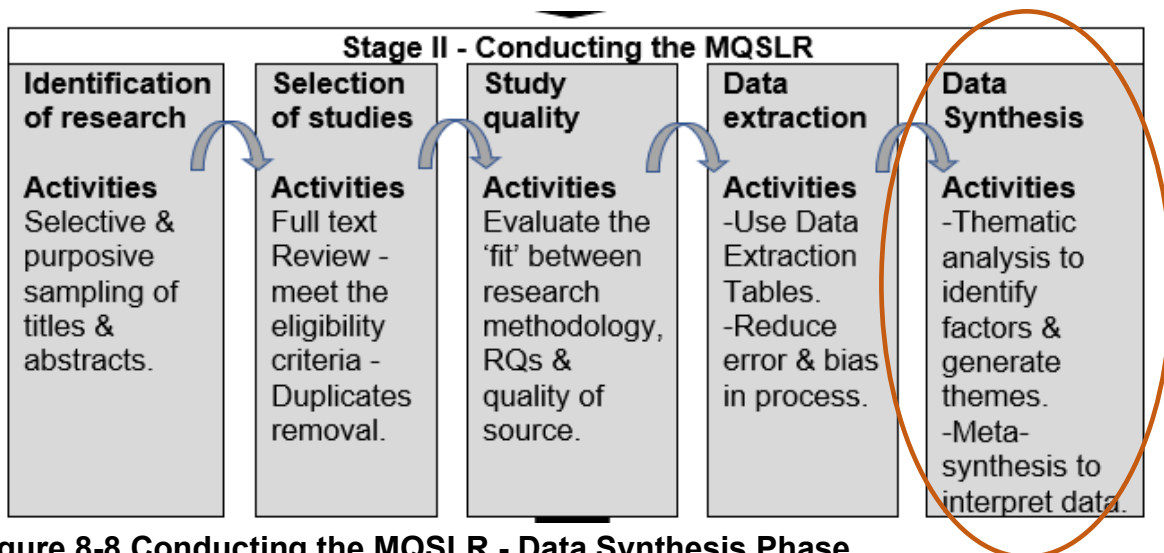


Figure 8-8 Conducting the MQSLR - Data Synthesis Phase

Having used the Braun and Clarke (2013) TA approach (Steps 1 and 2) in the MQSLR Data Extraction stage, the MQSLR Data Synthesis stage then used Steps 3-6 to ensure a repeatable process.

8.8.1 TA Step 3 - Searching for Themes

I started searching for themes by looking for more obvious patterns across the data set and found a hugely diverse spectrum of characteristics relating to the Third Mission. Following the methodical approach to aid navigation of this volume of data, I systematically identified salient features of the data in relation to my Research Questions (Section 1.6, p.7) and focussed on *meanings* rather than *numbers* (Braun & Clarke, 2013, p.223).

To form themes, I focussed on whether there was a *central organising concept* that was meaningful in relation to the RQ. A *central organising concept* is defined by Braun and Clarke (2013, p.328) as: “*The essence of a Theme in Thematic analysis; an idea or concept that captures the coherent and meaningful pattern in the data and provides a succinct answer to the research question.*” Where other data was extracted and didn’t directly relate to the Research Questions it was stored under *miscellaneous* as a potential feature with no *central organising concept*.

My approach was proactive, not passive, for example, I used SOGI (Section 2.7.2, p.29) to explore the Third Mission as a multi-level phenomenon, and CEMO (Section 2.7.1, p.28) to explore the characteristics.

I reviewed the collated codes to identify similarities and overlap and found some between *Third Mission activity* and *knowledge exchange (KE) activity*. Although they were similar conceptually, I kept them as separate themes at this stage, as they each had distinctive *central organising concepts* to explore further. I noted that the themes were provisional at this point and may be subject to adaptation later on. Duly warned by Braun and Clarke (2013) I organised themes into as small a hierarchy as possible, given the volume, diversity, and complexity of data (Figure 8-9, p.121).

I had challenges but tried to keep to these three distinct levels of hierarchical themes to reduce *complexity* of approach (Section 2.7.1, p.28) when answering the Research Questions (Section 1.6, p.7).

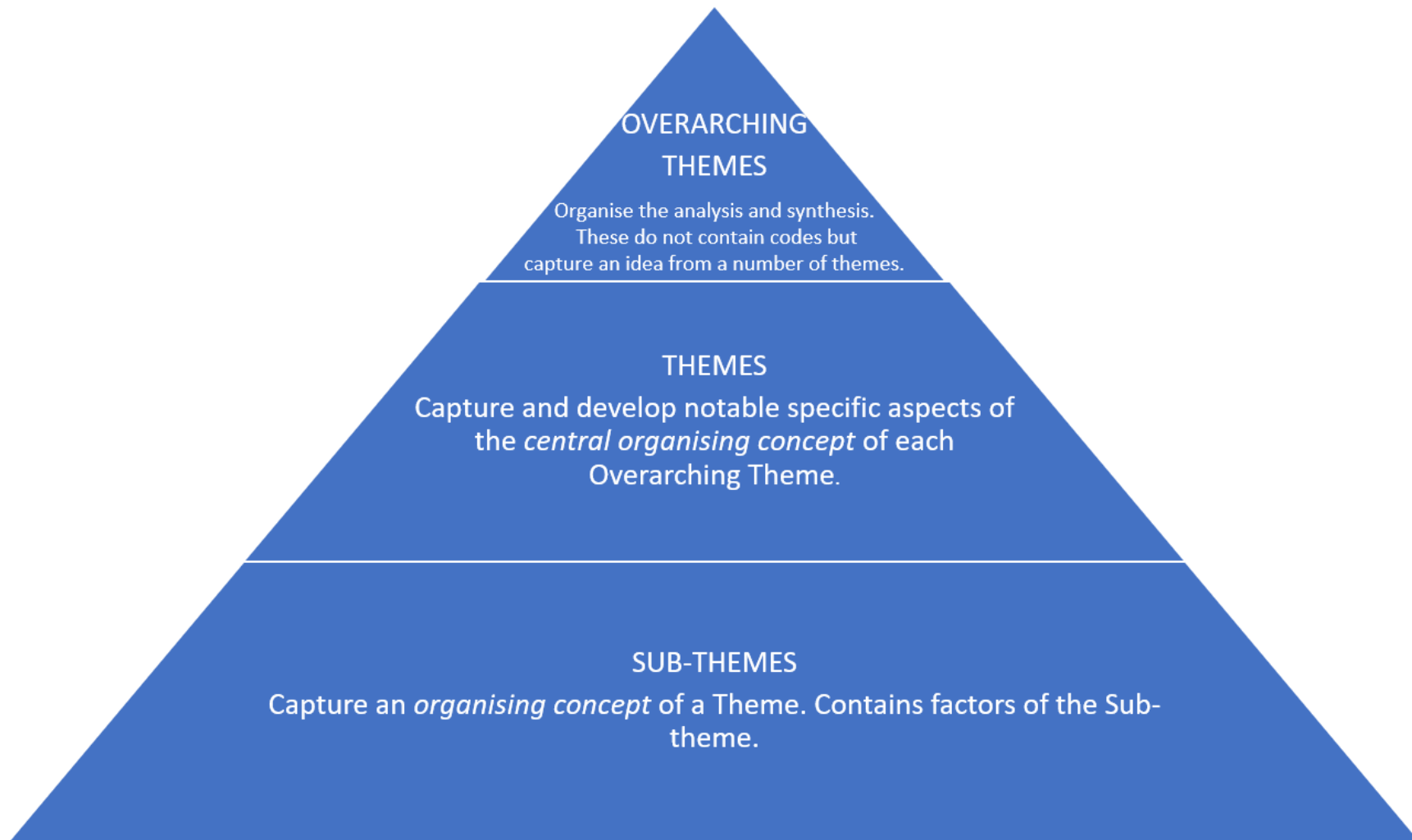


Figure 8-9 Theme Hierarchy

8.8.1.1 Overarching Themes

Due to the volume and diversity of data extracts, I started by Grouping the data into *Overarching Themes* based on CEMO (Section 2.7.1, p.28) as shown in Figure 8-10. These are described in more detail in TA - Step 4 (Section 8.8.2.1, p.125).



Figure 8-10 Overarching Themes

The first RQ aimed to identify: “what characteristics of Third Mission activity emerge from historical and contemporary documents about achieving the Third Mission in universities (and in particular, Business Schools) in the UK?”. By using CEMO (Section 2.7.1, p.28) as the *Overarching Themes* for synthesis of the extracted data, I was able firstly, to interpret the perceived *Context* characteristics of the ‘Third Mission’ (internal and external to a university) from the corpus of data. Secondly, I was able to interpret the characteristics of perceived *Exposure* to the ‘Third Mission’. Thirdly, I was able to interpret the characteristics of perceived *Mechanisms* used to achieve the Third Mission. Finally, I was able to interpret the characteristics of perceived *Outcomes* of the Third Mission.

8.8.1.2 Initial Themes and Sub-themes

After extensive review of the extracted data in NVIVO, I formed initial themes and Sub-themes under the four CEMO *Overarching Themes*. I created graphic maps in NVIVO to enable visual exploration and “*start to refine the connections between elements*” (B&B p.232). Whilst CEMO provided a *top-down* and *research-driven* thematic structure (Section 2.7.1, p.28), characteristics identified from data extracts provided a *bottom-up* and *data-driven* thematic structure (Section 6.3.2, p.74).

8.8.2 TA Step 4 - Reviewing Themes

Having identified a volume of provisional themes and Sub-themes, it was clear just how diverse the data extracts were. Following extensive review, the themes were edited and refined under each *Overarching Theme*. I took a *splitting* approach to *Context* and *Mechanisms* (due to the relative ease of identifying extracts) but a *lumping* approach to *Exposure* and *Outcomes* (data was so diverse that the node hierarchies became unwieldy). The node hierarchies at this stage were simply descriptive in that they acted as containers to store un-interpreted data extracts. To build interpretive themes, I revisited the Research Questions to ask, ‘so what?’ from the data, and this led to the formation of *central organising concepts*.

8.8.2.1 Development of Central Organising Concepts

I overcame the unwieldiness and complexity of the data by iteratively exploring (Section 5.4.1, p.56), the themes using a combination of bottom-up and top-down approaches (Section 6.3.2, p.74), in relation to the Research Questions (Section 1.7, p.9) until there was a good ‘*fit*’ (Section 8.4.1, p.111). This was achieved by editing, discarding and broadening themes until each had a clear *central organising concept*.

Context: Characteristics and Themes Map

Following revision of topics, created three interpretive contextual themes based on the data extracts (Figure 8-11).

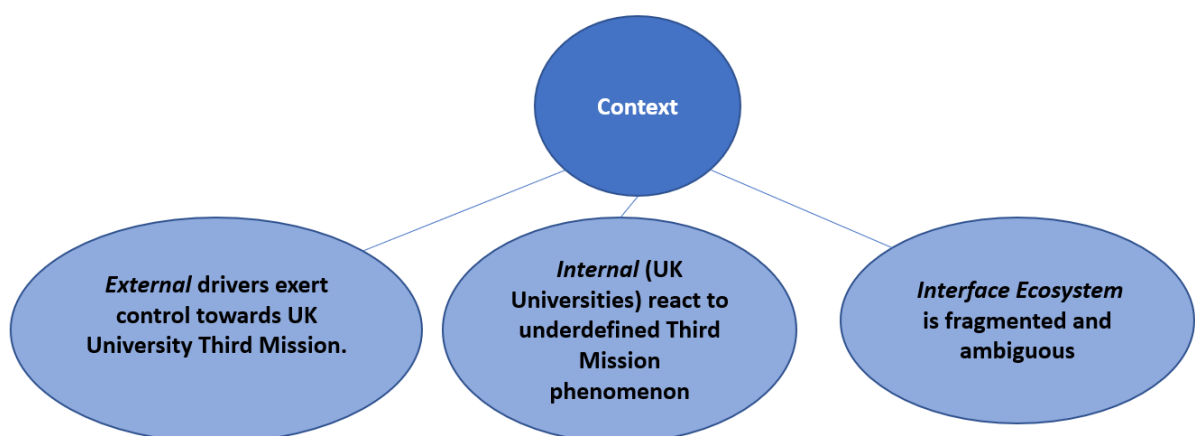


Figure 8-11 Context Themes from Extracted Data

For two of the *Context* themes, Sub-themes were generated in NVIVO, since the Sub-themes had their own *central organising concept* in relation to the parent theme (Figure 8-12, p.127). These are discussed in Section 9.2 (p.140).

In summary, the three *Context* themes all had a clear *central organising concept*, with identified Sub-themes and key characteristics/factors to enable answering Research Questions 1 and 2. The *Miscellaneous* theme did not have a *central organising concept* in relation to the Research Questions and was archived rather than deleted. Section 9.2 (p.140) describes and interprets the *Context* characteristics and themes.

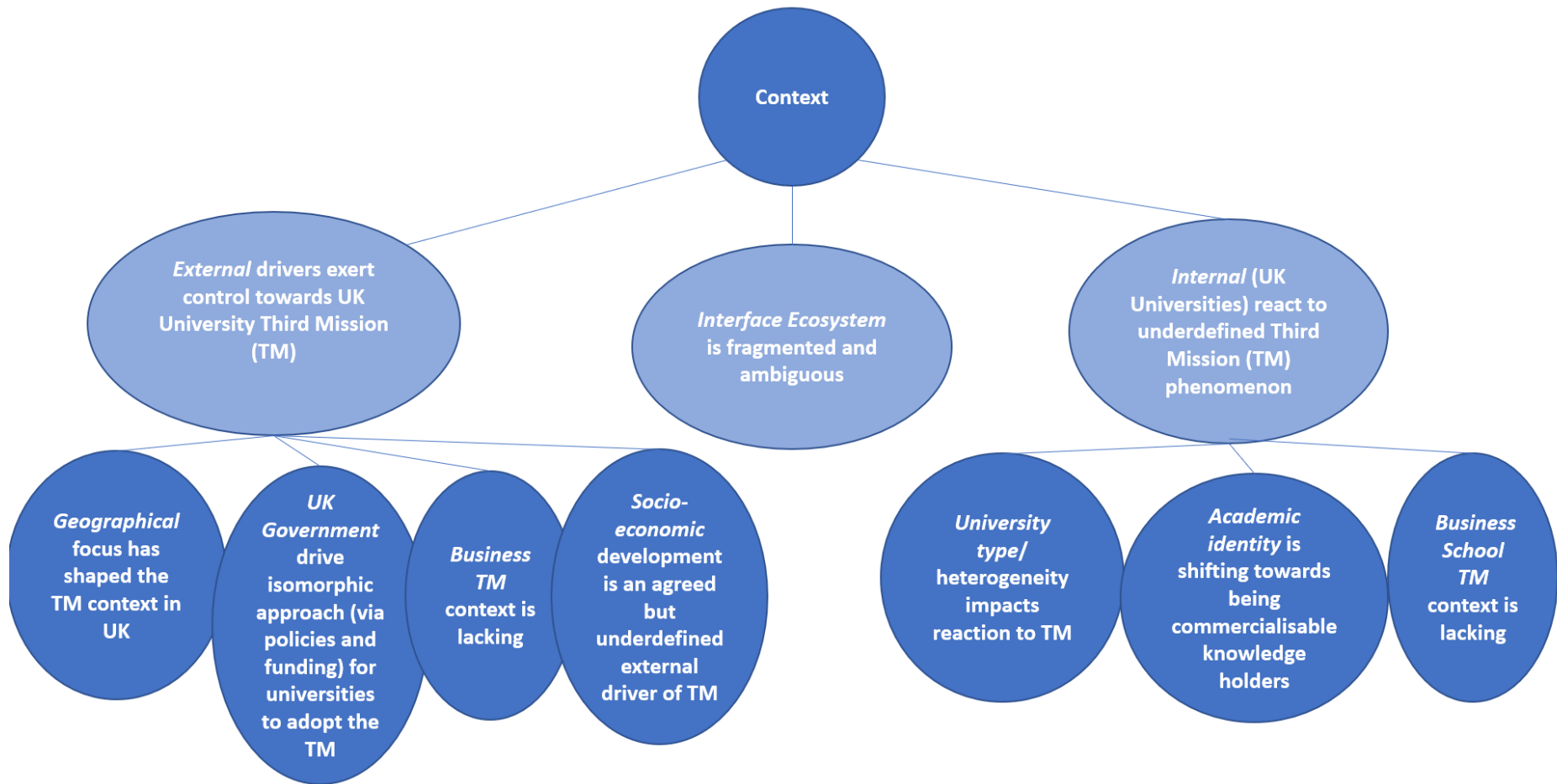


Figure 8-12 Sub-themes of *Context* from Data Extracts on the Third Mission

Exposure: Characteristics and Themes Map

Following revision of themes, I created three interpretive Third Mission *Exposure* themes based on the data extracts (Figure 8-13).

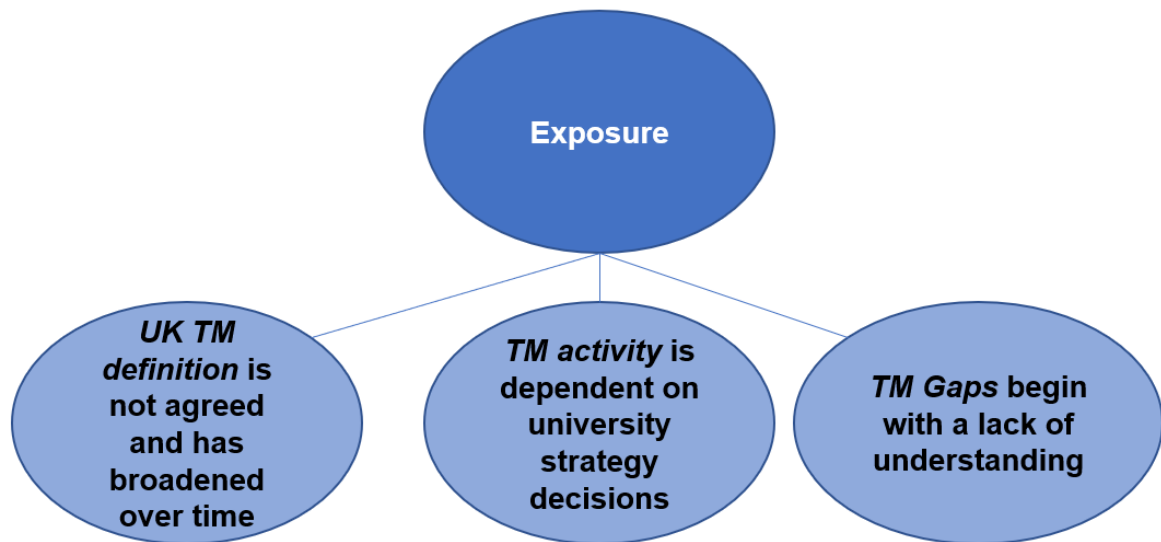


Figure 8-13 *Exposure* Themes from Extracted Data

For each of the *Exposure* themes, Sub-themes were generated (Figure 8-14, p.129). Each theme had a clear *central organising concept* in NVIVO, with identified key characteristics/factors except for the *Miscellaneous* theme - this was archived. At this point, the 'Gaps' and 'Needs' themes were merged because they shared the same *central organising concept*. This made up the *Exposure* to Third Mission characteristics and themes with a view to answering RQ1 and 2. Section 9.3 (p.204) describes and interprets these characteristics.

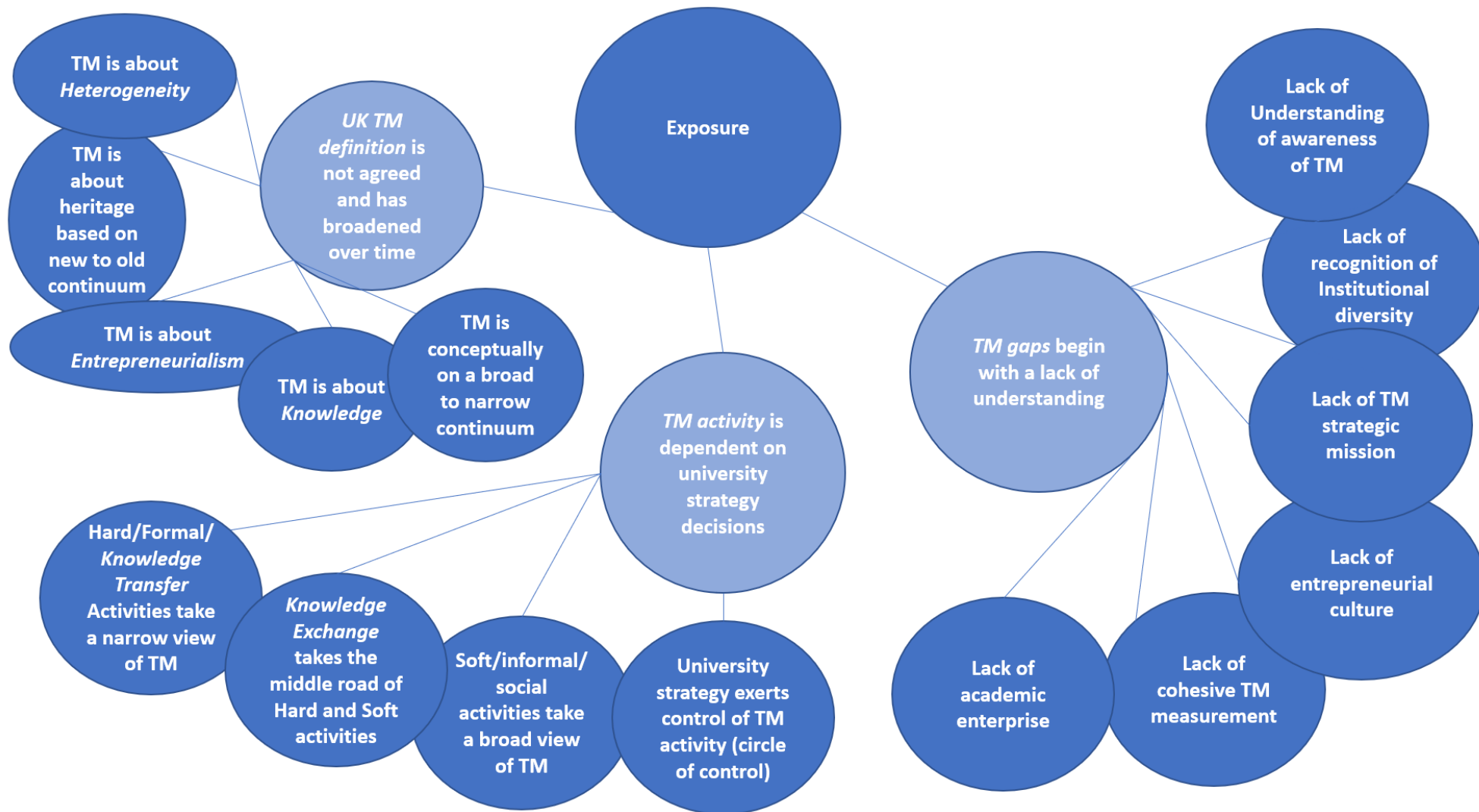


Figure 8-14 Sub-themes of *Exposure* from Data Extracts on the Third Mission

Mechanism: Characteristics and Themes Map

Following revision of themes, I created three interpretive themes based on the data extracts, which came under the *Overarching theme* called *Mechanisms* (Figure 8-15).

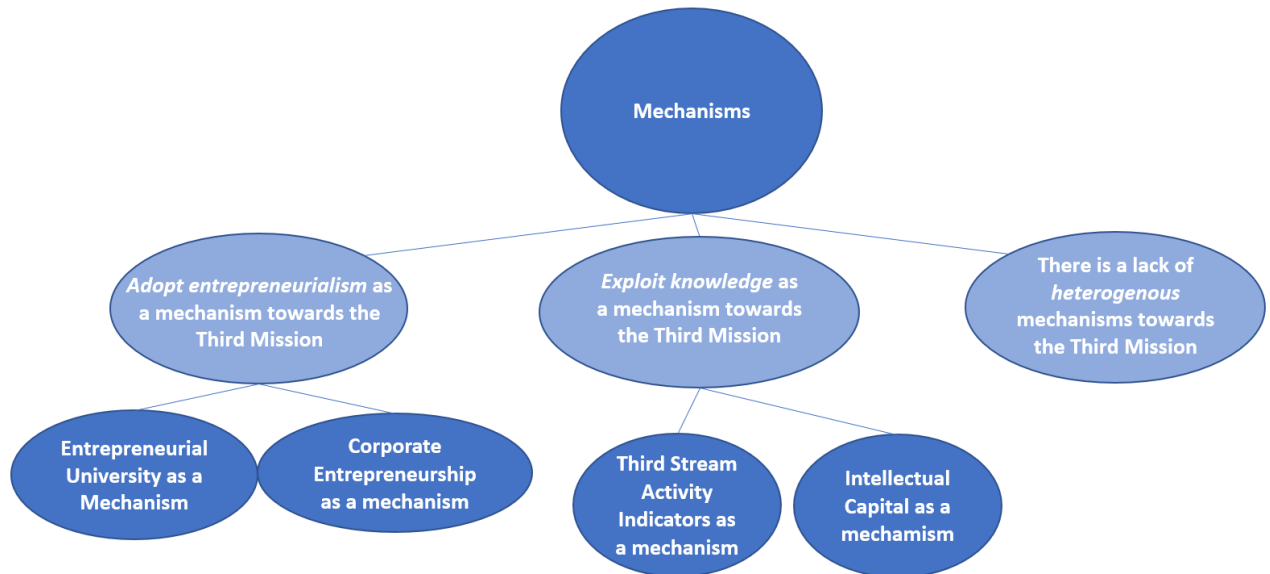


Figure 8-15 Mechanism Themes from Extracted Data

The *Mechanism* themes for adopting entrepreneurialism and exploiting knowledge were generated from characteristics that were identified in the data in NVIVO, each theme had a clear *central organising concept* with identified key characteristics/factors except the *miscellaneous* theme - this was archived. This made up the mechanisms of Third Mission characteristics themes in order to answer RQ1 and RQ2, which are discussed in Section 9.4 (p.238).

Outcome: Characteristics and Themes Map

The *Outcome* themes took many re-revisions, as the secondary data was not created for the purposes of this analysis (Section 6.2.2, p.70). The themes generated have been interpretive, based on indicators stemming from the data (Figure 8-16). The *central organising concept* of the *Outcome* theme has been identified as: ‘the extent to which the Third Mission is achieved’.

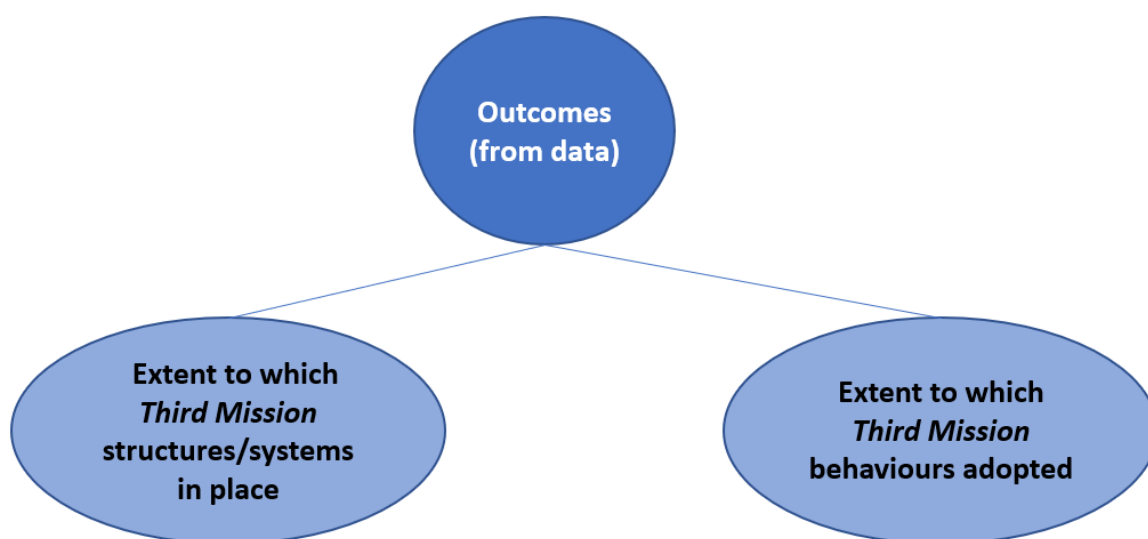


Figure 8-16 Outcome Themes from Extracted Data

Two key themes were generated with *central organising concepts* around ‘structures/systems’ and ‘behaviours’, using key characteristics/factors relating to SOGI levels that were identified (Section 2.7.2, p.29). The *miscellaneous* theme did not have a *central organising concept* in relation to the Research Questions and this was archived. This constituted the perceptions of Third Mission *Outcomes*, with a view to answering RQ1 and RQ2. Section 9.5 (p.282) describes and interprets characteristics of the *Outcomes*.

8.8.3 TA Step 5 - Definition of Themes

A revision of the whole dataset was completed “*to ensure that [my] themes capture the meaning and spirit of the dataset in relation to [my] research question*” (Braun & Clarke, 2013, p.234).

The reviewing and refining in order to reach a good fit (Section 8.4.1, p.111) was challenging and I relied on referring to the Research Questions with each decision made. The themes were mapped into a *central organising concepts (NVIVO)* to aid the reader to envisage the distinctiveness of each theme and to start to show how they fit together. For example, it was at this point that the theme ‘Interface-Ecosystem’ was created under the overarching theme of *Context*. Furthermore, the ‘Commercialisation’ theme which was initially under the umbrella theme *Exposure* was moved to the overarching theme *Context* and was merged with the Socio-Economic theme.

Each theme was clearly and uniquely defined with a descriptor (NVIVO). Exemplar extracts were identified to illustrate elements of themes ready for discussion (Chapter 9). Annotations of text in NVIVO aided analysis towards definition of themes (Appendix E1).

8.8.4 TA Step 6 – Report Characteristics and Themes Conclusions

Step 6 was the final Thematic Analysis step, which enabled answers to Research Questions 1 and 2:

RQ1: What characteristics of ‘Third Mission activity’ emerge from historical and contemporary documents about achieving the Third Mission in universities (in particular, Business Schools) in the UK?

RQ2: From the identified characteristics, what themes of Third Mission activity can be drawn together to contribute to the achievement of the Third Mission?

These questions are answered, as a result of the thematic analysis, fully in Chapter 9 and for conciseness have been summarised by theme, in Sections 8.8.4.1 – 8.8.4.4 below.

8.8.4.1 Context Conclusions

Table 8-6 identifies the external *Context characteristics and themes* of the Third Mission, generated from the dataset. Table 8-7 identifies internal context. Table 8-8 identifies interface context.

<i>External Third Mission Context Themes</i>	Third Mission Characteristics
Government drives isomorphic approach (via policies and funding) for UK universities to adopt the Third Mission	<ul style="list-style-type: none"> • Policy is a key external driver towards Third Mission in UK universities. • Third-stream funding is a key external driver towards Third Mission in UK universities. • Local Enterprise Partnerships have been a government tool towards the Third Mission.
<i>Geographical</i> diversity has shaped the Third Mission context in UK	<ul style="list-style-type: none"> • Global drivers shape UK Third Mission activity. • National driver towards a ‘knowledge-intensive economy’ • Historical-regional focus towards ‘entrepreneurial’ and ‘engagement’ activities aiming to achieve the Third Mission • Third Mission focus has shifted from regional to local since 2010.
<i>Business</i> Third Mission context is lacking.	<ul style="list-style-type: none"> • There is an absence of business drivers articulated in the data. • Appears to be ‘Hierarchy’ not a ‘Helix’ between government-university-business.
<i>Socio-Economic</i> development is an agreed but underdefined external driver of Third Mission activity	<ul style="list-style-type: none"> • Socio-economic development is a common factor in contextualising the Third Mission

Table 8-6 Third Mission *External Context* Characteristics and Themes

<i>Internal</i> Third Mission Context Themes	Third Mission Characteristics
Organisational level – University Third Mission Type /Mode is heterogenous	1. University strategic decisions about 'university Third Mission type' are defined as heterogenic at a strategic level, which then in turn drive Third Mission activity at Group /Department/ school level, as well as individual/academic level.
Business School Third Mission context is lacking	2. There were very few data extracts on Business School and the Third Mission. 3. There is little evidence that 'Business Schools' drive the university Third Mission
Academic identity is shifting towards being commercialisable knowledge holders	4. There is no evidence from the extracted data, that academics drive the university Third Mission activity.

Table 8-7 Third Mission *Internal Context* Characteristics and Themes

<i>Interface</i> Third Mission Context Themes	Third Mission Characteristics
The <i>Interface-Ecosystem</i> (to enable the creation of the 'appropriate conditions') to achieve the Third Mission for a university is underdefined.	1. Ambiguity and fragmentation 2. Spectrum of innovation definitions 3. Links to Triple Helix
There are gaps in understanding as to whether mimicking the Triple Helix approach is the answer for heterogenous Third Mission activity.	1. Triple Helix definition broadening over time - Quadruple and quintuple helix?

Table 8-8 Third Mission *Interface Context* Characteristics and Themes

8.8.4.2 Exposure Conclusions

Table 8-9 identifies the Third Mission *Exposure* characteristics and themes, generated from dataset.

Third Mission Exposure Themes	Third Mission Characteristics
Third Mission 'activity' is dependent on university strategy decisions (activities)	<ul style="list-style-type: none"> • Hard/Formal/KT Activities take a 'narrow' view of Third Mission • Soft/informal Activities take a broad view of the Third Mission • Knowledge Exchange appears to take the middle road of Hard and Soft activities. • University strategy exerts control of Third Mission activity (circle of control)
UK Third Mission 'definition' is not agreed and has broadened over time	<ul style="list-style-type: none"> • Third Mission is conceptually on a Broad to Narrow continuum. • Third Mission is about heritage based on new to old continuum. • Third Mission is about Entrepreneurialism • Third Mission is about Knowledge • Third Mission is about Heterogeneity
There is a lack of understanding of the factors that make up the Third Mission	<ul style="list-style-type: none"> • Lack of recognition of Institutional diversity • Lack of awareness of the characteristics of the Third Mission • Lack of Third Mission strategic mission • Lack of definition of 'entrepreneurial culture' in relation to Third Mission • Lack of cohesive Third Mission • measurement

Table 8-9 Third Mission *Exposure* characteristics and Themes

8.8.4.3 Mechanism Conclusions

Table 8-10 identifies the Third Mission *Mechanism* characteristics and themes:

Third Mission Mechanism Themes	Third Mission Characteristics
Adopt 'Entrepreneurialism' as a mechanism towards the Third Mission	<ul style="list-style-type: none"> • Entrepreneurial University as a mechanism • Corporate Entrepreneurship as a mechanism
Exploit knowledge as a mechanism towards the Third Mission	<ul style="list-style-type: none"> • Third Stream Activity Indicators as a mechanism • Intellectual Capital Framework as a mechanism

There is a lack of heterogenous mechanisms towards the Third Mission	<ul style="list-style-type: none"> • There is currently a one-size-fits-all government-led measurement mechanism (KEF).
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Table 8-10 Third Mission *Mechanism* Characteristics and Themes

8.8.4.4 Outcome Conclusions

Table 8-11 identifies the Third Mission Outcome characteristics and themes, generated from dataset.

Third Mission Outcome Themes	Third Mission Characteristics
Extent to which 'Third Mission' structures/systems in place	<ul style="list-style-type: none"> • Systems/structures outcomes, and corresponding mechanisms to measure relate to Organisational/University level and Society/External levels. • No systems/structures outcomes were indicated at Individual or Group level.
Extent to which 'Third Mission' behaviours adopted	<ul style="list-style-type: none"> • Behaviours outcomes, and corresponding mechanisms to measure relate to Individual/academic, Organisational/university level and Society/external level (SOGI). • One outcome referred to Group level in conjunction with Individual level 'Faculty members conduct Third Mission activities.

Table 8-11 Third Mission *Outcome* Characteristics and Themes

8.9 Reflections on Conducting the Modified Qualitative Systematic Literature Review

Having conducted the Modified Qualitative Systematic Literature Review (MQSLR), some Third Mission *characteristics* have been identified and *themes* generated, thus RQ1 and RQ2 have been answered (Table 8-6 – 8-11).

On reflection, the UK Government drive the Third Mission through funding, however a university's geography, strategy and structures influence its Third Mission approach. There is much within a university's *circle of control* for shaping the Third Mission. For example, how a university defines the Third mission, how it measures it and how it utilises their Business School. The mechanisms/methods identified in the dataset for driving the Third Mission were lacking in clarity, making it confusing for a university to select an approach that would actually achieve Third mission impact.

To help overcome this Chapter 9 provides a rich description (with excerpts from the dataset) on the identified characteristics and themes, thus providing a foundation in which to build a new practical and theoretical framework to achieve the Third Mission (Chapter 10, p.293). This enables the remaining research questions to be answered in Chapter 10 and 11.

As well as reflections on the data I also reflected on the Modified Qualitative Systematic Literature Review process:

- The Braun and Clark Thematic Analysis 6-steps approach has enhanced the MQSLR by incorporating a systematic and repeatable approach firstly, into the *Data Extraction and Monitoring Phase* and secondly, into the *Data Synthesis Phase*.
- The use of the CEMO framework (Section 2.7.1, p.28) has been successful in aiding the management of the multi-level phenomenon in terms of scale, complexity, and diversity of the data.
- NVIVO (Section 6.4, p.83) has been an essential tool to explore the corpus of data and generate themes.
- It is noted that although the MQSLR methodology provided clear stages, in practice there was lots of iteration between data synthesis and reporting.

8.10 Next Steps

The next chapter details the Third Mission *characteristics*, grouped into four *themes* of:

- Third Mission Context (Section 9.2, p.140)
- Third Mission Exposure (Section 9.3, p.204)
- Third Mission Mechanisms (Section 9.4, p.238)
- Third Mission Outcomes (Section 9.5, p.282)

A descriptive and interpretive rich picture is constructed throughout Chapter 9, in order to enable answering RQ3-5s.

CHAPTER 9 - ANALYSIS, SYNTHESIS, DISCUSSION & CONCLUSION OF THEMES

9.1 Introduction

At the outset, it was stated that the overall aim of this research was to explore peer-reviewed literature-based emergent themes, to inform a practical and theoretical framework for UK university collaboration with businesses to achieve the Third Mission (Section 1.6, p.7). Four *overarching themes* were generated in Chapter 8 (p.133-136):

1. **Third Mission Context** (*External context (to a UK university), internal context (UK university) and interface context (between UK university and external context) of the UK Third Mission.*)
2. **Third Mission Exposure** (*Defining the Third Mission.*)
3. **Third Mission Mechanisms** (*Identifying tools that are currently used to measure the Third Mission.*)
4. **Third Mission Outcomes** (*Interpreting the extent that Third Mission systems and behaviours are adopted in UK universities and their Business Schools.*)

In this chapter, each of the four *Overarching Themes* are used to paint a rich description of the Third Mission.

As a result, suggestions for practice (things to apply) and considerations (reflections for theory and practice i.e., things to think about) are made to inform the new theoretical and practical framework (Chapter 10, p.293).

This chapter focusses on iterating between analysis, synthesis, discussion, and conclusion (Figure 9-1, p.139), because qualitative research is rarely linear. The iterative approach (Section 5.4.1, p.56) calls upon the identified *qualitative* aspects of the study (Table 4-2, p.43), *credibility* tactics (Table 7-2, p.88), *analysability* tactics (Table 7-3, p.92) and *transparency* tactics (Table 7-4, p.94). This approach has enabled both a *descriptive* and *interpretive* approach towards constructing a new perspective, by means of which, to achieve the Third Mission, based on re-interpretation of the secondary data.

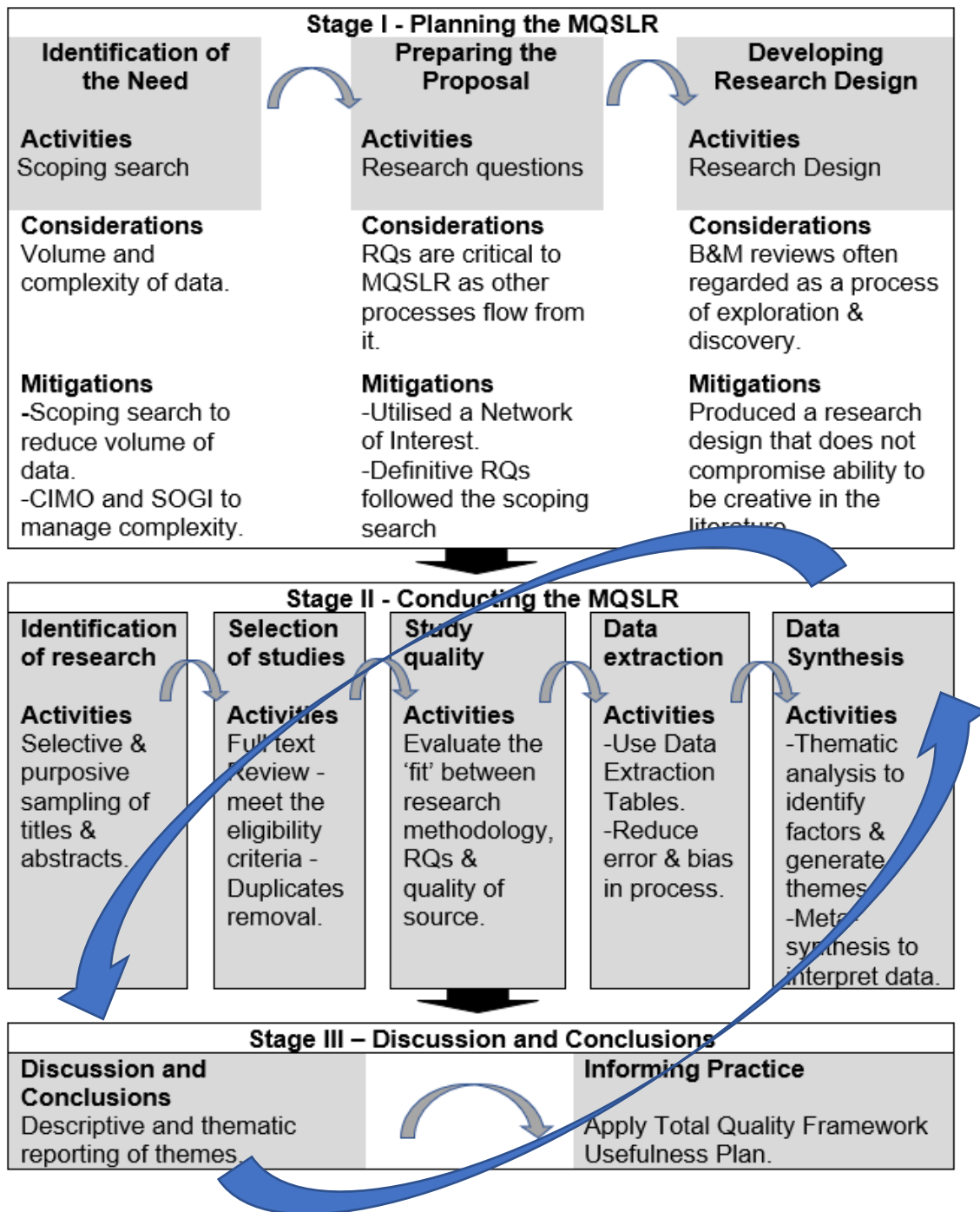


Figure 9-1 Iterations of Analysis, Data Synthesis, Discussion, and Conclusion

9.2 Context – Overarching Theme

Having identified I aimed to gather a holistic view of the Third Mission phenomenon (Section 4.3, p.44) the Third Mission Context Theme sets the scene towards defining Third Mission in Section 9.3 (p.204).

This Section starts with an interpretation of the *External Context Theme* (Context Theme 1, p.135), based on extracted data. Having interpreted the external context, the chapter then explores the *Internal Context Theme* (Context Theme 2, p.159) and *Interface Context Theme* (Context Theme 3, p.187) generated from the data extracts, with the intention of answering RQ3-5. Due to the sheer volume of extracts, a few exemplars are taken out and used as *indicators* towards answering the research questions. Throughout the chapter, the discussion of the generated themes repeats with continued synthesis and interpretation of the data. It includes a mix of descriptive reporting of data extracts and explanation of meaning (Section 6.3.2, p.74), leading to propositions towards answering RQ3-5. Some extracts are longer than others, dependent on ‘*adequacy*’ (Table 7-2, p.89) of the link between *emergent concepts* and the Third Mission, in line with the research approach.

9.2.1 Context Theme 1 – External Context

The following sections explore (Section 4.2, p.43) the External Context Theme (Context Theme1). Through interpreting various *external* context characteristics from the data extracts, a rich description is formed towards answering RQ3. Figure 9-2 (p.141) depicts the range of this section. The central organising concept of this theme is that *external/society drivers exert control on UK University Third Mission*.

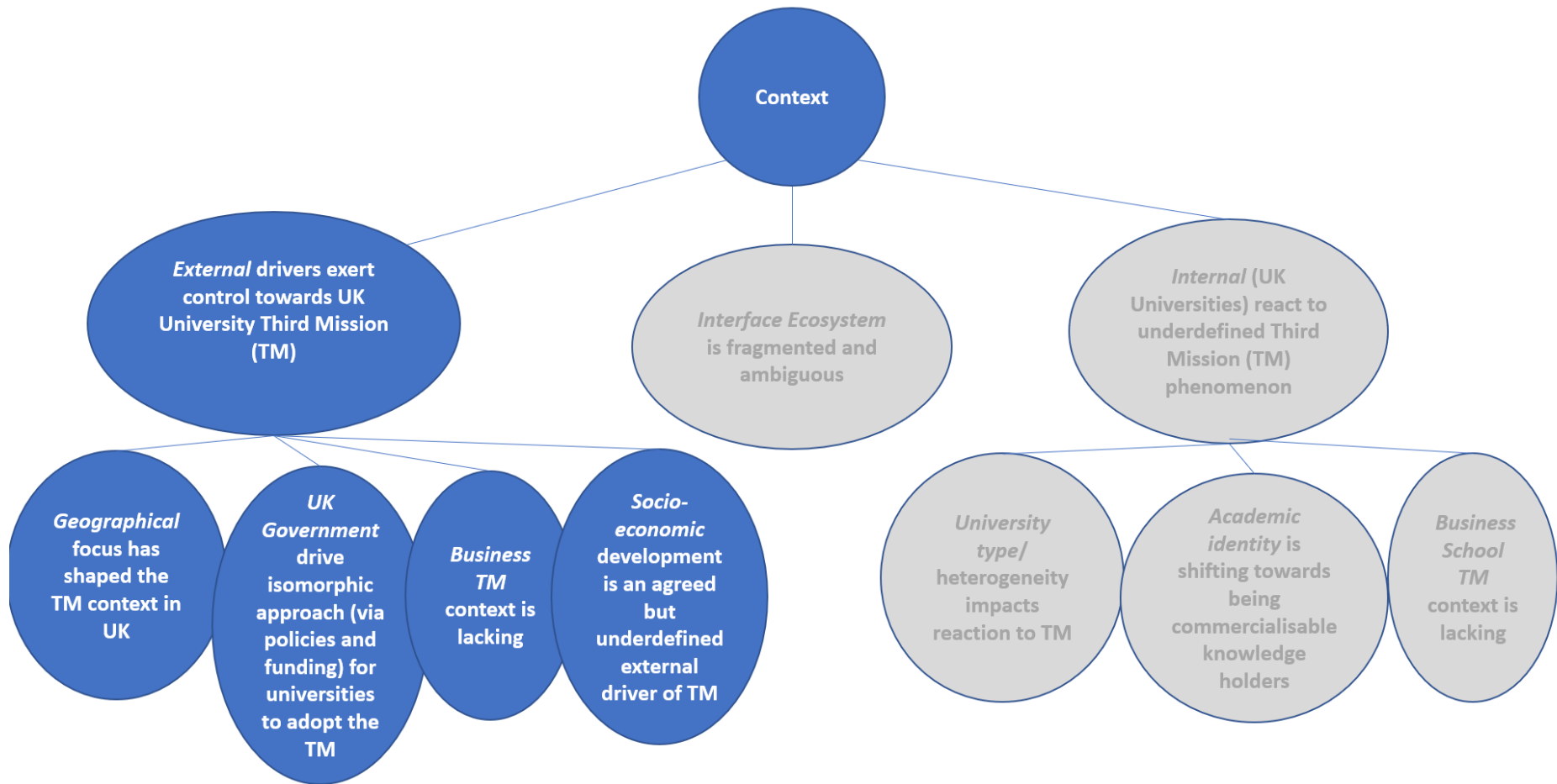


Figure 9-2 External Context Theme and Sub-themes

The External contextual characteristics of UK Third Mission activity have been sorted into Sub-themes of: 'Government' (made up of policy, funding and LEP characteristics), 'Geographical diversity' (comprising international/ national/ regional/ local characteristics), 'Business' (noting that there is an absence of data relating to business) and 'Socio-economic'. These contextual characteristics are described as *external* to a UK university.

The rest of this Section interrogates these four Sub-themes to illuminate key characteristics of external context.

External Context Theme 1a - Government drives an isomorphic approach (via policies and funding) with the objective of UK universities to adopt the Third Mission.

The Government Sub-theme (External Context Theme 1a) captures the policy and funding characteristics of UK Third Mission activity. The *central organising concept* of this Sub-theme is that *Government exerts control (via policy and funding) over UK universities in favour of adopting the Third Mission.*

Three key characteristics emerged from analysis of the volume of data extracts:

External Context Theme 1a.1 Key Characteristic – Policy is a major external driver towards adoption of the Third Mission in UK Universities.

Thematic grouping of data relating to *UK policy and Third Mission* - which was extracted from the corpus of data - is illustrated Figure 9-3 (p.143). This diagram shows a broad and diverse picture of the *external Third Mission policy* context, taken from the data extracted. Due to the volume of data, three example indicators of 'policy as an external driver of Third Mission activity' are discussed below, to aid in the contextualisation of the Third Mission.

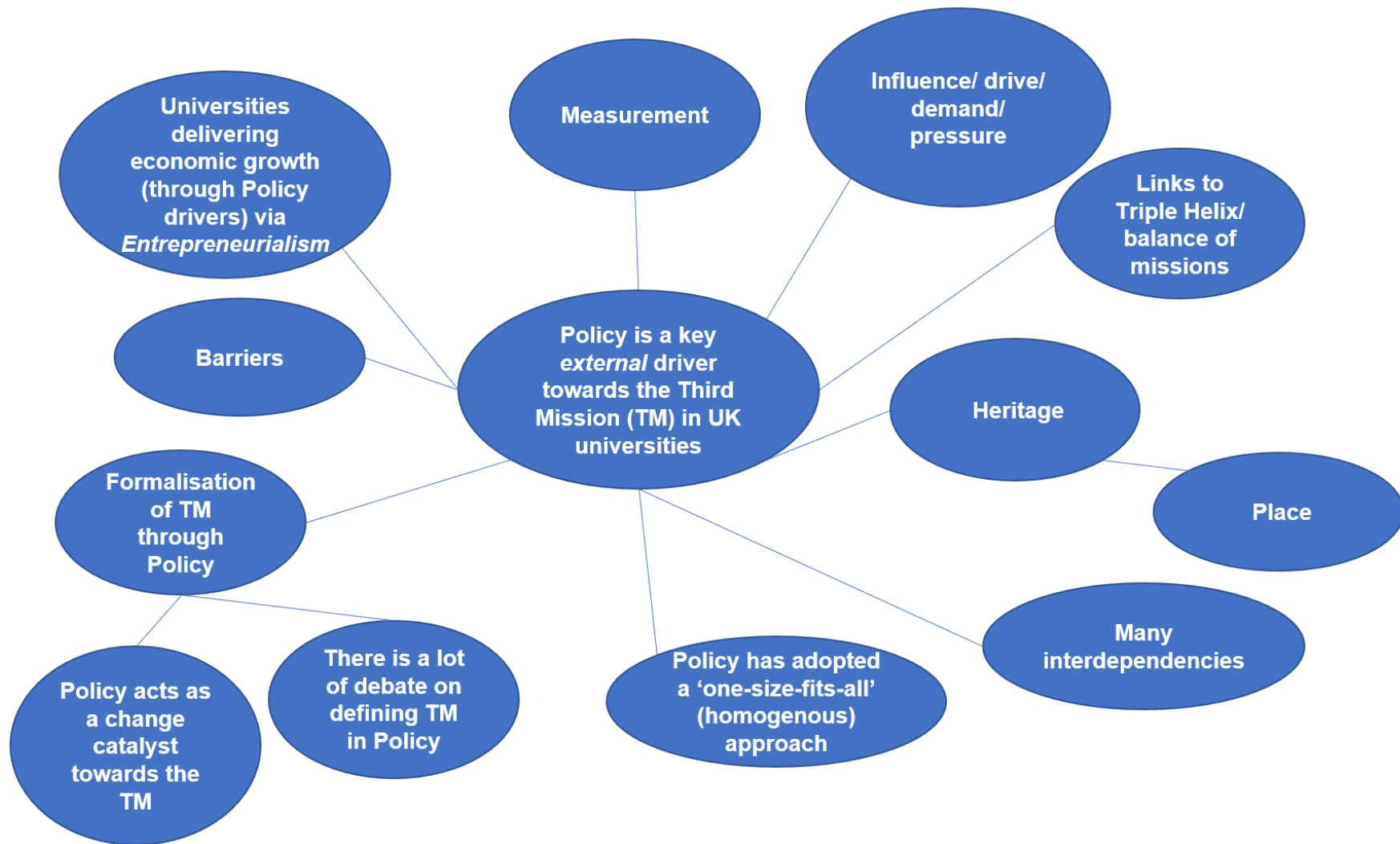


Figure 9-3 External Context - Policy Characteristics

External Context Theme 1a.1 Indicator 1 - Policy has driven a ‘one-size-fits-all’ approach.

Firstly, some of the data suggested that policy has adopted a ‘one-size-fits-all’ (also called homogenous and or isomorphic) approach and there is a need, at policy level however, to accept that there is no one-size-fits-all model for universities to follow when aiming to achieve the Third Mission (Martin & Turner, 2010; Sánchez-Barrioluengo & Benneworth, 2019; Sánchez-Barrioluengo, Uyarra, & Kitagawa, 2019). An example data extract reflects the perceived issue with this policy approach:

“Our documentary analysis of Third Mission strategies of English HEIs shows heterogeneous pathways of organisations against the ‘one-size-fits-all’ model... whilst individual universities respond to common sets of policy requirements and expectations” (Kitagawa, Sánchez Barrioluengo, & Uyarra, 2016, p.24)

And:

“ There is a significant variety in terms of the extent to which individual HEIs can actually implement these strategies by generating unique and inimitable internal capabilities” (Kitagawa et al., 2016, p.24)

Kitagawa, Barrioluengo and Uyarra (2016) also suggested that the data revealed that the diversity of the university as a sector has been at odds with the policy-led, Third Mission funding system. This may lead to a compromise of certain universities’ Third Mission strategies:

“The formula-based Third Mission funding system in England ...is highly skewed in favour of a few elite and large research-intensive universities. Consequently, even if the diversity is recognised at the system level, certain universities’ Third Mission strategies and practices may be compromised, as they are not well positioned to diversify their income base.” (Sánchez-Barrioluengo et al., 2019, p.487)

Interpretation of the corpus of data indicates that the Third Mission in the UK is a ‘top-down’ phenomenon, driven by Government policy. This is important for a UK university to recognise, as the drivers are external to a university rather than developed from within a university and this can result in ambiguity:

““Top-downers” assume that politicians in charge of Departments will have the power and the time to define clear political objectives to be then implemented by the Departmental bureaucracies. This is, however, seldom the case. The detailed

knowledge needed to define and implement policies is often in the hands of front-line bureaucrats, who deal daily with social and economic problems in need of solution. In these contexts, policy goals are usually defined in vague, ambiguous terms.'
(Woollard, Zhang, & Jones, 2007, p.4)

The extracted data shows that this phenomenon appears to be the opposite to what happened in the USA, where a 'bottom-up' development of the Third Mission occurred (Woollard, Zhang and Jones, 2007). Some of the data suggested this contributed towards a so-called 'second academic revolution' – as, for example, Nelles and Vorley indicated in 2010. They highlighted that the Bayh-Dole Act of 1980 led to the USA leading on a second academic revolution. They further hinted that the UK lagged behind the USA Bayh-Dole Act in terms of generating a second academic revolution (Vorley & Nelles, 2009) which didn't come about in the UK in fact until 1999/2000 through third stream funding (See Section Context Theme1a.2, p.151). They proposed that:

"It was the creation of a new "third" funding stream through the Higher Education Funding Council for England (HEFCE) in 1999/2000 that ultimately formalised the Third Mission in higher education policy. The focus of HEFCE's third stream funding continues to evolve." (Nelles & Vorley, 2010b, p.343)

Within an external policy landscape that is ever changing, a consideration is that a university needs to be aware of the Third Mission policy drivers, to anticipate the future direction of the UK higher education context. This may help prevent knee-jerk reactions within institutions to a one-size-fits-all policy. A university may then turn their focus towards a longer-term strategy for Third Mission activity that is based on an institution's own strengths. Heterogeneity is interpreted as being key to this and is discussed further in Section Context Theme2a (p.168), Section Exposure Theme 2e, (p.228), Section 9.4.3 (p.277), and Section 10.2.3, p.296.

External Context Theme 1a.1 Indicator 2 - Policy has moved from a 'narrow' to a 'broader' definition of Third Mission over time.

As mentioned in Section Context Theme1a.1 (p.142), the data extracts suggest the Third Mission was formally recognised in public policy in the late 1990's (Nelles & Vorley, 2009) when HEFCE funded the first third-stream funding programme in 1999. It appears that the 'prescriptive nature' of the funding contributed to the forming of a

'narrow' definition for the Third Mission, based on funding criteria (being quantitative and so easy to measure).

Of importance towards answering the research Questions is that the definition appears to have broadened over time. For example, according to Pugh, Hamilton, Jack, and Gibbons (2016), the definition of the Third Mission in policy has broadened over time:

“Particular interest has been paid, by policy-makers and academics, to the potential for commercialization and economic application of universities’ knowledge resources. What was often referred to as ‘Third Mission’ activities included technology transfer, university–industry partnerships and educational curricula. The term ‘Third Mission’, however, broadened over time, and came to include wider activity to foster engagement with industry and society.” (Pugh, Hamilton, Jack, & Gibbons, 2016, p.1357)

The characteristics of 'broadening' the definition of the Third Mission is not explicit in the data extracts, so are difficult to describe; however, interpretation of the data extracts led to so-called *noticings* being captured (Appendix E). During thematic analysis, these noticings illuminated such terms as 'technology transfer' and 'knowledge transfer,' which were originally associated with the term Third Mission. However, there has been a shift in the last decade towards new terms like *knowledge exchange* (KE) and *entrepreneurialism*. For example, Vorley and Nelles (2009, p.286) suggested “a ‘*shift*’ in policy from science policy to [a broader] ‘*innovation*’ and technology policy”. More recently, Degl’Innocenti, Matousek, and Tzeremes (2019) suggested that Third Mission policy relates to interaction with the ‘socio-economic environment’ (Degl’Innocenti et al., 2019, p.2). However, Sánchez-Barrioluengo et al. (2019) link policy to entrepreneurialism and knowledge exchange:

“There has been strong policy interest in universities becoming more entrepreneurial and engaging in knowledge exchange activities as part of an expanding Third Mission agenda”. (Sánchez-Barrioluengo et al., 2019, p.1)

The European Commission acknowledged policies at a European level with regards to the Third Mission, wishing to capture the Third Mission activities of a university. However, in 2014, the Commission highlighted how little data was available to help policymakers and universities position themselves and make decisions about the Third Mission (Secundo et al., 2017).

The example data extracts above act as indicators from the corpus of data to show how broad and diverse the connections between the Third Mission and policy are. Even though there is little consensus within the corpus of data, there appears to be a universal acceptance that UK policy drives university Third Mission practice and that the concept has broadened over time. This leads to my next proposition:

Proposition – The Third Mission concept has broadened over time.

External Context Theme 1a.1 Indicator 3- Policy has been a change catalyst.

First, the data extracts suggest that policy has acted as a change catalyst (Section 1.6, p.8) for the Third Mission in the UK. The Lambert Review (2003) has been cited as one of the catalysts (Charles, Kitagawa, & Uyarra, 2014). Lambert states universities are *sources and repositories of knowledge* which play a key role in delivering public policy. Another key catalyst is the Dearing Report on Higher Education (NCIHE, 1997) which was delivered under the New Labour Government (1997 – 2010). There appears to be few attempts to catalyse the Third Mission prior to this. As pointed out by Degl’Innocenti et al. (2019), there have been overwhelming changes in policies -and therefore in practice- made by universities where the shift is to *“effectively value and promote a deep engagement with business and government”* (2019, p.2). The term *engagement*, however, has not been defined in the data extracts, leaving a university to do this. One way a university is currently able to respond is through the Research Excellence Framework (REF), which requires the measurement of research ‘impact’:

“The UK REF now considers the assessment of the ‘impact’ research has on wider society in addition to the existing assessment of research excellence” (Degl’Innocenti et al., 2019, p.2)

The REF is considered further in Section Context Theme1b.2, p.159).

Second, The Higher Education Act (HEA) has acted as a policy catalyst by creating “new” universities in 1992, leading to a change in the mix of research, teaching and ‘knowledge exchange/ *Third Mission*’ activities of former polytechnics (Degl’Innocenti

et al., 2019).

Third, the global financial crisis acted as a policy-changing catalyst for the Third Mission with Charles et al. (2014) pointing out that the global financial crisis of 2007 (and after-effects due to developments in national Government in 2010), has boosted developments in higher education policy. This has contributed to triggering a focus on *local* collaboration instead of *regional*, but these changes impact each university differently, dependent on their location in the UK:

“Universities in the UK have experienced dramatic changes since the onset of the global financial crisis, partly due to the immediate effects of the crisis, but also to the change in national government, upheavals in higher education (HE) policy and austerity measures. Increased pressure for local engagement with business has been combined with a rescaling of local economic development governance, and a shift from regional collaboration to a more localist agenda.” (Charles et al., 2014, p.1)

The global financial crisis is discussed further in Section Context Theme 1b.1 (p.155).

Fourth, the data indicated that policy catalysts appear to be accelerating *scalar shifts* in the UK:

“‘scalar’ shifts in England since 2010, with the abolition of the Regional Development Agencies (RDAs) and their replacement with smaller scale Local Enterprise Partnerships (LEPs) with lower levels of funding than those under the RDAs” (Bentley & Pugalis, 2012, cited in Charles et al. (2014, p.2)

Fifth, in recent times, policy has also shifted from a *regional* to a *local* focus on the Third Mission:

“Regional level collaboration, meeting regional needs and demand has declined in terms of universities’ institutional priority and strategies. Policy infrastructure, resources and funding incentives at the regional level are no longer there, replaced by the city-region/local level partnerships. In both the Northeast and Northwest regions, universities are increasingly finding little incentive to collaborate with each other at the regional level” (Charles et al., 2014, p.30)

Sixth, another example of policy catalysing change is the linking of ‘entrepreneurialism’ and ‘Third Mission’. This is expressed by Woollard et al. (2007), Kitagawa et al. (2016), and Nelles and Vorley (2010a), for example:

“In the UK, Government and policy advisors regard those institutions that have been successful in generating income associated with Third Mission activities as being entrepreneurial.” (Woollard, 2010, p.414)

And:

“Universities are under growing pressure to become more ‘entrepreneurial,’ by Government policies supporting university Third Mission strategies”.
(Kitagawa et al., 2016, p.4)

Finally, recent catalysts for change include ‘exiting the European Union’ and shifts in the ‘home student base’, leading to expectations for universities to become more ‘entrepreneurial’ as: *“Changing markets, increased competition, reduced funding, new regulations and shifting purpose are current realities for UK universities”.* (L. Martin, Warren-Smith, & Lord, 2019, p.282).

The example extracts further highlighted the diversity of perspectives about policy and Third Mission, with no consensus gained from the exploration of the corpus of data. Martin, Warren-Smith, and Lord (2019) suggested:

“Governments in the UK have invested resources and funding and produced policy documents related to the Third Mission for over 20 years. However, the persistent gap in universities delivering on policy Third Mission aims is well documented.”
(Martin et al., 2019, p.281)

External Context Theme 1a.2 Key Characteristic – Third-stream funding is a key external driver towards Third Mission in UK Universities.

Extracted data (with regards to funding the Third Mission) refer to the term *third stream* funding, rather than *Third Mission* funding. The reason for this is not explicit in the extracted data (which contributes to the confusion and ambiguity around defining the Third Mission). In the following Sections, three key *interpreted indicators* of third-stream funding, (as an external driver of Third Mission activity) are explored. Because the volume of extracts was numerous and diverse, in order to simplify, other indicators are visually summarised in Figure 9-4.

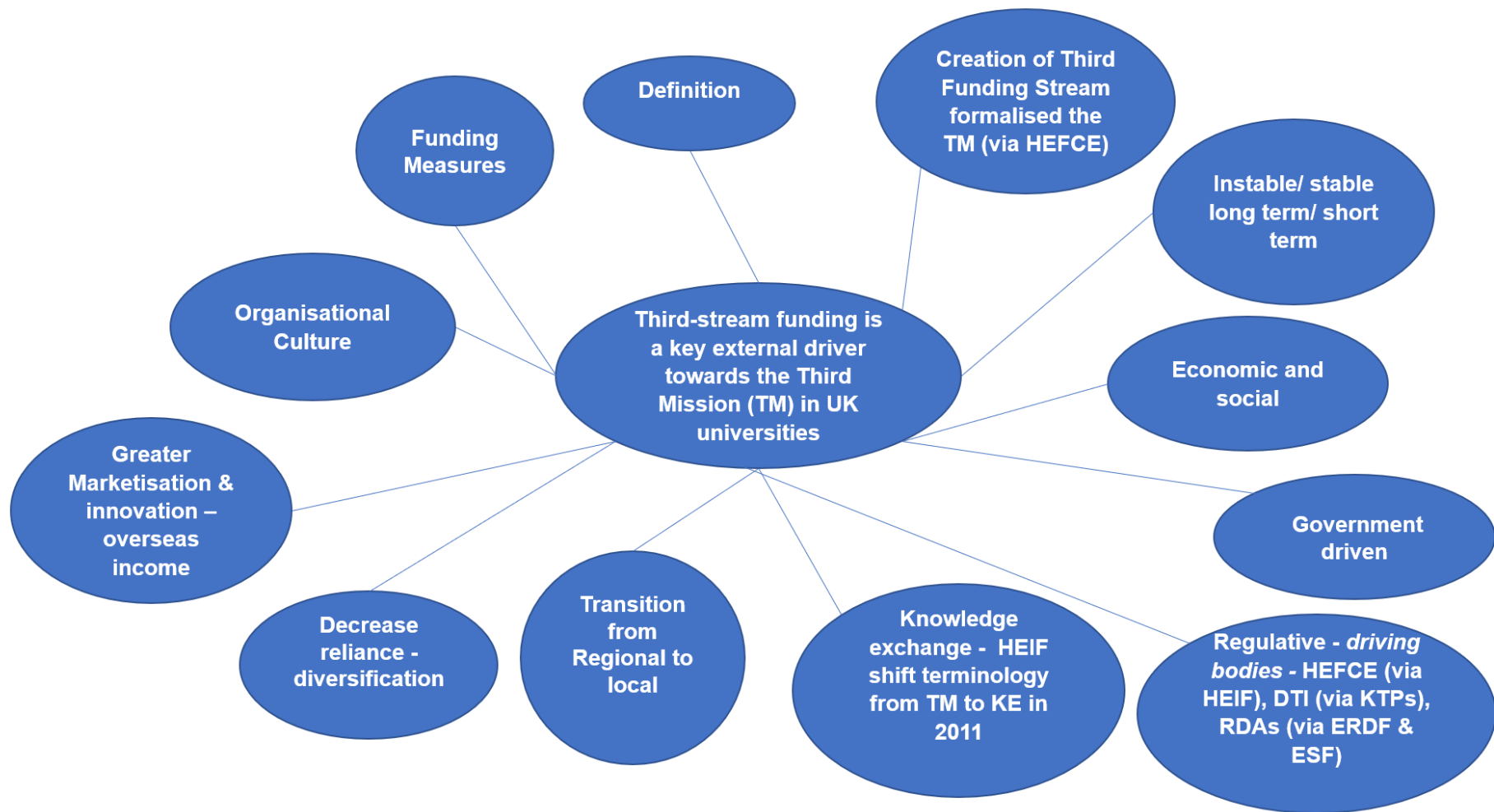


Figure 9-4 External Context - Third Stream Funding Characteristics

External Context Theme 1a.2 Indicator 1- Third stream and Third Mission are explicitly connected.

As mentioned in Section Context Theme 1a.1 (p.142), HEFCE formalised the use of third stream in 1999/2000 as a funding term towards helping universities achieve the Third Mission:

“In the UK several White Papers published during the 1990s identified scope for socio-economic engagement of universities. However, it was the creation of a new “third” funding stream through the Higher Education Funding Council for England (HEFCE) in 1999/2000 that ultimately formalised the Third Mission in higher education policy. The focus of HEFCE’s third stream funding continues to evolve”.
(Nelles & Vorley, 2010b, p.343)

The extracted data suggested that the terms ‘Third Mission’ and ‘third stream’ have been confused over time; for example, in 2016, Watson, Hall and Tazzyman stated that the terms third stream and Third Mission have even begun to be used interchangeably over time, leading to the misconception that third stream and Third Mission are in fact the same thing:

“The strategic importance of the third stream has led many universities globally to brand it under alternative titles such as ‘Third Mission,’ ‘third leg,’ ‘reach out,’ ‘outreach,’ ‘enterprise’ and ‘consultancy’ (Lawton Smith and Waters, 2015). The definition of ‘third stream’ most cited and accepted in the UK was documented in the 2002 Science Policy Research Unit Report to the Russell Group 2 of Universities by Molas-Gallart et al., (2002). This refers to third stream activities being ‘concerned with the generation, use, application and exploitation of knowledge and other university capabilities outside academic environments”
(Watson et al., 2016, p.156)

This then had a potential cascading impact of confusion throughout hierarchies within universities, ranging from strategic level to Departments and academics, for example:

“The results indicate that over two thirds of the respondents did not understand the term ‘third stream.’ This lack of awareness was also seen in relation to the target for consultancy activities, with only 43% being aware of the university/faculty target for consultancy activities, with low awareness across all academic positions and across all lengths of employment”. (Watson et al., 2016, p.158)

The data extracts indicate that ‘third stream’ is the term used by UK Government (via policy) for funding of Third Mission activity. Clark (1998), as cited in Molas-Gallart and Castro-Martínez (2007), defines third stream:

“As a stream of income. Burton Clark (1998) distinguishes three different streams of income accruing to universities. The First Stream is constituted by public core funds that universities receive to support their teaching responsibilities. The Second Stream refers to funds received from governmental research councils to support research. Finally, all other forms of funding constitute the “Third Stream”, including, for instance, income from philanthropic foundations, the European Union, student fees, the private sector, etc..” (Molas-Gallart & Castro-Martínez, 2007, p.3)

Proposition – That *third stream* is about funding the Third Mission, however *third-stream activity* and Third Mission *activity* are used interchangeably in the data.

External Context Theme 1a.2 Indicator 2 - HEIF terminology – Third Mission and *knowledge exchange* are linked.

The Higher Education Innovation Fund (HEIF) uses the terminology *knowledge exchange* when referring to *Third Mission activity* and the terms appear to be used interchangeably in some of the data extracts. This supports the interpretation that the definition of the Third Mission has broadened over time (Section 9.3.2, p.220). Appendix F details some examples of data excerpts which refer to knowledge exchange being explicitly linked to HEIF and/or Third Mission.

Proposition – that ‘*knowledge exchange activity*’ and ‘*Third Mission activity*’ have been thematically Grouped together, as the terms seem to be used interchangeably, with Third Mission activity in some cases appearing to have been superseded by the term Knowledge Exchange in more recent terminology.

Perhaps a change in Government brings with it the need to adopt new terminology so as to be seen as a new approach. Knowledge Exchange is considered further in Section Exposure Theme 1c (p.163).

External Context Theme 1a.2 Indicator 3- Driving a decrease in university reliance on funding.

The data extracts suggest that the reduction in funding is driving universities towards diversifying their income. Appendix I offers some examples which support this view.

This leads me to my next proposition:

Proposition – A university should seek to proactively diversify their Third Mission activity to find new sources of funding, with a view to reducing over-reliance on UK Government funding.

External Context Theme 1a.3 Key Characteristic – Local Enterprise Partnerships have been a government tool for working towards the Third Mission.

Having discussed Government policy (Context Theme 1a.1) and Government funding (Context Theme 1a.2), the extracted data leads me to the Government initiative called Local Enterprise Partnerships (LEPs). This is one of the most recent drivers behind Third Mission activity, which is highlighted in the data set. Data extracts relating to LEPs included the characteristics of localism, heterogeneity, and relationships/influence. LEPs were first described in Chapter 1 (Section 1.2, p.1). Selected excerpts exemplify the data below:

External Context Theme 1a.3 Indicator 1 – Focus on Localism.

With reference to localism, LEPs were formed following an announcement by the Coalition Government in October 2010 (DBIS, 2010). A shift away from Regional Development Agencies was a significant change for universities (Charles et al., 2014). The Government aimed for stronger association between universities and city regions; however, data extracts suggested that for some areas in the UK this created a situation of instability, for example:

“The recent shift to LEPs could lead to a more focussed and strategic alignment between universities and city regions – however, both in Greater Manchester and in Newcastle, the new alignment seems to be still in a state of flux.” (Charles et al., 2014, p.30)

Further, they stated that this has led to a *scalar shift* in UK Government policy landscape away from a regional and towards a local focus:

“The concept of ‘city-regions’ has gained popularity in both policy and theoretical

discourses internationally over the last decade... In the UK, this has been accelerated by the new Government policy landscape and ‘scalar’ shifts in England since 2010, with the abolition of the Regional Development Agencies (RDAs) and their replacement with smaller scale Local Enterprise Partnerships (LEPs) with lower levels of funding than those under the RDAs (Bentley and Pugalis, 2012)”. (Charles et al., 2014, p.2)

External Context Theme 1a.3 Indicator 2– Focus on Heterogeneity and LEP.

Charles, Kitagawa and Uyarra (2014) referred to the Witty Review which explicitly connected universities and LEPs with their inherent heterogeneity. With this in mind, the DBIS (2013) indicated that “*differing circumstances will need different models of university-LEP interaction*” (Charles et al., 2014, p.11). While there are only relatively few references to external Government drivers in relation to key terms ‘heterogeneity’ and ‘LEP’ in the corpus of data, there are more data extracts referring to ‘local’ (Section Context Theme1b.4, p.159).

External Context Theme 1a.3 Indicator 3– Strategic Influence and LEP.

Watson, Hall and Tazzyman (2016) referred to the Adonis Review (Adonis, 2014) which proposed: “*That to facilitate economic growth, universities needed to position themselves on the boards of Local Enterprise Partnerships*” (Watson et al., 2016, p.157).

Although there is little reference to university/LEP strategic influence in the data extracts, Watson, Hall and Tazzyman allude to the importance of *tacit* aspects of relationships and networks. The concept of *tacit* aspects was identified in the scoping search (Chapter 1, Section 1.4.2, p.5) as an area to explore. The term *tacit* is discussed further in Section Context Theme1b.3 (p.159).

Proposition – If a university opts to participate in the Third Mission, having strategic membership in an LEP is a consideration.

External Context Theme 1b - Geographical diversity has shaped the Third Mission context in the UK.

Having explored the Government Sub-theme, this Section then considers the second external context Sub-theme of geographical diversity, to work towards answering Research Questions 3 and 4.

The geographical diversity Sub-theme captures international, national, regional, and local characteristics of UK Third Mission activity (Figure 9-5).

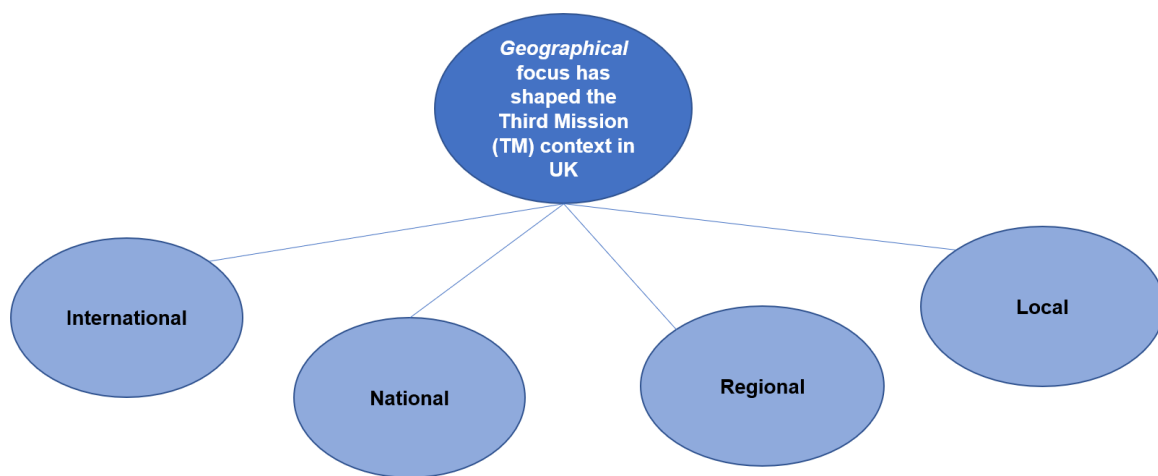


Figure 9-5 External Context – Geographical Diversity Characteristics

The central organising concept of this Sub-theme is that “*the geographical diversity of Third Mission activity in the UK has been driven by controls which are external to a university setting*”.

Although there is a multitude of characteristics, four key interpretive characteristics of Third Mission activity (one relating to each Sub-theme) are discussed in the following Sections:

External Context Theme 1b.1 Key Characteristic – (International Sub-theme) Global drivers shape UK Third Mission activity.

Interpretation of the data extracts suggests that global drivers shape UK Third Mission activity. Three noteworthy indicators that contribute towards answering the Research Questions include references, firstly, to the global financial crisis, secondly, to global drivers pushing the UK to adopt a ‘mimic’ approach (especially apparent by the UK

Government adopting the USA-based Triple Helix model as a mass commercialisation tool), and thirdly, the global driver towards the 'Knowledge Economy'.

External Context Theme 1b.1 Indicator 1 – Global Financial Crisis of 2007.

Appendix J contains a selection of data extracts that refer to a global financial crisis in 2007 and its ensuing impact on shaping Third Mission activity in the UK. From the extracted data, it appears that the global financial crisis acted as a catalyst for funding changes in the UK HE sector, in particular the *mass marketisation* of universities.

Proposition - It is important to tell the story of *why* the UK is moving towards mass marketisation (via Third Mission activity), as it is the first step in managing change within an institution (and indeed an individual).

Raising awareness of the UK situation, its related problems, implications and need for Third Mission activity is fundamental for individual acceptance (of context). It could be argued that if awareness of context is not raised, then the confusion and fragmentation -which was made apparent in the corpus of data- will continue.

External Context Theme 1b.1 Indicator 2 - Global drivers have led to 'mimic' approach.

Trying to replicate international best-practice by using a mimic approach is risky, due to the heterogenous nature of UK universities:

“Attempts have been made worldwide to replicate the best-practice of leading regions, which have successfully harnessed their universities to bring about regional economic development. However, the literature is less clear on the function and applicability of these approaches in the weaker/peripheral/uncompetitive regional contexts...Adopting an approach developed in leading regions and applying it wholesale in diverse and divergent regional contexts in a 'copy and paste' manner, is recognized as problematic”. (Pugh, 2017, p.983)

Proposition – Universities are recommended to avoid a mimic approach by first understanding their own heritage.

External Context Theme 1b.1 Indicator 3 – The UK Government has used the USA-based Triple Helix model as a mass commercialisation tool.

The Triple Helix Model, first introduced by Etzkowitz in USA (1983), has been adopted in the UK with mixed success according to Pugh (2017):

“The Triple Helix has been a key feature of the Welsh government’s approach... However, the Welsh efforts have met with mixed success; the positively received programmes in this domain are the exception rather than the rule and take a broader interactive view of innovation and the role of universities therein.”

(Pugh, 2017, p.990)

And:

“Whilst it is clearly necessary for policymakers to study best practice elsewhere ... a model that is too prescriptive and normative does not adapt to regional circumstances. The Triple Helix falls into such a category, and its application as a policy blueprint in Wales has largely failed to drive innovation through the university sphere.” (Pugh, 2017, p.991)

It is noted that the Triple Helix Model comes from an international source and is discussed as an *internal* context indicator of Third Mission (p.166), *interface* context indicator (p.190) and as a Third Mission *mechanism* (p.231).

External Context Theme 1b.1 Indicator 4 – Global drive towards the Knowledge Economy.

Whilst frequency of terminology is not the focus of this study, it should be pointed out that fifteen out of twenty-one articles from the corpus of data referenced *knowledge economy* with some data extracts referring to universities as being ‘engines’ of the knowledge economy (Vorley & Nelles, 2009 and 2010, and Martin, 2012). Some data extracts referred specifically to a ‘global knowledge economy’ – and referenced the work of Etzkowitz’s Triple Helix model (Nelles & Vorley, 2010, Martin, 2012, Pugh, Hamilton, Jack, & Gibbons, 2016, Pugh, 2017). No data extracts explicitly referenced a ‘national or UK’ knowledge economy. This suggested that there is a need for further definition of ‘knowledge economy’ in relation to the UK national context.

External Context Theme 1b.1 Indicator 5 - International student focus.

To contribute to diversifying a UK university's income (Section Context Theme1a.2 Indicator 3, p.152), a focus on international students is noted in the example of NEWUNI:

“The increasing importance of overseas students in maintaining income levels and the opportunities offered by international markets require a higher profile, which means establishing strong collaborative links with organizations and institutions in other countries. Seeking to become ‘an international university with global brand and reach’ is an obvious strategic response to these drivers.” (Woollard et al., 2007, p.395)

Proposition – A university is recommended to explore international opportunities to diversify its income as part of its Third Mission strategy.

**External Context Theme 1b.2 Key Characteristic – (national Sub-theme)
National driver towards Third Mission activity can be merged with UK
Government drivers.**

Having discussed *international* drivers in Section Context Theme 1b.1 (p.155), this Section focusses on *UK national* drivers. From the extracted data, key characteristics emerged around ‘research’, ‘knowledge’, and ‘entrepreneurialism’. ‘Research’ is driven through the REF (Section Context Theme 1a.1, p.142). ‘Knowledge’, in reference to external drivers, refers to ‘*knowledge production*’ for *economic gain* or ‘*national advantage*’:

“While a recipe has a clear and simple purpose, the aims for universities are often more aspirational than practical, with universities expected to deliver national advantage by supporting innovation and economic success, enabling UK competitiveness and greater productivity, while addressing societal issues (DTI, 1998)... Universities were required to add to their first and second missions, research and teaching, to address their Third Mission – their place in the socioeconomic context (HEFCE, 2009).” (Martin & Turner, 2010, p.273)

‘*Entrepreneurialism*’ is discussed in Section Context Theme 1b.3 (p.159).

Five articles from the body of data referred to ‘social contract’: Zawdie (2010), in relation to *knowledge exchange*, Martin (2012), in relation to *university specialisation*, Kitagawa et al. (2016), in relation to *Third Mission institutional strategies*, Sánchez-Barrioluengo and Benneworth (2019), in relation to *Third Mission and structural configurations*, and Degl’Innocenti et al. (2019), in relation to *Third Mission and research*. Regarding the drive for ‘national advantage,’ it still remains unclear as to whether the Third Mission refers to purely commercial aspects or also includes social aspects. This is discussed further in Section Context Theme 1d (p.164).

**External Context Theme 1b.3 Key Characteristic – Historical regional focus
towards ‘entrepreneurial’ and ‘engagement’ activities to achieve the Third
Mission.**

Pre-2010, the geographical diversity drivers focussed on universities reaching out to formalise partnerships within their regions. Between 1997 and 2010, the New Labour Government drove regional engagement. The Dearing Report 1997 appears to act as a catalyst for this change in the UK, because: *‘prior to this point only tentative*

attempts had been made by Government to encourage university engagement and regional collaboration.” (Charles et al., 2014, p.8). The New Labour Government decentralised funding, directing it to Regional Development Agencies (RDAs) in 9 English regions:

“The economic and social contributions of universities were seen to be public goods, supported both by regional bodies (e.g., the RDAs and Regional Government Offices) and by higher education funding bodies through the so-called ‘third stream’ funding such as the Higher Education Innovation Fund (HEIF) available in England.”
(Charles et al., 2014, p.8)

Charles, Kitagawa and Uyarra also proposed that *‘public goods’* constitute the university *‘output’* (economic and social contributions) of university knowledge holders – this could be interpreted as being a core issue/root cause of Third Mission barriers as there are many *‘types’* of university that produce different outputs. The commercialisation of knowledge as *‘public goods’* through top-down drivers can lead to resistance to change where there is not agreement from stakeholders at all *‘levels’* (SOGI, Section 2.7.2, p.29).

External Context Theme 1b.3 Indicator 1 – *Entrepreneurial University* as a regional Third Mission phenomenon.

With reference to *‘types’* of university, Woollard, Zhang and Jones explicitly connected the term *‘Entrepreneurial’* University (EU) with *‘Third Mission’* and *‘region’*:

“Etzkowitz (1983) coined the term ‘Entrepreneurial University’. Subsequently, it has been adopted by academics and policy makers to describe universities that effectively deliver on their ‘Third Mission’.” (Woollard et al., 2007, p.388)

Woollard (2010) defined *‘Third Mission activity’* as *being ‘entrepreneurial’*:

“In the UK, Government and policy advisors regard those institutions that have been successful in generating income associated with Third Mission activities as being entrepreneurial.” (Woollard, 2010, p.414)

Further discussion on Entrepreneurial University is in Section Context Theme2a1.1 (p.173).

External Context Theme1b.3 Indicator 2 - *Engaged University* as a Third Mission phenomenon.

Again, with reference to 'types' of university, Charles, Kitagawa and Uyarra connected the term *Engaged University* to a regional focus:

"This study draws on the perspective of the 'Engaged University' which refers to the commitment of universities to a broad range of activities (Lawton Smith, 2007) including 'civic engagement' (Watson et al., 2013), 'public engagement' and 'community engagement' (Benneworth, 2013). It suggested a broader and more adaptive role performed by universities as 'enablers of regional development" (Charles et al., 2014, p.4)

This implies that an *Engaged University* is explicitly connected to having a regional focus and has a broad definition of roles that includes civic engagement, public engagement, and community engagement - this activity is broader than the provision definition of Third Mission offered in Chapter 1, as it goes beyond 'commercialisation or economic development'.

Sánchez-Barrioluengo and Benneworth (2019) pointed out that the *Engaged University* is a newer concept that the *Entrepreneurial University* and is explicitly linked to Third Mission activity:

"The more recent concept of the Engaged University (Goddard, 2009) goes even further and advocates that the Third Mission of economic development should be a guiding and integral principle of the organisation and practice of universities and not just a separate strand of activities." (Sánchez-Barrioluengo et al., 2019, p.472).

The concept of an *Engaged University* is discussed further in Section Context Theme2a.1.4 (p.178).

External Context Theme 1b.3 Indicator 3 - Links to Third Mission definition.

Linking to considerations of the definition of the Third Mission being of 'narrow' scope or 'broad' scope (Section Context Theme1a.1, p.142), Audretsch (2014) cited in Pugh et al. (2018) that traditional entrepreneurship relates to technology transfer, which for this study is aligned to knowledge transfer and 'narrow' in scope. Of interest to this study, Audretsch also proposed that there are gaps in 'softer' and 'broader' scope roles, which for this study are broader in scope than 'knowledge transfer' activities. These 'softer' activities relate to 'tacit knowledge' (Section Context Theme1a.3, p.153) and the broader scoped 'knowledge exchange' activities (Section Exposure Theme 1c, p.163). The Entrepreneurial University concept and *Engaged*

University concept hark from different conceptual sources. Further consideration of these differences is discussed in Section Context Theme2a (p.168).

Sánchez-Barrioluengo, and Benneworth (2019) put forward that a 'maturity' of experience in Third Mission activity/ Knowledge Exchange *activity* may be a 'measure of the extent' to which geography/place (local/ regional/ national /international) collaboration is prioritised by a university. This leads to a consideration (Section 9.1, p138) concerning RQ4:

Consideration - Both '*maturity of experience*' and measuring '*extent*' suggested the potential framework should be on a *continuum*. This is explored further in Section Exposure Theme 2a, p.168).

External Context Theme 1b.4 Key Characteristic – (local Sub-theme) - Third Mission focus has shifted from regional to local since 2010.

As mentioned in Section Context Theme1b.3 (p.159), 2010 saw the move from regional funding focus (RDAs) to local funding focus (LEPs) - this is a "*scalar shift*" in UK funding focus based on place/geography (Sánchez-Barrioluengo et al., 2019).

The shift from the Regional Development Agency (RDA) to Local Enterprise Partnership (LEP) in the last twelve years has been a tangible example of how a university has been redirected through UK Government funding. Localism is therefore identified as a key external context characteristic of current Third Mission activity. This highlighted that the definition of Third Mission has shifted over time and is still changing in reaction to UK policy drivers, hence the difficulty of pinpointing a definition. The shift from regionalism to localism means economic development currently focusses more on local cities, leading to changes in university strategies and networks:

"Focusing on the Third Mission, governments are increasingly promoting university-industry collaboration through a range of subsidised initiatives and infrastructure supporting engagement with non-academic agents." (Sánchez-Barrioluengo & Benneworth, 2019, p.207)

When the Coalition Government announced the abolition of the nine RDAs in October 2010 (DBIS, 2010), the shift from RDAs to LEPs acted as a catalyst towards localism:

“The economic development landscape was also changing as the Coalition Government announced in October 2010 (DBIS, 2010) the abolition of the nine RDAs in England and their replacement with Local Enterprise Partnerships (LEPs) at a city region level. The government’s approach to the governance of local economic development, including “City Deals” and “Localism”, raises a series of questions about the autonomy of the local authorities in relation to central Government related to accountability, efficiency, and innovation (Bentley and Pugalis, 2012)”. (Charles et al., 2014, p.10)

External Context Theme 1c - Third Mission context specific to business is lacking.

The ‘business’ Sub-theme identified no ‘business-driven’ external Third Mission activity characteristic. Its absence is a surprise, and the data extracts appear to reflect that businesses are exerting no business control - or if they are, it is not visible in the extracted data.

The central organising concept of this Sub-theme is that *“there is an absence of business drivers articulated in the data extracts”*.

Of the business extracts generated, only one article referred explicitly to specific businesses. This was written by Woollard, Zhang and Jones (2007) and referred to Metrolink and Railtrack, working with anonymised NEWUNI (Woollard, Zhang & Jones, 2007).

Most extracts referred more generically to ‘business’ as a collective Group e.g., ‘business and community’.

Three key characteristics named ‘business reach-out’, ‘hierarchy-not-helix’ and ‘business-or- industry’ have been interpreted from the data to help contextualise ‘businesses within the context of the Third Mission’ (based on my body of data).

External Context Theme 1c Indicator 1 – University has responsibility to ‘reach out’ to business.

The terms the ‘Higher Education Reach Out to Business and the Community (HEROBC)’ fund and the ‘Higher Education Business Community Interaction (HEBCI)’ survey appear to have been aligned to businesses. According to Vorley and Nelles (2009), the HEROB fund was considered a *landmark* funding for the Third Mission:

“In the evolution of contemporary universities, and the shift towards a more permanent structure for third strand funding (Charles, 2003). Even over its comparatively short history third stream funding has lacked focus and coherence, which is in part due to HEFCE’s attempt not to be prescriptive. However, successive programme funding has in fact become more prescriptive, with institutions necessarily becoming somewhat formulaic in their approach towards the Third Mission to meet the funding criteria.” (Vorley & Nelles, 2009, p.292)

As the title suggested, the onus is on the university to ‘reach out’ to business (narrow scope) and community (broader scope).

Sánchez-Barrioluengo et al. (2019), also suggested that the Higher Education Business Community Interaction (HEBCI) survey is about universities taking ownership of their Third Mission activities towards ‘business and community interaction’. This leads to my next proposition:

Proposition – Third Mission is the responsibility of a university.

External Context Theme 1c Indicator 2 - Small and Medium Enterprises (SMEs).

As a sub-set of ‘business’, SMEs are referred to in six out of twenty-one articles in the corpus of data, including references to: SME business growth (Pugh et al., 2016), supporting SME development (Pugh et al., 2018), and incentives for regional and SME engagement (Sánchez-Barrioluengo et al., 2019). They say:

“Given that SMEs account for the majority of the UK business population and are key drivers for new jobs and innovative technologies, a worrying trend can be observed in terms of engagement with SMEs and in terms of local and regional engagement, which has diminished substantially in the last period, coinciding with the economic crisis and the abolition of the English RDAs... measures are needed to ensure the continuing role of universities as partner and anchor organisation in their regions.”
(Sánchez-Barrioluengo et al., 2019, p.487)

Future Research - Whilst the focus is not specifically on SMEs, further consideration of them with regards to Third Mission activity would be a good idea for future study.

External Context Theme 1d - Socio-economic development is an agreed, but underdefined, external driver of Third Mission activity.

Socio-economic considerations were noted in Section Context Theme 1b.2 (p.159) and the external context is further clarified in this section. The socio-economic development theme captures some of the diverse external definitions of the Third Mission, but with little agreement in the data, except that the Third Mission does indeed relate to socio-economic development.

The central organising concept of this Sub-theme is that “*most articles in the corpus of data suggested that socio-economic considerations are vital for achievement of the Third Mission*”. One can interpret a common pattern from the data which was extracted in that socio-economic development is viewed by many authors as a key contextual characteristic of Third Mission activity. For example, Martin and Turner (2010) link HEFCEs to the Third Mission drive by connecting it with socio-economic context:

“While a recipe has a clear and simple purpose, the aims for universities are often more aspirational than practical, with universities expected to deliver national advantage by supporting innovation and economic success, enabling UK competitiveness and greater productivity, while addressing societal issues (DTI, 1998) ... Universities were required to add to their first and second missions, research, and teaching, to address their Third Mission – their place in the socioeconomic context (HEFCE, 2009).” (Martin & Turner, 2010, p.274)

A university needs to decide whether both social and economic factors fall within their definition of *Third Mission*, as this will shape their institutional strategy and operational habits. If they opt to aim towards social targets, then a ‘social contract’ (Section Context Theme 1b.2, p.159) in relation to Third Mission activity/ knowledge exchange activity is recommended. This leads to my next proposition:

Proposition – There is little agreement over the definition of the descriptive term ‘socio-economic’ in the context of the Third Mission in the UK.

There is no shared definition of what constitutes the term *socio-economic* in the context of the Third Mission. This begs the question – exactly what is meant by ‘socio-economic’ in the context of the Third Mission in the UK?

9.2.2 Context Theme 2 – Internal Context

The following sections explore the *Internal Context* Theme (Figure 9-6, p.167), interpreting key external context characteristics from the data extracts, and in places key internal context gaps and questions that may help with RQ3. This forms a rich description of *internal context*. The sections are split in order to focus on the Sub-themes, relating to *SOGI Levels* as defined in Section 2.7.2 (p.29), including: ‘university level’, ‘business School level’, and ‘academic level’. Thematic analysis identified the scope of the next section, and this is depicted in Chapter 8. The central organising concept of the internal context theme is that “*university strategies react to an underdefined Third Mission phenomenon in the UK*”.

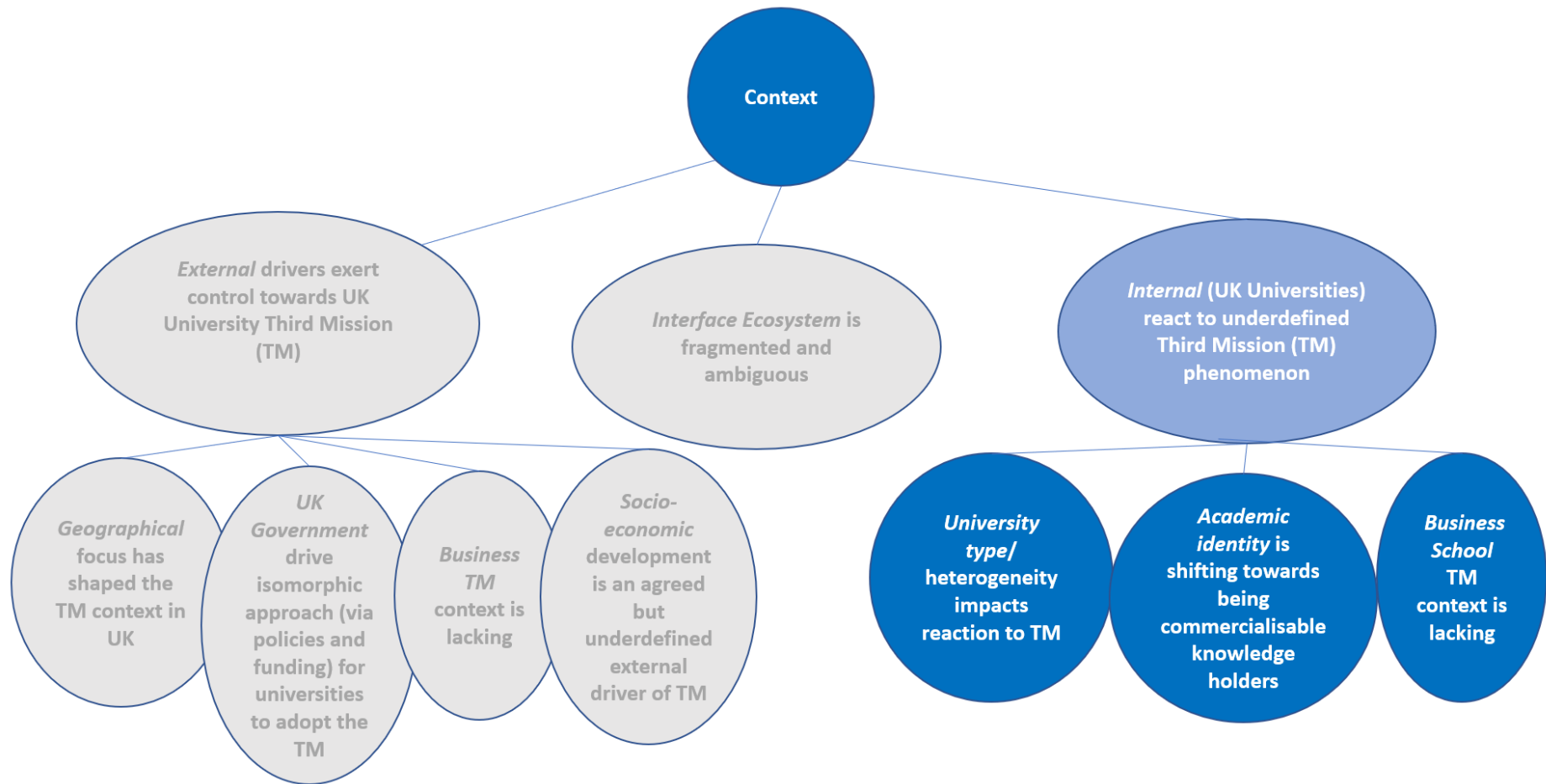


Figure 9-6 Internal Context Theme and Sub-themes

The *internal* (to a university), contextual characteristics of UK Third Mission activity were initially collected into nodes in NVIVO, then called *Organisational/Institutional*, *Group/School*, and *Individual/Academic*. The node titles were initially informed by SOGI (Section 2.7.2, p.29). The node hierarchy developed in NVIVO was based on emerging factors that generated the formation of each Sub-theme. It was during thematic analysis that the Sub-themes were interpreted and renamed. The Sub-theme: *Organisational/Institutional* became '*University type and/or mode heterogeneity impacts the reaction to Third Mission*', *Group/School* became '*Business School Third Mission context is lacking*' and *Individual/Academic* became '*Academic identity is shifting towards people being commercialisable knowledge holders*'. Following data extraction revision and analysis, the two initially separate nodes *University* and *Organisation* were merged into one node, since the data extracts at organisation level (SOGI) had a central organising concept of '*university*'.

RQ3 required specific analysis of the data extracts, towards building a new framework, 'to create appropriate conditions to achieve the Third Mission'. The following Sections review each level (Section 2.7.2, p.29) in turn with a view to pulling out propositions for a university to consider for this new framework.

Internal Context Theme 2a *Organisational* level - University Third Mission Type or Mode is heterogenous.

The 'university Third Mission type/mode' sub- theme encapsulates a university's heterogenous organisational level characteristics (in terms of strategic defining features of a university, in reaction to Government drivers, towards achieving the Third Mission). Some university descriptors are already well defined e.g., the so-called 'Russell Group' universities and the 'post-1992' universities, because these 'types' have been defined and measured in policy. The interest in this section is to explore whether a university should consider assigning a 'label' as part of their institution descriptor that will indicate their distinctive approach to the Third Mission.

The central organising concept of this Sub-theme is that "*strategically defining the 'type/mode' of Third Mission activity is under the control of a university and responds to its heterogenous nature*". The data indicated that diverse attempts have been made to define 'a university Third Mission type/mode'. This discussion seeks to

analyse the data extracts to see if identifying a 'type/mode' is useful or in fact irrelevant when a university plans to create appropriate conditions for Third Mission activity.

Charles, Kitagawa and Uyarra pointed out that the diversity of university *types* has not been recognised in policy. This is supported by the *external* context theme findings, described in Section Context Theme1b.3 (p.159), and is also demonstrated at university (strategic) level:

“The diversity of university types has not been sufficiently recognised by scholars or policy makers (Huggins et al., 2012). Recent work has also begun to question the high level of policy expectations, with little understanding of the actual processes of knowledge flows, the contextualisation of the complexities of actors, and the extent to which regional economic or city-region development can be actually achieved through the utilization of university knowledge” (Charles et al., 2014, p.6)

Universities are complex organisations with multiple levels of operation (Section 2.7.1, p.28) that need to translate policy into practice (Section Context Theme1a.1, p.142). Inadequate definition at policy level leaves a university on its own (at least, at strategic level) to do the 'translation into practice'. The new framework, therefore, must help with this translation (Chapter 10).

Internal Context Theme 2a Indicator 1 – Labels for Third Mission activity are diverse.

This translation starts with how we 'label' the concept of *university*. Is a university that undertakes Third Mission activity a *type* of university that can be labelled Entrepreneurial University or *Engaged University* (Section Context Theme1b.3, p.159) thus becoming part of its core mission, or does a university adopt a *mode* of operation depending on the latest external policy drivers and their heritage? Sánchez-Barrioluengo, Benneworth, (2019), cite Trippi et al., (2015), who refer to *modes* rather than *types* in relation to regional engagement. They suggested four modes:

“Entrepreneurial University model, the regional innovation system model, the Mode 2 university model, and the Engaged University model.” (Sánchez-Barrioluengo & Benneworth, 2019, p.207)

These four *modes* of university are discussed in Section Context Theme2a.1 (p.170). For this research, *type* is defined as 'who the university is at the core', whereas

mode suggests they have chosen to *operate in a certain way, depending on circumstances*. Vorley and Nelles (2009) refer to '*models of transformation*', indicating they are all skewed with an economic bias. They also introduce the *Enterprise University* (Section Context Theme2a.1.2, p.176) to the discussion:

“Here the focus is on three of the most prominent ‘models’ which address this transformation of universities, namely Academic Capitalism (Slaughter & Leslie, 1997), the Enterprise University (Marginson & Considine, 2000) and the Entrepreneurial University (Etzkowitz, 1983, 2004). All three of these models serve to reflect the economic bias in scholarship and public policy pertaining to contemporary universities and the Third Mission.” (Vorley & Nelles, 2009, p.286)

A 'model for transformation' is related to 'change' theory and could also be interpreted as a *tool for change* – discussion on change is in Section Context Theme2a.1.1 (Indicator 5, p.168). This leads to a proposition about defining the Third Mission with a view to creating the appropriate conditions for Third Mission activity:

Proposition – A university needs to decide whether the Third Mission is '*core*' to the university (which is integrated and permanent, regardless of policy change over time), thus becoming part of the university's type/descriptor/heritage, or it is in addition to the core mission (which is temporary depending on current Government drivers), thus becoming a '*mode*' of operating.

The following sections explore the diverse '*labels*' (modes/types/models) extracted from the data to explore options for a university to 'create the appropriate conditions' for them, based this Proposition. This exploration will help towards a university identifying its heterogeneity within the specific context of the Third Mission.

Internal Context Theme 2a.1 Key Characteristic – (Type/Mode) University strategic decisions are heterogenous and defined at a strategic level.

The extracted data indicated that a variety of 'university types/modes' have evolved (in relation to Third Mission) in response to the external UK context, and in particular a focus on 'socio-economic' development (Section Context Theme1d, p.164).

Universities strategic level heterogeneity drives Third Mission activity at Group /Department/ School level, and Individual/academic level.

Figure 9-7 illustrates the factors relating to university type/mode include: 'Corporate university', 'Engaged University', 'Enterprise University', *Entrepreneurial University*

(p.153), 'Mode 1 and 2 university', 'multiversity', 'Anchor Institution', 'regional innovation' and 'Regionally Engaged University'.

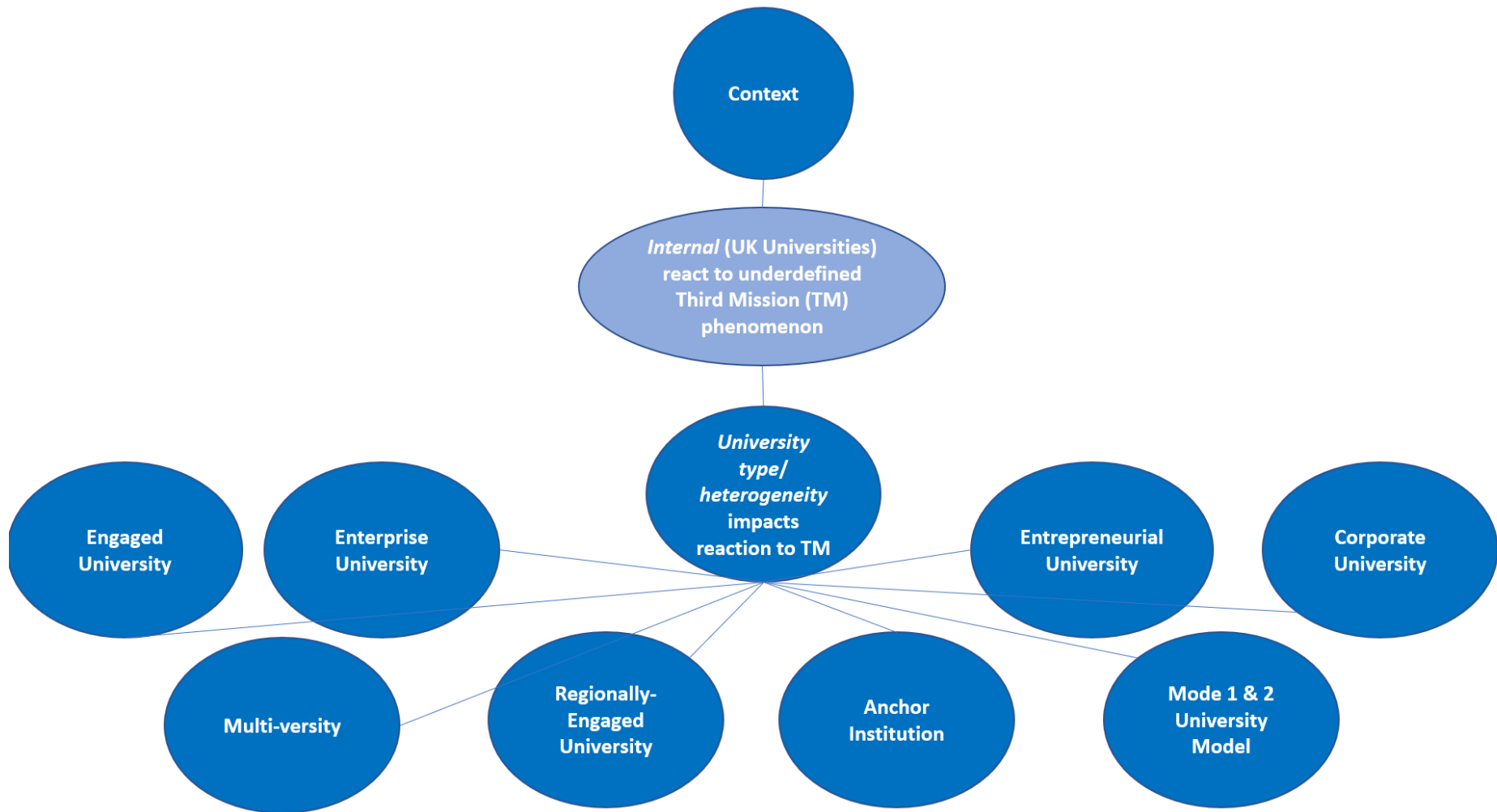


Figure 9-7 Internal Context - University Types in Relation to Third Mission

Internal Context Theme 2a.1.1 - Entrepreneurial University (EU)

The term Entrepreneurial University is discussed from an *external* context perspective in Section Context Theme 1b.3 (p.159). This section focusses on extracts coded in relation to *the internal* context of *Entrepreneurial University*.

According to the extracts, the term Entrepreneurial University was first used by Etzkowitz in 1983 then built upon by Clark (1998):

“Etzkowitz (1983) coined the term ‘Entrepreneurial University’ to describe institutions that have become critical to regional economic development. Subsequently, it has been adopted by academics and policy makers to describe universities that effectively deliver on their ‘Third Mission’” (Woollard et al., 2007, p.388)

Internal Context Theme 2a1.1 Indicator 1- Link Entrepreneurial University to contemporary university and second academic revolution.

According to Nelles and Vorley (2010a) both Etzkowitz (1983) and Clark (1998) were recognised as pioneers of a ‘contemporary university’ that was so significant that it marked a ‘second academic revolution’ and placed ‘the market into the heart of the university’. This revolution was identified as the transition towards becoming an ‘*Entrepreneurial University*’:

“The concept of the “Entrepreneurial University” was first introduced by Etzkowitz (1983) and Clark (1983), and their work is widely recognised as pioneering in the description of the changing form of the contemporary university. Indeed, so significant is the entrepreneurial transition that Webster and Etzkowitz (1991) identified the dawn of the Entrepreneurial University as marking a second academic revolution, which introduced the market into the heart of the university, a trend that Etzkowitz et al. (2000), considered, as had Kerr (1963), to be the unavoidable model for the university of the future.” (Nelles & Vorley, 2010a, p.164)

Internal Context Theme 2a1.1 Indicator 2 - Link Entrepreneurial University to Clark’s five pathways mechanism.

Should a university opt to be referred to as an *Entrepreneurial University*, then according to Woollard Zhang and Jones (2007), Clark’s five pathways approach may be a mechanism to achieve this. Clark’s five pathways are explored in the Mechanisms Chapter (p.299).

Internal Context Theme 2a1.1 Indicator 3 - Link Entrepreneurial University to Triple Helix.

According to the extracts, Etzkowitz and Leydesdorff evolved a concept where a university, 'industry' and Government form a triage relationship they called the 'Triple Helix' in 2000, especially at a 'regional level' (Woollard Zhang & Jones (2007). The Triple Helix concept was noted in Section Context Theme1b.1 (Indicator 3, p.155) and is further discussed as an *interface* indicator in Section Context Theme3 (Indicator 3, p.198) and as a Third Mission *mechanism* in Section Mechanisms Theme 1a (p.240).

Internal Context Theme 2a1.1 Indicator 4 – Link Entrepreneurial University to heterogeneity.

Martin and Turner (2010) highlighted that definitions of an Entrepreneurial University can differ, depending on a university's heterogenous characteristic and internal system for 'knowledge commercialisation':

“Definitions of an Entrepreneurial University differ, being largely focused on commercial, dynamic, or flexible attributes (Lehrer et al, 2009; Lockett et al, 2005). The Entrepreneurial University will have ‘a comprehensive internal system for the commercialisation and commodification of its knowledge’ (Jacob et al, 2003, p 1556).” (Martin & Turner, 2010, p.275)

Internal Context Theme 2a1.1 Indicator 5 - ‘Third Mission activity’ and ‘university entrepreneurship’ are the same thing.

As mentioned earlier in the review of previous Systematic Literature Reviews (Section 5.2.8, p.55) Woollard (2010) describes *university entrepreneurship* and 'Third Mission activity' as the same thing, with success measures associated with Third Mission activity as an indicator of being 'entrepreneurial':

“[University Entrepreneurship] has now been described as the Third Mission for universities. In the UK, Government and policy advisors regard those institutions that have been successful in generating income associated with Third Mission activities as being entrepreneurial”. (Woollard, 2010, p.414)

This would align with Nelles and Vorley's definition that university entrepreneurship is about operational practice.

This leads to my next proposition:

Proposition - *University entrepreneurship activity and Third Mission activity can describe the same phenomenon in the context of this study.*

This proposition includes caveats that *both* terms are underdefined, as a multitude of perspectives on scoping the Entrepreneurial University emerge from the data (Section Context Theme1b.3, p.159). Given the multiple definitions extracted, there are indicators that the term '*Entrepreneurial University*' is evolving. Evolution indicates change and one extract from the data resonated as it explicitly referred to the need for change:

“Thus, organizations need to embed entrepreneurial change at an organizational level, ensuring structures support key aims, as seen in Entrepreneurial Architecture theory, where strategic changes aim to deliver an Entrepreneurial University able to meet Third Mission aims” (Martin et al., 2019, p.283)

This is the only reference to the term *entrepreneurial change* in the whole corpus of data. I position myself with the concept of change highlighted by Nelles and Vorley (2010b) and Martin et al. (2019) in that *entrepreneurial change* is needed at an organisational level to meet the Third Mission. This leads me to the proposition that:

Proposition – *entrepreneurial change* is needed at an organisational level to meet the Third Mission.

From thematic analysis of the external context (Section Context Theme1a, p.142), the external driving forces for Third Mission activity appear to be homogenous. The response by a university, however, appears to be heterogenous. There is support that policy needs to do more to acknowledge the heterogenous nature of universities in the UK, for example:

“We can argue that any analysis of the evolution of the Entrepreneurial University needs to start from an acknowledgement of the heterogeneous nature of HEIs.”
(Sánchez-Barrioluengo et al., 2019, p.473)

Sánchez-Barrioluengo et al. (2019) identify several items. First, in relation to *levels*, they suggested that macro levels (external) and micro levels (internal) drive the Third Mission. My study adds to this idea by utilising SOGI:

“The observed evolution in the Third Mission activities is arguably both the result of

macro-level external pressures including the Government Third Mission policy and micro-level institutional practices and strategic prioritising of individual universities recognising their own entrepreneurial opportunities” (Sánchez-Barrioluengo et al., 2019, p.486)

Second, they support the concept that there is ‘no one model of the *Entrepreneurial University*’.

Third, they suggested the homogenising force should not encourage a homogenous response by universities:

“While increasing global competition acts as a homogenising force on universities to be entrepreneurial... we argue that there is ‘no typical way to become an “Entrepreneurial University” (Sánchez-Barrioluengo et al., 2019, p.471)

Both the narrow and broad definitions of Entrepreneurial University can be used by a university, according to their heterogenous needs. This leads to my next proposition:

Proposition – To be an *Entrepreneurial University*, you can choose to develop a dynamic and responsive culture (at all levels) to meet broader socio-economic objectives and/or align to core mission and build internal structures to meet commercial targets.

Internal Context Theme 2a.1.2 - Enterprising University

The extracted data indicates that Marginson and Considine in 2000 introduced the term *Enterprising University*. From the data, it appears to be a younger concept than Entrepreneurial University (Vorley and Nelles, 2009).

According to Vorley and Nelles, by 2009, *Enterprise University* was considered a *prominent model* when contemplating the Third Mission in association with being a contemporary university:

“Here the focus is on three of the most prominent ‘models’ which address this transformation of universities, namely Academic Capitalism (Slaughter & Leslie, 1997), the Enterprise University (Marginson & Considine, 2000) and the Entrepreneurial University (Etzkowitz, 1983, 2004). All three of these models serve to reflect the economic bias in scholarship and public policy pertaining to contemporary universities and the Third Mission.” (Vorley & Nelles, 2009, p.286)

This perspective suggested both entrepreneurial and enterprising universities are

focussed on economics in relation to the Third Mission. However, this is where the commonality appears to stop. The Entrepreneurial University (Section Context Theme 2a.1.1, p.173) was identified both as a broad and narrow concept that lacked consensus. The *Enterprise University*, defined some 20 years later, was proposed by Marginson & Considine (2000), who suggested an Enterprising University would have a focus on business values and income generation. Whilst they do not ignore heterogeneity, there is no specific addressing of how to engage with the economy except through commercialisation of research and industry engagement:

“In terms of engaging with the economy and society, Marginson & Considine (2000, p. 370) contend that the Enterprise University defines a ‘new orthodoxy that favours business values and income generation’, of which the commercialisation of research and industrial engagement represent important aspects. The Enterprise University is characterised by increasingly mixed forms of public–private engagement, with universities engaging in different ways and to different extents. While Marginson & Considine identify the heterogeneity of institutions, this does not significantly aid modelling or theorising of the contemporary university, nor specifically how it engages with the economy.” (Vorley & Nelles, 2009, p.286)

It could be argued that an *Enterprise University* puts *income generation* at the heart of the university. The following sections include indicators from the corpus of data about the ‘Enterprising University’ focussing on the key characteristic that strategic decisions about university Third Mission type/mode are heterogenous and defined at a strategic level, which then in turn drives Third Mission activity at Group /Department/ school level, and individual/academic level.

Internal Context Theme 2a.1.2 Indicator 1 – link Enterprising University to strong executive and non- academic control.

Nelles and Vorley built on their own work in 2010, stating that an *Enterprising University* is controlled by a *stronger executive non-academic culture of control*:

“Central to the Enterprise University is a new tier of commercial management, which Marginson and Considine (2000) argued is characterised by a stronger executive (non-academic) culture of control.” (Nelles & Vorley, 2010a, p.164)

This presents a decision by a university:

Proposition – You need to assess whether you want a strong executive non-academic culture of control? If yes, then *Enterprising University* may be the ‘mode/type’ for you.

Internal Context Theme 2a.1.3 - Corporate University

Aronowitz (2000), cited in Nelles & Vorley (2010a), modelled the ‘*Corporate University*’ (CU) with profit as the motivating factor:

“Aronowitz’s (2000) model of the “Corporate University” identified profit as a motivating factor, whereby teaching and research that do not yield any commercial value are viewed with indifference. This bears some similarity to Academic Capitalism although the Corporate University model is founded on fundraising and private partnerships...” (Nelles & Vorley, 2010a, p.164)

This appears to be similar to the definition of an ‘*Enterprising University*’, however the Enterprising University has a ‘strong non-academic leadership’ approach which provides a conceptually different perspective.

Proposition – You need to assess if you are primarily focussed on profit, through market-like behaviour – if yes, then you may be a Corporate University.

Internal Context Theme 2a.1.3 Indicator 1 – Link CU to *Corporate Entrepreneurship*.

The data extracts made little reference to the ‘*Corporate University*’ after 2010, perhaps for the same reason why there was a drop in references to ‘*Enterprising University*’. Extracts related to *Corporate Entrepreneurship theory* are discussed in Section Mechanisms Theme 1a (p.240).

Internal Context Theme 2a.1.4 - Engaged University

The term ‘*Engaged University*’ (EngU) was first used by Goddard in 2009 as a model for Universities’ Third Mission activity, according to the extracted data (Sánchez-Barrioluengo, Benneworth (2019). It differs in its conceptual source from the EU’s ‘technology transfer’ roots:

“The ‘Entrepreneurial University’ model has been presented then as the next logical step in the University system’s natural evolution (Rothaermel et al., 2007) responding by focusing on outreach activities upon generating technology transfer and knowledge-based start-ups (Audretsch, 2014), while Goddard’s (2009) ‘Engaged University’ model advocates integrating this Third Mission throughout all University organization activities and practices.” (Sánchez-Barrioluengo & Benneworth, 2019, p.1)

Internal Context Theme 2a.1.4 Indicator 1 – Link Engaged University to Broad range of activities.

In 2014, Charles et al. highlighted that an '*Engaged University*' may include a broad range of engagement activities, including civic, public and community:

“This study draws on the perspective of the ‘Engaged University’ which refers to the commitment of universities to a broad range of activities (Lawton Smith, 2007) including ‘civic engagement’ (Watson et al., 2013), ‘public engagement’ and ‘community engagement’ (Benneworth, 2013). It suggested a broader and more adaptive role performed by universities as ‘enablers of regional development...embedding a stronger regional focus in their missions” (Charles et al., 2014, pp., p.4)

Proposition – You need to assess if you want to include civic, public and community engagement within your Third Mission activity – if yes, you may be an Engaged University.

Charles et al. also suggested terms like *social, cultural, and environmental development* have been used in association with *Engaged University* - this included both formal and informal participation, where there was a shift from *knowledge transfer* to an underdefined broader *knowledge exchange* (Section Exposure Theme 1, p.207) with its inherent multi-level considerations:

“This broader role includes the contribution of higher education to social, cultural, and environmental development, by means of formal and informal participation and external representation as an institutional actor in regional networks of learning, innovation, and governance (Boucher et al, 2003). The focus is shifted from knowledge transfer processes and systems to a greater focus on ‘regional needs”
(Charles et al., 2014, p.5)

The extracts suggest that the Engaged University appears to embrace the full spectrum of even the broadest definition of Third Mission activities, i.e., not only socio-economic aspects of Third Mission activity, but also cultural and environmental considerations. This leads to another proposition for a university to consider:

Proposition – You need to assess if you want to include social, cultural, and environmental development – if yes, you may be an Engaged University.

To be an '*Engaged University*', there is a need to consider both 'formal' and 'informal' participation (Charles et al., 2014). This is also supported by Sánchez-

Barrioluengo and Benneworth (2019):

“In the engaged model, a more diversified set of activities stimulate and encourage academics in undertaking both formal and informal engagements with other actors, and drive other changes with policy-makers, intermediaries and other civil society organisations.” (Sánchez-Barrioluengo & Benneworth, 2019, p.208)

Internal Context Theme 2a.1.4 Indicator 2 – Link Engaged University to Regional Focus.

The Engaged University model was very much focussed on regional engagement, thus likely being potentially influenced by regional focus of policy at the time:

“Under the ‘Engaged University’ model, Universities were incentivised with a number of public funding schemes to collaborate at the regional level, to promote ‘regional innovation’, enhance regional ‘well-being’ and meet ‘regional needs.’” (Charles et al., 2014, p.8)

A risk of using this ‘*label*’ is that with the later shift in policy towards localism (Section Context Theme 1b.4, p,162), the term *Engaged University* may suggest that a University hasn’t changed with the times and is lagging behind the latest policy guidance.

Internal Context Theme 2a.1.4 Indicator 3 – Link Engaged University to University for the Entrepreneurial Society.

Continuing with a regional focus in 2016, Pugh, Hamilton, Jack, and Gibbons encouraged an increased interest in the *Engaged University* model. They cited Audretsch (2014), who conceptualised ‘*University for the entrepreneurial society*’:

“There is increasing interest in the concept of the ‘Engaged University’ (Chatterton & Goddard, 2000), or the ‘University for the entrepreneurial society’ (Audretsch, 2014), and the growing role and importance of universities as actors in the governance of economic development. [There is a] lack of evidence relating to the benefits, mechanisms and impacts associated with the different types of engagement in different Universities...” (Pugh et al., 2016, p.1358)

The term *University for the entrepreneurial society* may have merit in that the word *entrepreneurial* is still used in the latest policies. It was put forward that Entrepreneurial University only has “*market at the heart*” (Nelles & Vorley, 2010a, p.164) whereas a *university for the entrepreneurial society* integrates the terms *entrepreneurial* and *society* explicitly – thus having a *socio-economic* aim, rather than just an *economic aim*. As a future Third Mission study, the definition of ‘*socio-*

economic' could be explored with reference to '*University for the entrepreneurial society*'.

Internal Context Theme 2a.1.4 Indicator 4 – Link Engaged University to core activity.

The '*Engaged University*' is explicitly linked to the Third Mission as an integral principle (i.e., core activity), perhaps highlighting that both terms were in used in policy during the period of RDAs.

"The more recent concept of the Engaged University (Goddard, 2009) goes even further and advocates that the Third Mission of economic development should be a guiding and integral principle of the organisation and practice of Universities and not just a separate strand of activities." (Sánchez-Barrioluengo et al., 2019, p.472)

Appendix G, associates *Engaged University* to other considerations including: '*knowledge production*', '*lack of fit*' with commercialisation and '*regional anchor*'.

There is much to consider after exploring the *Engaged University*. Further consideration about 'soft and hard', 'formal and informal', 'social', 'cultural', and 'environmental', 'civic, public and community engagement', 'knowledge production', as well as the 'regional emphasis' is explored as part of building the new framework (Chapter 10).

Internal Context Theme 2a.1.5 - Mode 1 & 2 University Model

From the perspective of Third Mission activity in the data set, in 2010, Martin and Turner linked the importance of '*knowledge*' to all 3 University mission activities:

"In the UK, the age of a higher education institution (HEI) may be an indicator of status and its likely focus on Mode 1 or Mode 2 knowledge, mission 1, 2 or 3 activities and on how much effort is devoted to other organizational aims, teaching, learning, and widening participation agendas." (Martin & Turner, 2010, p.274)

They suggested that a university could either be a 'Mode 1' or 'Mode 2' University. For Mode 2, they emphasise that 'collaboration' is based on 'knowledge generation' and producing 'market-relevant knowledge':

"Connections and collaboration are based on knowledge generation – Mode 2 knowledge, which can be applied, used, and commercialized to help develop competitiveness [...] Universities are characterized as meeting gaps in the existing knowledge base (Weiler, 2000) by producing market-relevant knowledge for the development of innovation in products, services, and business methods." (Martin &

Turner, 2010, p.274)

In 2012, Martin questioned whether the shift from Mode 1 to Mode 2 knowledge production is new:

“Various attempts have been made to develop a conceptual framework for interpreting and explaining these changes to Universities and University research. One of the most widely discussed is the argument by Gibbons et al. (1994) that we are undergoing a fundamental ‘shift towards a new mode of knowledge production’. However, this implies that the ‘Mode 2’ form of knowledge production is indeed new.”
(B. Martin, 2012, p.555)

Then in 2016, whilst there was still a regional development focus by government, Pugh, Hamilton, Jack, and Gibbons suggested that there were ongoing questions about ‘Mode 2 knowledge’. Uyarra (2010), also proposed that there had been a paradigm shift to ‘*Mode 2*’ knowledge production.

Searching the corpus of data for the conceptual sources of *Mode 1* and *Mode 2* led me back to Gibbons et al., (1994), as cited in an extract from Kitagawa et al. (2016). They explicitly link the Third Mission to discussion on Mode 2 knowledge production as part of the ‘*transformation of academic and research organisations*’:

“The rise of the ‘Third Mission’ as higher education policy can be set against the backdrop of broader transformations in the academic system. Well-known approaches documenting the changing nature of science and the transformation of academic and research organizations include the ‘Mode 2’ of knowledge production
(Kitagawa et al., 2016, p.3)

The term ‘*Mode 1*’ and ‘*Mode 2*’ had few references within the corpus of data, however this so-called ‘*paradigm shift*’ may actually have been driven by a policy shift. This seems important to understand in the context of the Third Mission. Further research to connect Third Mission and mode of knowledge production is required. There is potential to move away from a black-and -white ‘either/or’ approach to a more heterogenous approach, where both *Mode 1* and *Mode 2* knowledge production can be formalised individually by each University. A University should not have to choose between the two options; it is not binary, as each piece of research is situational, thus a mode of knowledge production could be selected specific to the needs of the research – e.g., whether basic research is required or applied research. Knowledge and knowledge production are discussed further in Section Exposure Theme 2d (p.226) and Mechanisms Theme 2 (p.252).

Proposition – You need to assess whether you are a Mode 1, Mode 2, or a Mode 1 and 2 knowledge production University.

Internal Context Theme 2a.1.6 - Regionally Engaged University

Only one article referred to the term *Regional Engaged University*, that is Sánchez-Barrioluengo and Benneworth's, (2019), where they explicitly linked it to Third Mission activity. They noted that there is a key difference between an *Engaged University* and an Entrepreneurial University, and they then go on to offer a third model, called the '*Regionally Engaged University*':

“We consider that the Entrepreneurial University (Model 1) focus on commercialization activities as Third Mission outputs, while the Engaged University (Model 2) combine commercialization as well as engagement activities. As engagement activities could take place at different geographical levels (local, national, or international), we include an additional University model (Model 3) focus on regional collaboration activities, what we call the ‘regional Engaged University’.”
(Sánchez-Barrioluengo & Benneworth, 2019, p.207)

Given the broadening definitions of an Entrepreneurial University (Context Theme2a1.1, p.165), I suggest '*engagement*' is also part of *Entrepreneurial University*. I also suggest the '*Regionally Engaged University*' may have lost its relevance in policy since the abolition of the Regional Development Agencies and the subsequent shift towards localism. I would not recommend a university 'labelling' itself as a '*Regionally Engaged University*', however, there are features that may be useful when considering Third Mission activity. For example, Sánchez-Barrioluengo and Benneworth (2019), identified four elements of institutional structures; this may be a helpful tool for planning and carrying out Third Mission activity. Benneworth's '*Four Elements Model*' is explored as a potential Third Mission activity *mechanism* in Section Mechanisms Theme 1a (p.241).

Internal Context Theme 2a.1.7 - Multiversity

Multiversity was conceptualised back in 1963 by Kerr, who was seen as an early influencer towards entrepreneurialism in Universities (Vorley and Nelles, 2009). The idea has since been linked to the formalisation of the Third Mission:

“While the formalisation of the Third Mission has only occurred during the past 10

years, it has developed over a much longer period. One of the earliest attempts to explore the changing nature and form of the University was developed by Kerr (1963), who first coined the term multi-versity to identify how the roles of universities have evolved to meet the changing demands of society, both economically and culturally.” (Vorley & Nelles, 2009, p.285)

My interpreted focus here is on a *university evolving to meet change* and relates to my discussion on *change* in Section Context Theme2a1.1 (Indicator 5, p173). Only five out of twenty-one articles in the corpus of data referred to Kerr, however his references to ‘change’, ‘entrepreneurial roles’ and ‘socio-economic engagement’ still seem highly relevant half a century later. Whilst Kerr’s ideas are now part of historical theory building, the concept of ‘change towards entrepreneurial roles’ is made current by Martin et al. who said that ‘*entrepreneurial change*’ (Section Context Theme2a.1.1, p.173) needed to be ‘*driven at an institutional level*’. This leads to my next proposition for a university:

Proposition – You need to assess whether you have a focus on evolving your university at *institutional level*, for change favouring Third Mission activity – if yes, then the concept of ‘multiversity’ may inspire your approach.

A further consideration of ‘change’ in relation to evolution of Third Mission is discussed in section as part of a new *Third Mission framework* (p.297).

Internal Context Theme 2a 1.8 – Anchor Institution

The term *anchor institution* is referred to in five out of twenty-one articles. The articles that I selected refer to anchor institutions in cities by referencing the work by Vallance, 2014. (Degl’Innocenti et al., 2019; Kitagawa et al., 2016; Pugh, 2017). Articles also refer to Universities as ‘partner’ and ‘anchor’ organisations in their regions. (Martin et al., 2019; Sánchez-Barrioluengo et al., 2019). No articles linked the term ‘*anchor institution*’ to national or international levels. The most salient extract highlighted that the expression ‘anchor institution’ has longevity and stability beyond any Government and is, in effect, ‘anchored’ within an institution’s own locality:

“Because the University is not an elected organization, subject to political tides, it has a degree of longevity and stability above and beyond a governmental Department or quango (quasi-autonomous non-governmental organization). This leads to universities acting as anchor institutions in their localities, with a long history

of contributing economically, socially, and culturally.” (Pugh et al., 2016, p.1368)

This leads to my next proposition for a university that:

Proposition – You need to assess if you have a local and regional focus – if yes, then the concept of the anchor institution will be relevant to you.

In Section 1.3.2 (p.4), an *anchor institution* was associated directly with Business Schools within a university. No connection has been made between Business School and anchor institution in the corpus of data.

Internal Context Theme 2a.1.9 - University Type – New or Old?

Eight out of twenty-one articles referred to ‘*new University/ies*’ and only four referred to ‘*old University/ies*’. Salient extracts (Appendix K) were sourced mainly from research by Kitagawa et al. (2016), Sánchez-Barrioluengo et al. (2019) and Degl’Innocenti et al. (2019). It is unclear whether being a ‘*New*’ or ‘*Old*’ University is an advantage or disadvantage towards carrying out the Third Mission. ‘*New*’ or ‘*old*’ does, however, relate to a university’s heritage (which has been identified as being heterogenous). This means that a university has the choice, regardless of being new or old, to choose its mission based on its external and internal context. Heritage (infrastructure, location, networks etc.), may skew competitive advantage in favour of some Universities over others. It is unknown from the data extracts whether this advantage can be sorted into new and old. This could be a topic for future study. Table 9-1 summarises reflections on university type/mode towards building a new theoretical and practical framework with which to achieve the Third Mission model (RQ3

Descriptor	Source	Characteristics	Considerations	Reflections
EU	Etzkowitz (1983) and Clark (1998)	<p><i>"The market into the heart of the University"</i> (Nelles & Vorley, 2010a, p.164)</p> <p>Conceptualised in the 1980's</p>	<p>Nelles and Vorley (2010) link Entrepreneurial University to Entrepreneurial Architecture and corporate entrepreneurship Burns (2005). (Nelles & Vorley, 2010a)</p> <p>"a threat to the traditional integrity of a university". (Zawdie, 2010, p.152)</p>	<p>'Broader' socio-economic focus than Enterprising University which has a 'narrower' economic focus.</p> <p>Does this model encourage isomorphic approach?</p>
Enterprising University	Marginson and Considine in 2000	<p>Focus on business values and income generation.</p> <p>Conceptualised in 2000.</p>	<p><i>"New administrative tier which constitutes the focus of the Enterprise University"</i> (Vorley & Nelles, 2009, p.286)</p> <p>Stronger executive non-academic culture of control</p>	<p>Narrower economic focus than Entrepreneurial University, which has a broader socio-economic focus.</p>
Corporate University	Aronowitz (2000)	Profit-centric	Aronowitz (2000), cited in Nelles & Vorley (2010a), modelled the Corporate University with profit as the motivating factor.	Primarily focussed on profit through market-like behaviour – if yes, then you may be a Corporate University.
Corporate Entrepreneurship	Burns (2005) Kuratko (2005)	Corporate Entrepreneurship as a theory	<p>Corporate Entrepreneurship theory and Entrepreneurial Architecture (Nelles & Vorley, 2010a)</p> <p>Commercial/non-University sector (Woollard, 2010)</p>	<i>A theory rather than a label.</i>
Engaged University	Goddard (2009)	<i>"Advocates integrating this Third Mission throughout all University"</i>	<i>"The commitment of universities to a broad range of activities... including 'civic engagement'... 'public engagement' and 'community engagement' ... suggested a broader and more adaptive role"</i>	Broader focus on social aspects of socio-economic activity. Broader than

		<p><i>organization activities and practices”</i> (Sánchez-Barrioluengo & Benneworth, 2019, p.206)</p>	<p><i>performed by universities as ‘enablers of regional development’”. (Charles et al., 2014, p.4)</i></p> <p>The Engaged University model was very much focussed on regional engagement: <i>“Universities are not simply bound within their regions but are complex institutions operating within multilevel policy frameworks – global, national, and local”</i> (Charles et al., 2014, p.5)</p> <p><i>In the engaged model, a more diversified set of activities stimulate and encourage academics in undertaking both formal and informal engagements with other actors, and drive other changes with policymakers, intermediaries, and other civil society organisations.</i> (Sánchez-Barrioluengo & Benneworth, 2019, p.208)</p>	<p>Enterprising University and EU.</p> <p>Has this ‘label’ gone out of fashion since move from RDAs to LEPs?</p> <p>Considers both formal and informal activity and ‘hard’ and ‘soft’ activity, which are highly relevant towards defining Third Mission activity.</p>
Mode 1 and 2 University Model	Gibbons et al., (1994)	Relates to knowledge production and research.	<p><i>“Various attempts have been made to develop a conceptual framework for interpreting and explaining these changes to Universities and University research... we are undergoing a fundamental ‘shift towards a new mode of knowledge production’. However, this implies that the ‘Mode 2’ form of knowledge production is indeed new”</i> (B. Martin, 2012, p.555)</p>	Does a mode have to be either/or? I argue that both can be done by a university.
Regionally Engaged University	Sánchez-Barrioluengo, Benneworth, 2019		<p><i>We consider that the Entrepreneurial University (Model 1) while the Engaged University (Model 2) combine commercialization as well as engagement activities. As engagement activities could take place at different geographical levels (local, national, or international), we include an additional University</i></p>	What about local?

			<i>model (Model 3) focus on regional collaboration activities, what we call the 'regional Engaged University'" (Sánchez-Barrioluengo & Benneworth, 2019, p.207)</i>	
Multiversity	Multiversity was coined by Kerr in 1963	Early influencer towards entrepreneurialism by universities	Links to change towards socio-economic entrepreneurialism	
Anchor Institution	Not stated	Relates to longevity and stability	Do you have a local <i>and</i> regional focus? – then the concept of the anchor institution will be relevant to you.	Doesn't relate to national or international.

Table 9-1 Reflections on University 'Type/Mode' Towards University Third Mission. Source: Authors Own

Internal Context Theme 2b - Business School Third Mission context is lacking.

Using the SOGI approach, *Society* (External) and *Organisational* (University) context have been discussed earlier in the chapter. This Sub-theme captures the ‘Internal-Group level’ contextual characteristics of UK Third Mission activity, where ‘internal’ refers to a university, and Group/Department/School/Centre structure-level includes ‘Business School’. ‘Group’, ‘School’ and ‘Department’-termed characteristics were merged into one Sub-theme, due to their sharing the same central organising concept.

The central organising concept of this Sub-theme is that “*Business Schools and Group-level Departments react to top-down control by university strategy in their Third Mission activity*”.

Internal Context Theme 2b.1 Key Characteristic -There were very few data extracts on ‘Business Schools’ and the ‘Third Mission’.

Thirteen out of twenty-one of the articles referenced Business Schools. However, of the forty-one references to the term ‘Business School’ in the articles, thirty-five related to ‘addresses’ of the authors, rather than actual content of the literature.

Merely five references were made in total (Appendix H), thus indicating a lack of extracts relating to the words ‘Business School’:

The data above offers a case study of NEWUNI which has a Centre for Enterprise (CfE) within a Business School with a focus on small and medium sized enterprises (SMEs) (Woollard et al., 2007). There is also reference to a Business Development Unit within the Business School, with Business Development Managers that manage Knowledge Transfer Partnerships (KTPs). This example suggested Third Mission activity and teaching activity are separated rather than integrated. It is unclear whether research and Third Mission activity are integrated or not.

Pugh et al. (2018) refer to ‘entrepreneurship teachers’ in a Business School, who have a ‘practice orientation’ and are compared with ‘research oriented’ teachers. This suggests that the Third Mission activity roles are indeed separate to research roles, rather than integrated within a Business School. This discussion links to Mode

1 and Mode 2 knowledge production which is contextually discussed in Section Context Theme 2a.1.5 (p181).

Internal Context Theme 2b.2 Key Characteristic - There is little evidence that 'Business Schools' drive the University Third Mission.

In the extracts, there was no indicator that a Business School drives the Third Mission, i.e., the Third Mission does not appear to be a 'bottom-up' phenomenon. This links with suggestions in the policy context discussion (Section Context Theme 1a.1, p.142) that it has a 'top-down' phenomenon in the UK.

Internal Context Theme 2b.2 Indicator 1 - Department

Because there was not a large number of extracts, the NVIVO exploration was widened in order to look for references to the term 'Department'.

Searching for the term 'Department' in relation to Third Mission activity returned only one salient extract:

"At Department level the impact can be expressed in terms of quality assurance system; at University level, the impact is linked to the University mission and performance goals, and finally, at Community level, the impact is expressed as regional development". (Secundo et al., 2017, p.234)

At 'Department level' there is a suggestion that the 'quality assurance system' could be a mechanism for Third Mission activity. 'Department level' is further considered as a mechanism in Section Mechanisms Theme 1a (p.240).

Internal Context Theme 2b.2 Indicator 2 - Entrepreneurship Departments

Pugh et al. (2018) focussed specifically on '*Entrepreneurship Departments*' in their study. They conducted a case study on the Institute for Entrepreneurship and Enterprise Development (IEED) at Lancaster University as well as on a Spanish University (EMILYON). They linked the term '*management school*' and 'Third Mission':

"The overarching role of the entrepreneurship Department is expressed as co-

ordinating and applying management theory to real-world practice: ‘The application of the Management School to the outside world seems to focus through the Entrepreneurship Department...to apply wide management theory within the small business context and to the role of the individual as entrepreneur, or teams as entrepreneurs’ (E&R2). This is slightly different to the aim of entrepreneurial activity often highlighted in Third Mission studies, which is usually more to do with the transfer of knowledge in a more tangible sense, often revolving around a particular technology or development.” (Pugh et al., 2018, p.1845)

Although the term ‘*Business School*’ is not used in the study, the term could be used in association with ‘*management school*’ and ‘*entrepreneurship department*’. By doing so, a number of indicators towards how a *Business School* could operate *Third Mission activity* were interpreted (Table 9-2), as secondary research is messy (Section 6.2.2, p.70).

Internal Context Theme 2b.2 Indicators	Exemplar Data Extracts
Integration of teaching, research, and Third Mission	<i>“A particular characteristic of the entrepreneurship Department, which sets them apart from other Departments within the University, is the way teaching, research and engagement come together.” (Pugh et al., 2018, p.1846)</i>
Regional Focus	<i>“Indeed, a strong theme emerged of the entrepreneurship Department responding directly to the regional context and needs; in the case of Lancaster, this translated into a strong small and medium sized enterprises (SME) focus, because the region does not have many larger companies”. (Pugh et al., 2018, p.1847)</i> <i>“Our results show a symbiotic effect between the entrepreneurship department and the region.” (Pugh et al., 2018, p.1850)</i>
Entrepreneurship Focus	<i>“Entrepreneurship Departments are carrying out a wide range of Third Mission activities, both formal and informal, which makes it all the more surprising that they have been largely overlooked in the Entrepreneurial University debate to date.” (Pugh et al., 2018, p.1852)</i>
Multi-level Focus	<i>“Entrepreneurship Departments, while making up part of the wider ‘entrepreneurial’ University, and carrying out roles in this wider institutional capacity, can also be seen as regional actors in their own right, articulated thus: ‘I see [the entrepreneurship Department] as being directly accountable for developing growth and jobs and bringing acumen and knowledge and capabilities and confidence in businesses and the region’ (Pugh et al., 2018, p.1848)</i>

Informal and Formal Focus	<p><i>“Formal and informal forms of engagement between entrepreneurship department and region...Two routes through which the entrepreneurship Department engages with the region are identified: formal routes, via the wider Entrepreneurial University, are important for some activities; others are through more informal routes and direct to the region, bypassing the Entrepreneurial University structures”.</i> (Pugh et al., 2018, p.1849)</p>
Socio-economic Focus	<p><i>“Entrepreneurship Departments’ research activities are distinguished by applied economic and social purpose. They are mostly based on economic and social challenges emerging from the regional context. Furthermore, the Departments evolve in a dialogic relationship with the region, in that interactions, engagement and knowledge exchanges flow: from Department to region and from region to Department”</i> (Pugh et al., 2018, p.1849)</p>
Tacit and Soft Focus	<p><i>“Because relationships and connection are important to the activities undertaken, managing and building these links is a critical element of the work of Department members, especially those in knowledge exchange.”</i> (Pugh et al., 2018, p.1850)</p> <p><i>“Overall, it is important to emphasize how important informal links to the region are to the entrepreneurship Department’s work, and more formal structures of the Entrepreneurial University, that have received more attention in the extant literature, can only explain a part of the entrepreneurship Department’s Third Mission role.”</i> (Pugh et al., 2018, p.1850)</p>

Table 9-2 Exemplar data extracts - Indicators Towards How a Business School Could Operate Third Mission Activity

The *entrepreneurial, regional, integrated, multi-level, informal/formal, socio-economic, tacit, and soft* indicators have all been noted in earlier discussion and are further discussed throughout Chapter 9-11.

Faculty

A final search on ‘*faculty for Business*’ returned no extracts related to the Research Questions.

Overall, the data extracts showed a lack of connection between the *Third Mission* and *Business School*. There appears to be a missed opportunity to build recognition

of the role the Business School has in relation to Third Mission activity. This leads me to my next practice-based proposition for a university:

Proposition – You need to assess if you want to build a strong '*brand*' under the banner of '*Business School*' for being either a Mode 1 or 2 knowledge producer or a Mode 1 and 2 knowledge producers in the context of the Third Mission.

By exploring the work of (Pugh et al., 2018) on '*entrepreneurship departments*', some key ideas were extracted about how a Business School could operate its Third Mission activity, including options exemplified in Table 9-2. The only concept aligned to the *entrepreneurship department* that is not so pertinent to answering the Research Questions (Section 1.6, p.7) is its focus on '*regional*' – I would broaden this to include '*local*', '*national*', and '*international*', depending on the approach that any given University might chose. These concepts are discussed further as *mechanisms* in Section 9.4 (p.238).

Internal Context Theme 2c - *Academic identity* appears to be shifting towards being 'commercialisable knowledge holders'.

Having discussed the context of the Third Mission at Society, Organisational and Group levels (SOGI), this section now goes on to discuss 'Individual' level. The Sub-themes 'Individual' and 'Academic' were merged to form this Sub-theme because they shared the same central organising concept within the corpus of data.

The central organising concept of this new Sub-theme is that "*it appears that the role of an academic is changing from just research and teaching activity to research, teaching and Third Mission activity*".

Internal University academics respond to control from strategic/organisational levels and Group/school/Department levels, within their own University in the UK. Terms that refer to Third Mission context factors include: academic capacity, academic capitalism, academic commercialisation, academic engagement, academic enterprise, academic entrepreneurship, and academic identity (Figure 9-8).

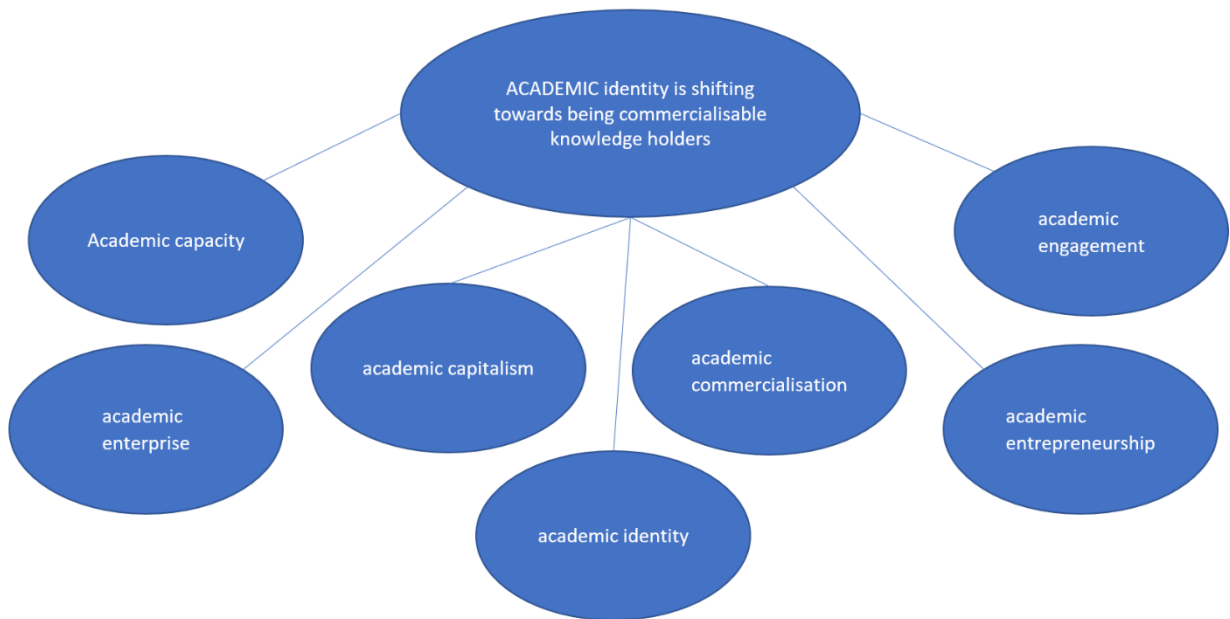


Figure 9-8 Internal Context – Academic Level Factors

Internal Context Theme 2c.1 Key Characteristic - There is no evidence from the extracted data that it is academics who drive the University Third Mission activity.

Exploration of the data extracts has shown that there is no evidence of academics driving the Third Mission in Universities in the UK. The extracts *do* indicate, however, that academics react to drivers set at institution level. Appendix L provides examples and noticings taken from the corpus of data referring to terms which were identified during the thematic analysis process. This helped synthesise a new perspective towards answering RQ3.

The data extracts do show some signs of the Third Mission impacting the academic identity. They implied that knowledge should be used for socio-economic purposes in addition to teaching and research.

The terms used to describe this activity are varied and there is no internal consensus within the data.

The move towards ‘knowledge exchange activity’ rather than ‘Third Mission activity’ (due to historic science and tech association) is noted, however the term has

broadened over time. The fact that many references source back conceptually to STEM rather than Business and Management as a subject area, demonstrates that the terminology used in policy appears to have evolved from terms which were originally created for a different purpose i.e., to use science and technology knowledge to grow the economy. The indicators in the data suggest that the terminology used to describe academics is broadening so that it encompasses heterogeneity of subject areas within institutions. This leads me to my next proposition:

Proposition – The term you use to refer to '*academic identity*' in relation to Third Mission activity should be discussed, agreed upon and defined amongst your academics and should be based on your context.

9.2.3 Context Theme 3 – Interface-Ecosystem Theme

The *'Interface- Ecosystem'* theme was originally a *'Sub-theme'*, however, following further thematic analysis, it was promoted to a *'theme'* as a central organising concept formed.

The central organising concept of this theme is that *"there is 'ambiguity' at the 'interface' between external drivers and internal translation of those drivers"*. This is a key aspect for answering RQ3: From the themes of Third Mission activity, how may a university (in particular, a Business School) create the appropriate conditions to achieve the Third Mission?

Proposition - The Interface-Ecosystem (to enable the creation of the 'appropriate conditions') with which to achieve the Third Mission for a University is underdefined.

The most prominent characteristic is *confusion*. This is due to ambiguity and fragmentation, with regards to creating *'appropriate'* conditions for Third Mission activity, at the *'interface'* between *external* context and *internal* context. The boundaries of this thesis were informed by the BIS response (2015) to the Witty Review, where the UK Government was taking steps to create the *'best conditions'* for university-business collaboration (Section 1.3.1, p.4). This has been a source of confusion - the term *'best'* suggested there is a *'wrong'* way. My constructivist standpoint tells me that there is no *'best'* way. In addition, the definition of *'best conditions'* is underdefined in Policy (Section Context Theme1a.1, p.142), leaving a university on its own to translate the myriad of often contradictory concepts- for example, to define the University type/mode (Section Context Theme2a.1, p.170). For this thesis, I have changed the term *'best'* to *'appropriate'*, since this term fosters a heterogenous approach to Third Mission activity.

This theme was generated by interpretation of the data extracts; however, the name *'Interface-Ecosystem'* is an initial title that may change as synthesis continues in further chapters. An initial definition is that *'interface'* is defined as a *"crossing point of 'internal' and 'external' contexts"* and ecosystem is defined as the *'environment'*. This interface-ecosystem therefore acts as *'an environment where internal and external contexts come together to create appropriate conditions for Third Mission*

activity'. This ecosystem is complex and underdefined in the corpus of data and is recommended for future study.

There are certain salient '*interface context*' characteristics from the data extracts to consider towards answering RQ3: '*ambiguity/fragmentation*' (Martin & Turner, 2010; Molas-Gallart & Castro-Martínez, 2007; Pugh et al., 2018; Sánchez-Barrioluengo et al., 2019; Vorley & Nelles, 2009; Watson et al., 2016), '*innovation*' (thirteen of the twenty-one articles in dataset), '*research*' and '*knowledge*' (all articles from dataset) and Triple Helix (fifteen of the twenty-one articles in dataset), '*ecosystem focus*' (Degl'Innocenti et al., 2019; Pugh et al., 2018; Secundo et al., 2017) and '*European paradox*' (Watson et al., 2016). Other features noted by authors like '*macro-meso-micro*' (relates to SOGI) and '*absorptive capacity*' (relates to businesses) were also identified from the data extracts as potential characteristics of interest with which to achieve the Third Mission (NVIVO). The following paragraphs exemplify a few of the indicators interpreted.

Interface-Ecosystem Context Theme Indicator 1 - Ambiguity and fragmentation.

Watson, Hall and Tazzyman (2016) exemplify the '*confusion*' in the Third Mission interface:

“Russell Group respondents saw third stream as the ‘poor relation’ and focused their attentions on research first and then teaching, whilst those from the post-92 Universities focused primarily on first stream activities. There is real ‘mission confusion’... Institutions need to audit their current systems to assess whether they are fit for purpose and...to seek academic views on how to improve the current situation.” (Watson et al., 2016, p.163)

Interface-Ecosystem Context Theme Indicator 2 – Spectrum of innovation definitions.

Innovation has both '*broad*' and '*narrow*' definitions within the data extracts, for example, Zawdie (2010) offers a '*broad*' definition:

“The Third Mission differs from the other two missions of Universities in so far as it makes them not merely passive agents of knowledge production, but rather power-houses of innovation, and hence strategic agents of sustainable development.”
(Zawdie, 2010, p.151)

Pugh (2017) offers a narrower definition:

“Relying on Universities to drive innovation and economic growth in a narrow innovation-push conceptualization, akin to the Triple Helix, may not best maximize the economic potential of universities in weaker regions. A less prescriptive theorization of regional innovation and the role of universities is required so that policymakers can adapt best practice from elsewhere, sympathetic to regional specificities, considering the diverse roles Universities play beyond the standard Third Mission activities.” (Pugh, 2017, p.983)

Secundo et al. (2017) offer both ‘narrow’ and ‘broad’:

The term “Entrepreneurial University” ... has been adopted to describe Universities that effectively transcend their traditional mission by advance innovation and transfer technologies. A growing body of literature related to entrepreneurial Universities and academic entrepreneurship equates these developments to the commercialization of science”. (Secundo et al., 2017, p.229)

Further examples are offered in Appendix M. There is no consensus as to which definition to use in the context of the Third Mission.

Interpretation of the data suggests ‘*innovation*’ is both ‘*narrow*’ and ‘*broad*’ in definition and this is often evident within the same article. Firstly, ‘*innovation*’ is a broad aspirational driver set in policy. It is then translated by a university into a ‘*strategic innovation mission*’. Then, at the ‘*interface*’, this strategic mission is translated into ‘*operational innovation activity*’. Secondly, *innovation* can also be defined ‘*narrowly*’ based on its association with the science and technology field e.g., with the Department of Trade and Industry (DTI). Taking the broader view would better align innovation activity with Third Mission activity.

Proposition – ‘*Innovation activity*’ and ‘*Third Mission activity*’ can be defined as being similar in its activity in the context of the Third Mission *Interface*.

Interface-Ecosystem Context Theme Indicator 3 – Linking *innovation* to Triple Helix.

I have identified links between ‘*innovation*’, the ‘*Triple Helix model*’ and the ‘Third Mission’ in the data extracts:

“The Triple Helix idea of explaining innovation as a systemic category has generated growing intellectual and policy appeal over the last couple of decades, particularly as a basis for capacity building and as a framework for setting in context the Third Mission of Universities. It has also exposed the complex nature of the innovation system, calling for more research to shed light on the theoretical adequacy, empirical validity, and policy usefulness of the Triple Helix framework within which the

entrepreneurial transformation of Universities and the Third Mission are to occur”
(Zawdie, 2010, p.155)

Seven years later, Pugh explored the Triple Helix, citing Etzkowitz and Leydsdorff (1997) as a regional ‘*innovation*’ approach, in relation to application in Wales, suggesting:

“The Triple Helix places Universities at the heart of the innovation system and allocates a crucial role to their third-mission activities; Government is seen as an enabler of interactions between Universities and industry (Etzkowitz & Leydesdorff, 1997; Etzkowitz & Ranga, 2010).” (Pugh, 2017, p.984)

The Triple Helix is reviewed as a mechanism which works towards the Third Mission in Section Mechanisms Theme 1a (p.243).

9.2.4 Context Theme Conclusion

This section is aimed towards answering RQ3 -5 (Section 1.6, p.7). Interpretation of the corpus of data highlighted the *external, internal* and *interface context* of the Third Mission in the UK towards answering RQ3 (Table 9-3). Interpretation of the corpus of data highlighted the external context of the Third Mission in the UK leading to a consideration towards answering RQ4 and (Table 9-4). Interpretation of the corpus of data highlighted the context of the Third Mission in the UK leading to definition propositions towards answering RQ5 (Table 9-5). Table 9-6 considers items for future study and is out of scope for this thesis.

From Context Theme	Towards RQ3: <i>From the themes of Third Mission activity, how may a university (in particular, a Business School) create the appropriate conditions to achieve the Third Mission?</i>
Know your own University context	1.Consider how your university is labelled: <ul style="list-style-type: none"> • Entrepreneurial University - To be an Entrepreneurial University, you can choose to develop a dynamic and responsive culture (at all levels) to meet broader socio-economic objectives and/or align to core mission and build internal structures to meet commercial targets. • Enterprising University - You need to assess whether you want a strong executive non-academic culture of control. If yes, then Enterprising University may be the ‘mode/type’ for you.

	<ul style="list-style-type: none"> • Corporate University - You need to assess if you are primarily focussed on profit, through market-like behaviour – if yes, then you may be a Corporate University. • Corporate Entrepreneurship - You need to assess if you want to develop your Third Mission approach through a ‘corporate entrepreneurship lens’ if yes, the Entrepreneurial Architecture Model can guide you. • Engaged University - You need to assess if you want to include civic/public/community engagement and social/cultural/environmental development within your Third Mission activity – if yes, you may be an Engaged University. • Mode - You need to assess whether you are a Mode 1, Mode 2, or a Mode 1 <i>and</i> 2 knowledge production University. • Multiversity- You need to assess whether you have a focus on evolving your university at (institutional level), for change towards Third Mission activity – if yes, then the concept of ‘multi-versity’ may inspire your approach. • Anchor Institution - You need to assess if you have a local and regional focus – if yes, then the concept of the ‘anchor institution’ will be relevant to you.
<p>Know your own University Third Mission Context Continued</p>	<p>2. Boost your <i>external context</i> awareness:</p> <ul style="list-style-type: none"> • With an external policy landscape that is ever changing, a university needs to understand the overarching Third Mission policy drivers, to anticipate future direction of UK HE context. This may help prevent a reactive ‘one-size-fits-all’ response and build a longer-term strategy for Third Mission activity, based on an institution’s own strength. • It is important to tell the story of <i>why</i> the UK is moving towards mass marketisation (via Third Mission activity), as it is the first step in managing <i>change</i> within an institution (and an individual). Raising awareness of the UK’s <i>situation, problems, implications</i> and <i>need</i> for Third Mission activity is fundamental towards individual acceptance (of context). It could be argued that, if <i>awareness</i> of context is not raised, then the <i>confusion</i> and <i>fragmentation</i> highlighted in the data over the last 15 years will continue. • Universities should avoid a <i>mimic</i> approach by first understanding their own heritage (Section Context Theme1b.1, p.155). <p>3. Boost your <i>internal context</i> awareness:</p>

	<ul style="list-style-type: none"> • Business School - You need to assess if you want to conduct <i>Third Mission activity</i> under the banner of '<i>Business School</i>' for being either a Mode 1 or 2 knowledge producer or a Mode 1 and 2 knowledge producer in the context of the Third Mission. • Academic - The term you use to refer to '<i>academic identity</i>' in relation to <i>Third Mission activity</i> should be discussed, agreed upon, and defined with your academics, and be based on your context. <p>4. Create an <i>interface ecosystem</i>:</p> <p>The Interface-Ecosystem (to enable the creation of the '<i>appropriate conditions</i>') to achieve the Third Mission for a University is underdefined.</p> <p>5. Tailor your approach accordingly:</p> <ul style="list-style-type: none"> • You need to assess whether to adopt an '<i>entrepreneurial change</i>' approach at <i>Organisational level</i> to meet the Third Mission. • Policy may be driving the Third Mission, but according to Degl'Innocenti et al. (2019, p.10), <i>policy</i> needs to move towards <i>integration</i> of Third Mission, teaching, and research "<i>based on their unique characteristics</i>". • A University should seek <i>proactively to diversify</i> their Third Mission activity to find new sources of funding, to reduce over-reliance on UK Government funding. • If a university opts to participate in Third Mission, having <i>strategic membership</i> of an LEP is advised. • A University should explore <i>international opportunities</i> to diversify their income as part of their Third Mission strategy.
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Table 9-3 Context Considerations Towards Creating the Appropriate Conditions for the Third Mission

From Context Theme	Towards RQ4: <i>How may a university (in particular, a Business School) effectively conduct Third Mission activities with business (industry) to achieve the Third Mission?</i>
Consideration	Both ' <i>maturity of experience</i> ' and measuring ' <i>extent</i> ' suggested the potential framework should be on a <i>continuum</i> .

Table 9-4 Context Considerations Towards Conducting Third Mission Activity

From Context Theme	RQ5: What definitions of Third Mission and Third Mission activity will evolve in the context of the DBA to inform a theoretical framework?
Defining Third Mission	<p>Proposed for all Universities:</p> <ul style="list-style-type: none"> • <i>'Innovation activity'</i> and <i>'Third Mission activity'</i> can be defined as having similar activity in the context of the Third Mission Interface. • <i>'Knowledge exchange activity'</i> and <i>'Third Mission activity'</i> have been thematically grouped together, as the terms seem to be used interchangeably, with Third Mission activity in some cases appearing to have been superseded by the term Knowledge Exchange (KE) in more recent terminology. • <i>'University entrepreneurship activity'</i> and <i>'Third Mission activity'</i> can describe the same phenomenon in the context of this study. • Third Mission is the <i>responsibility</i> of a university. • Socio-economic development is a common factor (within corpus of data) in contextualising the Third Mission. • The Third Mission concept has broadened over time. • Third Stream is about funding the Third Mission, however <i>'third stream activity'</i> and <i>'Third Mission activity'</i> are used interchangeably in the data.
Defining Third Mission Continued	<p>Considerations for each University:</p> <ul style="list-style-type: none"> • Core or Additional - A University needs to decide whether the Third Mission is <i>'core'</i> to the University (<i>which is integrated and permanent, regardless of policy change over time</i>) thus becoming part of the University's type/descriptor/heritage, or it is in <i>'addition'</i> to the core mission (<i>which is temporary depending on current Government drivers</i>) thus becoming a <i>'mode'</i> of operating. • Socio-economic definition - There is an absence of shared definition of socio-economic in the context of the Third Mission in the UK.

Table 9-5 Context Considerations Towards Defining the Third Mission

From Context Theme	Future Study
SMEs	Whilst the focus is not specifically on SMEs, it is noted that further consideration of <i>SMEs</i> with regards to <i>Third Mission activity</i> is recommended for future study.

Table 9-6 Future Study.

9.3 Exposure – Overarching Theme

Introduction

Having set the *contextual* scene of Third Mission in Section 9.2 (p.140), this section now moves to the second CEMO overarching theme – *Exposure*. As defined in Section 2.7.1 (p.28) Exposure focusses on *defining* Third Mission. The central organising concept of the Exposure Theme (Exposure Theme) is “*being ‘exposed to’ or ‘experiencing’ the phenomenon of the Third Mission*”. It raises questions about defining: ‘*the Third Mission*’, ‘*Third Mission activities*’ and ‘*Third Mission gaps*’. The extracted data demonstrated that the definition of Third Mission is diverse -with little agreement- and thus the activity itself is also hard to define.

As highlighted in Chapter 8, following ‘*revision of themes*’, I created three *interpretive* Third Mission exposure themes from the data extracts:

- First, ‘*Third Mission activity is dependent on University strategy*’ (Exposure Theme 1 – University Strategy Theme)
- Second, ‘*Third Mission definition is not agreed and has broadened over time*’ (Exposure Theme 2 Third Mission Definition Theme)
- Third, ‘*there is a lack of understanding of the factors that make up the Third Mission*’ (Figure 9-9, p.206). (Exposure Theme 3 Third Mission Gaps Theme)

These three themes are discussed in the following sections with reminders that:

- data extracts act as *indicators* of the factors that make up the themes (Section 9.4.1, p.239).
- discussion of the generated themes iterates with continued synthesis and interpretation of the data. It includes a mix of descriptive reporting of data extracts and interpreting the meaning (within the specific context of achieving the Third Mission in a UK University), leading to propositions towards RQ3-5 (Section 1.6, p.7).
- Some extracts are longer than others to ensure the link between emergent concepts and Third Mission is indicated. This is in line with the definition of ‘*adequacy*’ as part of the *credibility* approach (Table 7-2, p.89).

- As mentioned in earlier, the term '*Third Mission activity*' has been recognised as being '*collaborative activity*' (Section 2.7.3, p.30) and '*entrepreneurial activity*' (p184).

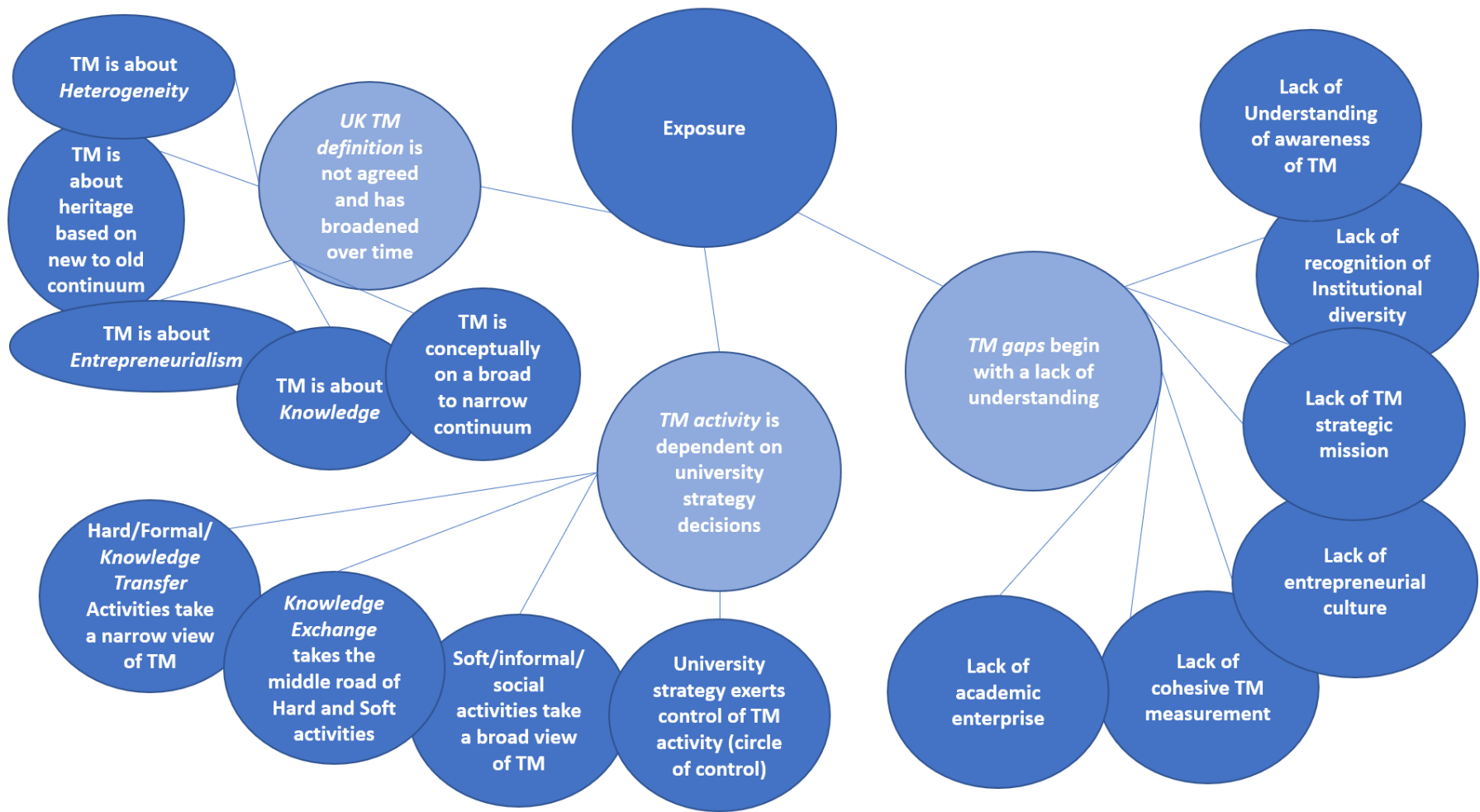


Figure 9-9 Exposure Theme (Exposure Theme) and Sub-themes

9.3.1 Exposure Theme 1 - University Strategy Theme

Third Mission activity is *dependent* on university strategy decisions. The central organising concept of the Exposure Theme 1 theme is that “*there is a range of options that a University has to decide upon in order to adopt or reject ‘prior’ to conducting Third Mission activity.*” Sub-themes include ‘hard activities’, ‘soft activities’, ‘Knowledge Exchange activities’ and ‘Strategies’ (Strategic activities) for universities.

This is a key theme to help answer RQ 5 as it aids in consideration (Section 9.1, p.138) of how general or specific the definition should be as ultimately, if a university wishes to achieve the Third Mission, then clarity is required on what it actually is. Each Sub-theme is discussed in turn.

University Strategy Exposure Theme 1a - ‘Hard/Formal/KT’ activities take a narrow view of Third Mission.

This section captures the ‘*Hard*’ Third Mission activity characteristics of being exposed to UK Third Mission activity. The ‘*Hard*’ Third Mission activities have also been described as ‘formal’ and ‘knowledge transfer’ activities in the corpus of data. The terms ‘*hard*’, ‘*formal*’ and ‘*knowledge transfer*’ have been previously mentioned, in association with Third Mission activity, and some indicators are explored in this section.

University Strategy Exposure Theme 1a Indicator 1 – ‘Hard’ activity.

‘*Hard*’ factors indicated in the data include ‘collaborative research’, ‘industry contracts’, ‘intellectual property’, ‘patenting and licensing’, ‘*spin off* companies’ and ‘Technology Transfer Office’s. Only two out of twenty-one articles referred to the term ‘*hard*’: Pugh et al. (2018) from an *Entrepreneurial University* and ‘*entrepreneurial department*’ perspective and Sánchez-Barrioluengo et al. (2019) from ‘*Knowledge Exchange*’ perspective (Section Context Theme1a.1, p142). Both articles are from more recent research identified in dataset.

Pugh et al. (2018) explicitly associated the terms ‘*hard*’ with ‘*formal*’ and ‘*commercialisation activity*’ in their study of ‘*Entrepreneurial University research*’

(Figure 9-10, p.208). They listed activities like ‘patenting’ and ‘licensing’, ‘technology transfer’, ‘science parks’ (physical environment), ‘spin off’, ‘external teaching’, ‘academic entrepreneurship’, and ‘research-led technological innovation’ (research-related). These activities included STEM based activities and include ‘*physical environment*’ (science park).

As mentioned earlier, ‘*academic entrepreneurship*’ (Section Context Theme2, p.166) is associated with a *science* and *commercialisation* stance (in dataset), however, with a broadening definition of ‘*entrepreneurship*’ in policy (Section Context Theme1a.1, p.142), the term ‘*academic entrepreneurship*’ may also be broadening, thus could cause confusion to an untrained eye as to why it is not grouped with more informal/soft activities. The remainder of Figure 9-10 is discussed in Section Mechanisms Theme 1a (p.240) as a *mechanism* of Third Mission.

Formal/ Hard /Commercialization activities	Informal/Soft/Engagement activities
Patenting and licensing of inventions (Feldman, Feller, Bercovitz, & Burton, 2002; Wright, Piva, Mosey, & Lockett, 2009)	Collaborative Research (Bienkowska & Klofsten, 2012)
Technology Transfer Offices (e.g. Rothaermel, Agung, & Jiang, 2007)	Contract Research (e.g. Klofsten & Jones-Evans, 2000; Martinelli, Meyer, & von Tunzelmann, 2008)
Science Parks and Incubators (e.g. Phan, Siegel, & Wright, 2005; Kolympiris, Kalaitzandonakes, & Miller, 2015)	Consulting (Klofsten & Jones-Evans, 2000)
Rules and Procedures	Ad Hoc Advice (Abreu & Grinevich, 2013; Perkmann et al., 2013;)
Spin-off (e.g. Klofsten & Jones-Evans, 2000; Van Burg, 2014)	Networking with Practitioners (Bramwell & Wolfe, 2008; Gordon et al., 2012)
External Teaching (Klofsten & Jones-Evans, 2000)	Regional Governance and leadership (Uyarra, 2010)
Academic Entrepreneurship (Wright et al., 2009)	Human capital development (Drucker & Goldstein, 2007)
Research-led technological innovation (Drucker & Goldstein, 2007)	Bridging of policy and practice through engaging (Goddard & Vallance, 2013)

Figure 9-10 Key Themes in Entrepreneurial University Research. Source: Pugh et al. (2018, p.1837)

This leads to my next proposition:

Proposition – ‘*Hard*’ activities are defined under the ‘*narrow and limited view*’ of the Third Mission, driven by easy-to-quantify metrics, through tangible activity.

University Strategy Exposure Theme 1a Indicator 2 – ‘Formal’ activity.

Although many articles referenced the term '*formal*', it had multiple meanings in the context of the Third Mission activities. For example, Woollard et al. (2007) referred to '*formal objectives of Third Mission initiatives*', whereas Vorley and Nelles (2009) referred to '*formal mechanisms of Knowledge Exchange via the use of Entrepreneurial Architecture*':

"The structural dimension of an entrepreneurial architecture consists of the formal organisational mechanisms of Knowledge Exchange, usually organised into discrete offices or departments within the university. These are typically structures through which faculty, staff, and students' interface with actors outside the university (and vice versa)." (Vorley & Nelles, 2009, p.287)

Knowledge Exchange is discussed in Section Exposure Theme 1c (p.215). A year later, Nelles and Vorley (2010a) referred to '*formal incentive structures*' and '*formal offices or departments*' through structures and strategies: "*Strategies - institutional goals elaborated in planning documents; includes internally determined formal incentive structures*" (2010a, p.169)

And:

"Structures in an entrepreneurial architecture are the formal offices or departments involved in Knowledge Exchange. The most common such structure or unit is the technology transfer office. However, there are other entrepreneurial structures such as technology parks, incubators, industrial liaison offices, departments of continuing education and professional development, and collaboratively administered programs." (Nelles & Vorley, 2010a, p.170)

Also in 2010, Woollard referred to '*formal positions*' and '*formal processes*' and '*formal financial and non-financial incentives*'. Four years later, Charles et al. (2014) noted a shift to a 'broader role' through 'formal and informal participation':

"This broader role includes the contribution of higher education to social, cultural, and environmental development, by means of formal and informal participation and external representation as an institutional actor in regional networks of learning, innovation, and governance (Boucher et al, 2003). The focus is shifted from knowledge transfer processes and systems to a greater focus on 'regional needs' (Uyarra, 2010)." (Charles et al., 2014, p.5)

Pugh et al. (2018) positioned their research with the definition of *Entrepreneurial University* offered by Audretsch, Keilbach, and Lehman (2006) as: "*any university that contributes and provides leadership for creating entrepreneurial thinking, actions, institutions, and entrepreneurship capital*". (2018, p.1837)

They took the stance of Etzkowitz, Webster, Gebhardt, and Terra (2000) for Third Mission activities, to:

“Improve regional or national economic performance as well as the university’s financial advantage and that of its faculty’, differentiated from what Baldini, Fini, Grimaldi, and Sobrero (2014) define as ‘academic entrepreneurship’ through both formal and informal mechanisms to commercialize research. Indeed, as Trippi, Sinozic, and Lawton Smith (2012) explain, the ‘Third Mission’ term reflects multiple forms of engagement – economic, social, and cultural.” (Pugh et al., 2018, p.1837)

The Audretsch, Keilbach, and Lehman (2006) definition of *Entrepreneurial University* is broad, however, an even broader definition of Third Mission activities is also needed. The indicators in the data extracts show a broadening over the last decade. This leads me to the next proposition:

Proposition - Third Mission activity is about economic performance through formal mechanisms; however, it is also about informal mechanisms to commercialise research/knowledge.

Pugh et al. (2018) referred to ‘*formal roles*’ and ‘*formal routes*’ and Freel et al. (2019) referred to ‘*formal and informal technology transfer*’. Also in 2019, Sánchez-Barrioluengo and Benneworth referred to ‘*informal knowledge transition*’, suggesting:

“HEIs help optimise regional innovation system networks and their systemic innovation properties, encouraging formal R&D and consultancy transactions alongside informal knowledge transmission not involving financial compensations [...] This model distinguishes ‘soft’ activities (advisory roles, consultancy, industry training, production of highly qualified graduates), closer to the traditional academic paradigm, from ‘hard’ initiatives such as patenting, licensing, and spin-off activities (Philpott et al., 2011) as part of their Third Mission outputs.” (Sánchez-Barrioluengo & Benneworth, 2019, p.208)

Although the terminology is diverse, I interpret that within the Third Mission activity context, the term ‘*formal*’ is used in alignment with ‘*hard*’ when referring to ‘*activities and mechanisms*’ and noted the term is also used (with other meanings) about processes and structures more generally. For example:

“The formal links tend to be embedded within the procedures and structures of the university, but informal linkages to the region have a more complex structure, formation and enactment, and are often curated or developed by individuals.” (Pugh et al., 2018, p.1850)

This leads to my next proposition:

Proposition – ‘*Formal*’ and ‘*hard*’ activities are grouped together in the context of Third Mission activity.

University Strategy Exposure Theme 1a Indicator 3 – ‘Knowledge Transfer’.

Pugh (2017) identified ‘*knowledge transfer*’ as Third Mission activity alongside other ‘*hard*’ and ‘*formal*’ activities:

“Third-mission activities, such as licensing, patenting, knowledge transfer and spin-offs, have gained much attention from academics and policy-makers due to their explicit and measurable economic impacts (Mowery & Shane, 2002). However, focusing on third-mission activities alone can obscure the wide range of roles and activities universities undertake in interacting with businesses, Government, and the wider community (Goddard et al., 2014).” (Pugh, 2017, p.984)

Pugh, Jack & Hamilton (2018) cited Mian (2011) who highlighted that the conceptual underpinnings of the term ‘*knowledge transfer*’ are linked to commercialisation of science and technology:

“While we found a wealth of contributions in the knowledge transfer field, many were premised on the exploitation or commercialization of science and technology-based research (Mian, 2011).” (Pugh et al., 2018, p.1837)

Then in 2019, Martin, Warren-Smith and Lord noted:

“There is an emphasis on the tangible in these components. Structures include physical facilities – technology transfer offices, incubators, business portals and technology parks, all investments designed to encourage knowledge transfer and business start-ups.” (Martin et al., 2019, p.284)

This leads to my following proposition:

Proposition – ‘knowledge transfer’, ‘hard’ and ‘formal’ activities are associated firstly within a commercialisation of science and technology focus, and secondly, with tangible/explicit/quantitative measurement.

Broad Exposure Theme 1b - 'Soft/informal' activities are associated with a broad definition of the Third Mission.

This Sub-theme captures the 'soft' Third Mission activity characteristics of being exposed to UK Third Mission activity (collaboration). 'Soft' activities have also been described as 'informal' activities in the corpus of data.

Factors identified from the data include: 'behaviours', 'consultancy', 'internships', 'networking', and 'training'.

Broad Exposure Theme 1b Indicator 1 – 'Soft'.

Returning to the Pugh et al. (2018), they combined the terms 'soft', 'informal' and 'engagement' activities (Figure 9-10, p.208). They listed activities like 'collaborative research' (research-related), 'contract research' (research-related), 'governance' (leadership-related), 'human capital development' (training-related), and 'consulting', 'networking' and 'ad hoc advice' (knowledge-related). These activities are associated with Business and Management undertakings, with no reference to STEM.

'Research' is included in both the hard and soft activity list with the differentiator appearing to be *either* a STEM or a Business and Management conceptual source.

It could be argued that the hard activities could not be achieved without the soft activities, and they are inextricably interrelated. It could also be argued that the soft activities are 'enablers' of the hard activities. Finally, it could be argued that the hard activities are only 'hard', since the metrics system is associated with quantitative 'return on investment' measures, therefore there may be a possible relationship between 'hard' and 'quantitative' methods, whereas 'soft' activities -being less 'tangible'- relate more to a perception-based 'return on expectations' and so would rather require 'qualitative' measures. Pugh et al. (2018) also group 'engagement' with 'informal' and 'soft' activities. 'Return on expectations' is discussed further in Section 10.3.3.2 (p.289).

In addition to Pugh et al. (2018), another four out of twenty-one articles referred to the term 'soft'. Firstly, Martin and Turner (2010) explored the impact of Third Mission soft factors on the *Entrepreneurial University*. They formed five meta-themes

(Enablers, Barriers, Activities, Values and Experience) following secondary data analysis, perception analysis then survey and interviews. These meta-themes are explored as potential Third Mission mechanisms in Section 9.4, (p.238).

Secondly, and nine years later, Martin, Warren-Smith and Lord (2019) considered the use and need for 'soft' elements of '*Enterprise Architecture*'.

Thirdly, (Sánchez-Barrioluengo & Benneworth, 2019, p.207) suggested some associations:

- Perkmann et al. (2013) focussed on the Entrepreneurial University being linked to 'commercialisation activities' towards the achievement of Third Mission (spin-offs, patents, and licences).
- The *Engaged University* focussed on 'soft activities' (consulting, collaborative research, and contract research).
- The *Regional Engaged University* focussed on regional, soft activities.

Fourthly, Degl'Innocenti et al. (2019) suggested 'newer universities' and more 'teaching-oriented universities' focus more on 'consulting' and 'training' activities and therefore 'softer' undertakings. They also support that: "*New and generally less research-intensive universities have increased their share of Knowledge Exchange income from softer activities such as consultancy and facilities.*" (Degl'Innocenti et al., 2019, p.480)

Due to the lack of extracts using the term 'soft', the link between a 'new' or 'teaching-focussed' university -being more focussed on softer activities- is recommended for future study.

Broad Exposure Theme 1b Indicator 2 – 'Informal'.

On reviewing the term '*informal*', the dataset had ten out of twenty-one articles which referred to the term. A chronological exploration thereof leads to some exemplar extracts being considered towards answering RQ4 and RQ5.

Woollard (2010) suggested: "*To be characterized as entrepreneurial, behaviour in universities must therefore go beyond the informal, fragmented, sporadic, and unpredictable features of individual entrepreneurship*" (Woollard, 2010, p.419). Four years later, Charles et al. (2014) linked '*informal change*' to '*culture and individual behaviour*':

“Cognitive transformation takes place within institutions, affecting institutional behaviour: through incentives, recognition, and reward mechanisms; or through informal changes of culture and individual behaviour.” (Charles et al., 2014, p.5)

Pugh et al. (2016) also referred to ‘*informal*’ in connection to ‘*academic entrepreneurship*’:

“Baldini, Fini, Grimaldi, and Sobrero (2014) define as ‘academic entrepreneurship’ through both formal and informal mechanisms to commercialize research. Indeed, as Trippi, Sinozic, and Lawton Smith (2012) explain, the ‘Third Mission’ term reflects multiple forms of engagement – economic, social, and cultural.” (Pugh et al., 2016, p.1359)

Secundo et al. (2017) point out limitations and complexity of trying to measure ‘*informal*’ Third Mission activities and its links to considerations of terms like ‘*heterogeneity*’, ‘*tacit*’ and ‘*ambiguity*’:

“Despite the efforts, comprehensive Third Mission data is extremely complex to collect... the broad definition of the activities that can be included under the term ‘Third Mission’ leads to significant differences at institutional level on what are their approaches and aims in this respect. Consequently, Third Mission performance measurement needs to be related to the university’s institutional views, to national and regional policies, and, in many cases, to individual initiatives.” (Secundo et al., 2017, p.232)

And:

“The nature of relevant data required to track Third Mission activities is considered as invisible, tacit, unquantifiable informal, and in most cases it is not collected by administrators. Given their high level of ambiguity [...] Thus, a comprehensive model for measuring the Third Mission performance of universities from an Intellectual Capital perspective is still missing..” (Secundo et al., 2017, p.232)

It appears from the data that *informal* Third Mission activity continues to be ‘*invisible*’, which contributes to a motivation for this study. The ‘*Intellectual Capital*’ perspective is explored further as a potential Third Mission *mechanism* in Section Mechanisms Theme 2b (p.269).

Pugh et al. (2018) cite Jack, Moulton, Anderson, & Dodd (2010) to highlight:

“...the importance of informal engagement “We know people tend to engage much more through personal and informal network relationships built through trust and respect than through formal mechanisms.” (Pugh et al., 2018, p.1838)

They suggested a formal route (via the wider definition of *Entrepreneurial University*) and an informal route which bypasses formal systems (Section Mechanisms Theme 1a, p.240).

Their research was focussed on regional activity; however, it could also have relevance to other 'geographical levels' of activity:

“Overall, it is important to emphasize how important informal links to the region are to the entrepreneurship department’s work, and more formal structures of the Entrepreneurial University, that have received more attention in the extant literature, can only explain a part of the entrepreneurship department’s Third Mission role.”
(Pugh et al., 2018, p.1850)

Despite the range of Third Mission activity happening in universities (both formal and informal) the data highlighted a gap from the *Entrepreneurial University* perspective, especially at department level. They call for:

...a reversal of that trend and sets the ground for further investigation into entrepreneurship departments, and indeed other types of departments not yet captured in the literature, as key drivers of regional economic development within and beyond the concept of the EU.” (Pugh et al., 2018, p.1852)

This leads me to my subsequent proposition:

Proposition– Soft/informal characteristics come under the 'broader definition' of Third Mission.

This aspect appears not to be driven by Government through policy, perhaps as it is not so easy to 'quantify' metrics, due to intangible activity. This leads me to my ensuing proposition:

Proposition – *Informal* and *soft* activities are associated firstly as having a 'Business and Management' focus and secondly, as employing tacit/intangible/qualitative measurement.

Exposure Theme 1c 'Knowledge Exchange' (KE) is a characteristic of the Third Mission.

Exposure Theme 1c captures the Knowledge Exchange (KE) activity characteristics whilst being exposed to UK Third Mission.

Factors identified from the data include 'HE-BCI Survey', 'collaborative research', 'consultancy', 'contracts', 'CPD', 'facilities – equipment', 'IP', 'patents and licences', 'research-oriented activities', 'training', 'spin offs'.

The term '*Knowledge Exchange*' is used in seventeen out of the twenty-one articles in the corpus of data. A chronological review starts with Woollard, Zhang and Jones (2007), who suggested it is a *broader* concept than 'knowledge transfer'. In 2009, Vorley and Nelles proposed that the term has *broadened* in theory and has been linked via *broad* socio-economic policy through KE. They went on to put forward 'Entrepreneurial Architecture' as an approach to '*remove bias of economics in KE*' under the Third Mission. In 2010 they submitted that: "*Structures in an entrepreneurial architecture are the formal offices or departments involved in Knowledge Exchange.*" (Nelles & Vorley, 2010a, p.170). Entrepreneurial Architecture is reviewed in the Mechanisms section (Section Mechanisms Theme 1b, p.255).

Also in 2010, Nelles and Vorley cited Tuunainen (2005), that the Third Mission term is indeed *broadening* to encompass *knowledge exploitation*:

"However, as the Third Mission has evolved it has grown in scope, from commercialisation and licensing to encompass a wider range of activities ranging from the application and exploitation of knowledge in an economic domain to harnessing the social and community orientated capabilities of universities (Tuunainen, 2005)." (Nelles & Vorley, 2010b, p.344)

As mentioned earlier, Zawdie (2010) linked the Triple Helix model to Third Mission. She also made a connection to KE, describing it as '*cross-sectoral knowledge circulation*'. The connotation of the word '*circulation*' is that knowledge is not a linear/one-way *transfer* (which knowledge *transfer* may infer). The Triple Helix is discussed further in the Mechanisms Section Mechanisms Theme 1a (p.240).

Charles et al. (2014) highlighted that Knowledge Exchange activity was *regional* whilst it was funded through RDA programmes. This indicates the Knowledge Exchange concept (like Third Mission) is associated with funding sources.

Furthermore, they noted there has been a change in '*income sources*' for Knowledge Exchange over time and this impacts activities, for example Durham University shifted from a regional to an international focus:

"Durham shifted their knowledge Exchange strategy away from regional engagement to an international strategy in support of research and education, given the demise of regional organisations and their associated funding streams." (Charles et al., 2014, p.23)

Newcastle University noted barriers to Knowledge Exchange at a *regional* level:

"Newcastle University specifically states, "reduction in regional resources dedicated

to innovation” and changes to regional policy as a barrier for Knowledge Exchange.”
(Charles et al., 2014, p.23)

Aston University (which is stated as being an ‘old’ university) appears to have reported (via HEIF) both ‘Knowledge Exchange activity’ and ‘knowledge transfer activity’ under a *broader* umbrella definition of KE:

“Aston University (‘Other Old’) identifies four key objective areas in their knowledge Exchange strategy: ‘collaborative research and exploitation’; ‘continuing professional (CPD)’; delivering high levels of ‘graduate employability, entrepreneurial behaviour and enterprise’; and ‘innovative supports for SMEs and new business’. Aston University also refers to knowledge transfer partnership (KTP) and CASE studentship numbers as evidence of their previous Knowledge Exchange activities, indicating linkages between research, enterprise, and student employability.”
(Kitagawa et al., 2016, p.16)

The University of Hertfordshire (presented as a ‘new’ university) *aligned* research and Knowledge Exchange activities:

“Whilst being a new university and not research intensive, their institutional strategy recognises ‘research and Knowledge Exchange activities are closely aligned to meet the key future demands of business and society.’” (Kitagawa et al., 2016, p.19)

Degl’Innocenti et al. (2019) cited Sánchez Barrioluengo et al., (2016) who suggested Russell Group universities, with their research-intensive heritage, had a *concentration* of Knowledge Exchange income: *“Compared to other universities, these “elite” research-intensive universities tend to show a concentration of Knowledge Exchange income.”* (Degl’Innocenti et al., 2019, p.8). Further discussion on Russell Group is in Section Mechanisms Theme 2a, p.267).

The definition of Knowledge Exchange has *both* narrow and broad definitions. The most recent articles from the dataset demonstrate differing emphasis on KE. This key synthesis of extracts highlights there continues to be *no consensus* about the definition of Knowledge Exchange in the context of the Third Mission (Appendix N). For example, some extracts indicated the Knowledge Exchange activities are *similar* to Third Mission activities (Degl’Innocenti et al., 2019; Martin et al., 2019), whereas some extracts indicated that Knowledge Exchange is *sub-set* of Third Mission (Sánchez-Barrioluengo et al., 2019).

It also appears that schools of thought on *Knowledge Exchange indicate* Knowledge Exchange takes a *broader* stance in relation to the Third Mission than *Knowledge*

Transfer ('*hard/formal activity*'). Similarities to Third Mission include that Knowledge Exchange appears to be aimed at *commercialisation*, being *driven* by UK Government.. The introduction of the Knowledge Exchange Framework (KEF) is significant in the formalisation of the term '*Knowledge Exchange activity*' rather than '*Third Mission activity*'. However, it is noted that Knowledge Exchange activity and Third Mission activity are referring to the same types of undertakings in the dataset. The source of the KEF poses questions of underlying motivation, as it is born from a STEM conceptualisation (thus focussed on '*hard/formal/KT*'), then it broadened over time. As the conceptual source came from outside the Business and Management school of thought, this may contribute to the conceptual confusion of Knowledge Exchange and Third Mission. There is a lack of data in the corpus of articles with regards to KEF. Further study from a broader set of sources is required to understand this deeper in relation to Third Mission activity. This leads me to two propositions:

Proposition - *Knowledge Exchange* appears to be an umbrella term used to describe '*Third Mission activity*' towards accomplishing the Third Mission.

Proposition: Knowledge Exchange has broadened from '*technology transfer*' roots to encompass both hard and soft activities, emphasising two-way '*exchange*' rather than one-way '*transfer*' of knowledge between a university and business.

KE is discussed further in Section Exposure Theme 2 (p.220) to attempt to further clarify definitions in relation to the Third Mission.

Exposure Theme 1d – Sub-theme - University strategy exerts control of Third Mission activity (circle of control).

Exposure Theme 1d captures some of the *university strategies* identified that may contribute towards the Third Mission. Salient characteristics of being '*exposed*' to '*strategic*' Third Mission activities in a university include the following factors: 'balancing change and stability', 'competitive vs collaborative', 'dedicated or ad hoc', 'reward and reinforcement', 'passive or active', and 'corporate entrepreneurship' (focussed or diffused responsibility). Each of these factors is briefly discussed with an example extract as an indicator. Firstly, the importance of institutional strategies was highlighted by Vorley and Nelles (2009), who suggested they shape the internal

structures and systems of universities towards the Third Mission and emphasise the need to be *'sensitive and specific'* to institutional context.

Ten years later Sánchez-Barrioluengo, Uyarra and Kitagawa (2019) suggested:

“Institutional strategy presents clearly focused and defined areas of Knowledge Exchange activities [...] We thus observe that English HEIs seem to be intensifying their selectivity and specialisation in particular types of Knowledge Exchange activities.” (Sánchez-Barrioluengo et al., 2019, p.480)

As such, seven factors are interpreted as being important for answering RQ4 and are synthesized into considerations (Section 9.1, p.138) to inform discussion by university practitioners (all SOGI levels), to enhance Third Mission activity (Table 9-7).

Characteristic	Exemplar Extract
Centralised vs decentralised	<i>“Contradictions between centralization and decentralization, an apparently ‘one-size-fits-all’ approach to structure and systems, and the lack of reference to examples of outstanding enterprise practice all give rise to concerns about the long-term effectiveness of the current approach.”</i> (Woollard et al., 2007, p.396)
Rewards and Reinforcement	<i>“rewards/reinforcement (reward systems based on performance, highlighted achievements, encourage pursuit of challenging work)”</i> (Woollard, 2010, p.416)
Change vs. stability	<i>“However, change is not always welcome. Some participants’ reviews illustrate how difficult striking this balance between stability and change can be”</i> (Pugh et al., 2016, p.1365) <i>. Of course, a degree of resistance to the alternative way of doing things is expected [...] It is important to remember that stakeholders may not be accustomed to approaches that may seem perfectly natural to universities and academics. However, by and large programme stakeholders were positive about the alternative approaches taken, and the way in which network engagement and sharing was encouraged.</i> (Pugh et al., 2016, p.1365)
Competition vs collaboration	<i>“There has subsequently been a rescaling of universities’ engagement from the regional to the local level, and an emergence of new patterns of competitive institutional behaviour.”</i> (Charles et al., 2014, p.3)
Dedicated vs ad hoc	<i>“Resources may be dedicated or ad hoc and responsibility may be focused or diffused”</i> (Freel et al., 2019, p.18)
Focussed vs. diffused	<i>“Universities may adopt a passive strategy, confident that the community will select the best projects and allocate sufficient</i>

Passive vs active	<i>resources. However, in weaker entrepreneurial contexts, universities may have to more actively develop procedures and structures to evaluate and select projects and to set aside specific resources.” (Freel et al., 2019, p.18)</i>
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Table 9-7 Considerations Towards RQ4

It could be argued that any strategy may be selected, the most important thing is to clarify your position, communicate to raise awareness and engage in discussion to clarify any misinterpretation. Or it may be that certain strategies are more successful than others, dependent on the mechanisms used to achieve them. Strategies that can be adopted are numerous and the seven factors above are only *indicators*. These seven factors will be discussed further in relation to *mechanisms* (Section 9.4 (p.238)).

Proposition - More focus on a university building ‘awareness’ of its current situation and need for change, will help identify what Third Mission goals they would like to achieve.

9.3.2 Exposure Theme 2 - UK Third Mission definition is not agreed and has broadened over time.

Exposure Theme 2 captures the ‘*definition*’ characteristics of being exposed to UK Third Mission activity, these are recognised as being very diverse. Sub-themes identified earlier indicated the issues with trying to define the Third Mission, because some extracts offered ‘broad’ definitions while others were ‘*narrow*’, and some had different definitions based on the heritage of the university. The sources did indicate that the Third Mission is linked to knowledge, heterogeneity, and entrepreneurialism. The following sections discuss each Sub-theme toward answering RQ5: What definitions of Third Mission and Third Mission activity will evolve in the context of the DBA to inform a theoretical framework?

Defining Third Mission Exposure Theme 2a Third Mission is conceptually on a Broad to Narrow continuum.

Exposure Theme 2a Sub-theme captures the ‘*scope*’ of being exposed to UK Third Mission activity in terms of broadness/narrowness of definition. Building on previous

chapters, Third Mission characteristics are recognised as being very diverse - to the point where the definitions could be used to create a continuum of 'narrowest', 'narrow', 'broad', and 'broadest' - a university could select where they lie on this spectrum in their own context.

Factors identified from the data include: 'Engaged University', 'innovation', 'society', 'Triple Helix' and 'undefined'.

As mentioned in Section Context Theme1a (p.142), contextual discussion on the term '*narrow*' and '*broad*', and in particular, the indicator that 'policy has moved from a '*narrow*' to '*broader*' definition of Third Mission over time' was introduced as a factor in defining the Third Mission. Exemplar extracts show the variety of definitions (or lack of them) within the corpus of data (Table 9-8). This leads to attempts at categorisation (based on interpretation of the data extracts) from '*narrowest*' definitions to '*broadest*' definitions of the Third Mission

Continuum	Narrowest	Narrow	Broad	Broadest
Indicators interpreted from data extracts	<ul style="list-style-type: none"> • Technology Transfer 	<ul style="list-style-type: none"> • Knowledge Transfer • Triple Helix 	<ul style="list-style-type: none"> • Knowledge Exchange • Knowledge Commercialisation • Economic Development • Continuing Education 	<ul style="list-style-type: none"> • Everything that is not teaching or research. • Non-academic activities • Engagement with industry and society • Social Engagement • Economy and society
Data extracts	<p><i>“Elsewhere this term has been more narrowly conceived in terms of knowledge and technology transfer (Hackett and Dilts 2004)” (Nelles & Vorley, 2010a, p.162)</i></p> <p><i>“What was often referred to as ‘Third Mission’ activities included technology transfer, university–industry partnerships and educational curricula.” (Pugh et al., 2016, p.1357)</i></p> <p><i>“Technology transfer and innovation. This</i></p>	<p><i>“This paper argues that the normative application of the triple helix model has led to narrow conceptualizations of universities’ roles in the Welsh economy, and a consequently limited range of programmes.” (Pugh, 2017, p.991)</i></p> <p><i>“The ‘Third Mission’ has been added to the original two missions of research and teaching, resulting in a widening of universities’ roles and activities they</i></p>	<p><i>“... most authors support the view that the role of the university in society has developed beyond teaching and research. Incorporation of the ‘Third Mission’, according to which universities are an integral part of regional economic development, has made official a process that has been in train for some time (Etzkowitz, 1998).” (Woollard et al., 2007, p.388)</i></p> <p><i>“For over a decade, governments at regional, national, and European levels have been concerned with the role of universities in innovation (Mowery and Sampat, 2005), economic development and knowledge commercialisation (Geuna and Muscio, 2008), and wider engagement with knowledge users (Hughes, 2011). This development of a ‘third’ mission reflecting multiple forms of engagement (economic, social, and</i></p>	<p><i>“Although it is broadly recognised that the term refers to the engagement of universities in non-academic activities” (Woollard et al., 2007, p.3)</i></p> <p><i>“In broadest terms this mission is defined as everything that is not traditional teaching and research (Jongbloed et al. 2008)” (Nelles & Vorley, 2010a, p.162)</i></p> <p><i>“The term ‘Third Mission’, however, broadened over time, and came to include wider activity to foster engagement with industry and society.” (Pugh et al., 2016, p.1357)</i></p> <p><i>“Social Engagement. This</i></p>

	<p><i>includes two main processes: management of intellectual property and spin-off creation as well as R&D network development.”</i> (Secundo et al., 2017, p.234)</p>	<p><i>undertake towards a more entrepreneurial orientation. The emphasis on increasing knowledge transfer in Government policy and the increased funding opportunities available are responsible for moving business engagement higher up the agenda for many universities (Rose et al., 2013).”</i> (Pugh et al., 2016, p.1360)</p>	<p><i>cultural) (Tripl et al., 2012) has sat alongside a transformation from an elite model to a mass system of higher education (Scott, 2010), and a greater marketization as universities were expected to find new sources of funding.”</i> (Charles et al., 2014, p.2)</p> <p><i>“The institutional strategies cover much broader Third Mission activities than the HEBCI data sets we presented ... It is not our intention to directly link these targeted areas of strategic Third Mission activities with current Knowledge Exchange income. Instead, we aim to illuminate the institutional complexities and interconnectedness of different missions and activities, and evidence some diversity across different types of HEIs.”</i> (Kitagawa et al., 2016, p.15)</p> <p><i>“Continuing Education. It is distinct from the traditional educational mission of universities that are focused on provision of primary and more general education. Continuing education focus on two processes: education for entrepreneurial competences as well as talent attraction and incubation.”</i> (Secundo et al., 2017, p.234)</p>	<p><i>element is defined in terms of embeddedness in regional and national as well as international communities and networks.”</i> (Secundo et al., 2017, p.234)</p> <p><i>“A considerable body of work acknowledges the importance and benefits of the university–industry relationship for the economy and society, but also for increasing the revenue of universities themselves (known also as universities’ “Third Mission”).”</i> (Degl’Innocenti et al., 2019, p.1)</p>
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Table 9-8 Exemplar Data Extracts in a Third Mission Definition Continuum

The analysis and interpretive synthesis of the extracts leads to '*technology transfer*' being associated with the narrowest definition of the Third Mission. Narrow definitions are affiliated with '*knowledge transfer*' (Section Exposure Theme 1a, p.207) and 'Triple Helix' (Context Theme3, p.190). The broadest definition, on the other hand, is associated with 'anything that is not teaching and research' and 'social engagement'. Broad definitions include '*Knowledge Exchange*' (Section Exposure Theme 1c, p.215), '*Knowledge Commercialisation*' and '*Economic Development*'. This generates my next proposition:

Proposition - The definition of Third Mission could be on a *narrow to broad* continuum - rather than one-size-fits-all.

The extracts in Table 9-12 are just exemplars, a larger study of mapping implicit and explicit definitions of the Third Mission onto a continuum of '*broadest-broad-narrow-narrowest*' could aid in further clarification of defining the Third Mission. This is a recommendation for future study.

Defining Third Mission Exposure Theme 2a Indicator 1 – New concept.

The complexity of defining the Third Mission goes beyond being broad or narrow. Vorley and Nelles (2009) highlighted that the Third Mission is a relatively new concept:

“However, it was not until the late 1990s that the Third Mission was formally recognised within public policy, with the first third stream funding programme established by the Higher Education Funding Council for England (HEFCE) in 1999.”
(Vorley & Nelles, 2009, p.292)

So, is ambiguity to be expected as it is a new concept that is maturing over time, or is it due to lack of clarity in policy, or changes in policy? This results in my next proposition:

Proposition - The Third Mission is whatever *policy* says it is, and it is constantly re-invented over time.

This is because: *“The Third Mission is a phenomenon embedded and articulated within policy to which contemporary universities have been challenged to respond.”* (Vorley & Nelles, 2009, p.293). Policy drives the usage of Third Mission terminology and research informs policy; this cycle is complex and possibly immature:

“While a growing literature has emerged documenting the evolution of the contemporary university, and specifically addressing the Third Mission and university entrepreneurship, it remains at once both too broadly conceptualised and overly fragmented.” (Vorley & Nelles, 2009, p.293)

The source of the term Third Mission is discussed in Section Exposure Theme 2b (p.225).

Defining Third Mission Exposure Theme 2a Indicator 2 – Integration.

Nelles and Vorley point out how ‘puzzling’ it is that the Third Mission is treated separately to the other two missions of *teaching* and *research*:

“The Third Mission is inextricably linked to the core teaching and research functions of the university. It is therefore puzzling that the third stream has often been perceived, discussed, and even implemented separately...there is tremendous variation across the higher education sector, and no two institutions are the same.” (Nelles & Vorley, 2010b, p.345)

As mentioned earlier, this is a key consideration (Section 9.1, p.138) in defining the Third Mission and leads to my next proposition:

Proposition – The Third Mission needs to be integrated with teaching and research missions.

One extract linked ‘ecosystem’ and Third Mission in relation to ‘*Intellectual Capital*’ as a potential answer to capturing the ‘*intangible assets*’:

“The updated Intellectual Capital definition...aligns with the Third Mission of universities. Thus, the vocation of universities in achieving the Third Mission requires a focus on the university ecosystems where intangible assets and Intellectual Capital are created and developed on a wider scale.” (Secundo et al., 2017, p.231)

Intellectual Capital is therefore discussed as a potential ‘*mechanism*’ of Third Mission activity, to help describe the Third Mission in Section Mechanisms Theme 2b, p.269.

Exposure Theme 2b -Third Mission conceptual source is contested.

The Exposure Theme 2b Sub-theme tries to capture perceptions on the conceptual source of the Third Mission as a defining characteristic of being exposed to UK Third Mission activity. The corpus of data is clearly very diverse, to the point where the definitions lack any clarity or consensus. Understanding the conceptual source is a key to help answer RQ 5. Appendix O contains data extracts that demonstrated

differences in perceptions of whether the Third Mission is a new or '*not new*' concept. So, my next proposition is as follows:

Proposition – The interaction between university and business is *not new* but the definition of Third Mission is a newer concept.

Exposure Theme 2c - Third Mission is about Entrepreneurialism.

The Exposure Theme 2c Sub-theme characterises '*entrepreneurialism*' as a defining characteristic of being exposed to UK Third Mission activity. The entrepreneurialism characteristics are recognised as being very diverse. For example, many references indicate that a university becomes an *Entrepreneurial University* if they adopt the Third Mission. A key indicator of this is the use of *Entrepreneurial Architecture* (EA) as a tool and it is discussed in the Mechanisms section (Section Mechanisms Theme 1b, p.255).

Other factors that have been linked to being *entrepreneurial* include: 'policy catalysing change' (Section Context Theme1a.1, p.142), the *Entrepreneurial University* (Section Context Theme2a.1.1, p.173) the 'second academic revolution', 'Triple Helix' (Context Theme3, p.190), 'heterogeneity', 'Third Mission activity' and 'university entrepreneurship'.

Although the term '*entrepreneurial*' has historic connections with a *narrow* definition (Section Exposure Theme 2a, p.220), the Third Mission as a whole does appear to be evolving towards a *broader* definition, and under this broader definition the term '*entrepreneurial*' is a key characteristic.

Proposition – Entrepreneurialism (in its *broadest* definition) is associated with the *broadest* definition of the Third Mission.

Exposure Theme 2d - Third Mission is about knowledge.

The Exposure Theme 2d Sub-theme captures that '*knowledge*' is a key characteristic of being exposed to UK Third Mission activity. The knowledge is recognised as being related to all three missions (teaching, research, and the Third Mission). In defining

the Third Mission, the following section explores the links to ‘*knowledge*’ from the data extracts:

Woollard et al., (2007) defined the Third Mission as:

“The “Third Mission” refers to all activities concerned with the generation, use, application and exploitation of knowledge and other university capabilities outside academic environments” (Woollard et al., 2007, p.1)

This puts ‘*knowledge*’ as a *central organising concept* of defining the Third Mission. Ten years later, Secundo et al. (2017) refer to the ‘*utilisation of knowledge*’ and then Martin et al. (2019) a link to ‘*Knowledge Exchange*’: *“The Third Mission goes beyond research and teaching, in calling on universities to engage business and society through dynamic Knowledge Exchange.”* (Martin et al., 2019, p.282)

Sánchez-Barrioluengo and Benneworth (2019) link to both ‘*knowledge transfer*’ and ‘*Knowledge Exchange*’: *“The Third Mission in the UK context involves interactions between HEIs and private, public, voluntary, and societal organisations that support knowledge transfer and exchange (HEFCE, 2009).”* (Sánchez-Barrioluengo & Benneworth, 2019, p.209)

Also in 2019, Degl’Innocenti, Matousek, Tzeremes refer to ‘*creation and diffusion of knowledge*’:

“Public opinion and practitioners largely acknowledge the importance of universities as a vehicle for the creation and diffusion of knowledge. Policy makers have put forward several initiatives to support the so-called Third Mission, especially by facilitating the commercialisation of academic knowledge, such as patenting and licensing of inventions (D’Este and Perkmann, 2011; Geuna and Nesta, 2006).”
(Degl’Innocenti et al., 2019, p.8)

Finally, Sánchez-Barrioluengo et al., (2019) link Knowledge Exchange with Third Mission and being entrepreneurial: *“There has been strong policy interest in universities becoming more entrepreneurial and engaging in Knowledge Exchange activities as part of an expanding Third Mission agenda”.* (Sánchez-Barrioluengo et al., 2019, p.469)

The latest exemplar extracts (above) use terminology more associated with the ‘*broad*’ and ‘*broadest*’ definitions of the Third Mission (Section Exposure Theme 2a, p.220), however, it is noted that ‘*knowledge transfer*’ is still a term in current use.

Key characteristic – Knowledge is associated with the narrowest, narrow, broad, and broadest definitions of the Third Mission.

Exposure Theme 2e - Third Mission is about Heterogeneity.

Exposure Theme 2e Sub-theme captures heterogeneity as a defining characteristic of UK Third Mission activity.

Factors identified from the data include: ‘isomorphic’ and ‘one size fits all’ (as the opposite of heterogenous), which have been discussed from a context perspective. This section focusses on the defining factors for Third Mission with regards to heterogeneity. The Third Mission heterogeneity characteristics are recognised as being a pre-requisite for a university towards becoming an EU. This is a key theme to help answer all Research Questions.

Heterogenous Exposure Theme 2e Indicator 1 – Isomorphic/one-size-fits-all

Section Context Theme1a.1 (p.142) showed a perception of isomorphism and ‘*one-size-fits-all*’ when referring to external drivers (government, policy, funding), but is it a key defining factor of the Third Mission in the UK? Table 9-9 contains data extracts with regards to heterogeneity and isomorphism which identifies a key characteristic.

Key characteristic – Currently the Third Mission is perceived as ‘*isomorphic*’:

Data Extract	Noticings
<p><i>The key findings related to: (1) the need for policy makers to understand the heterogeneity of the higher education base; and (2) the need for the management within universities to address issues connected to organizational culture in Third Mission activities. There is a gap in the literature on intra-organizational aspects of university working in this respect, given that most studies of organizational culture are based in other organizations. (Martin & Turner, 2010, p.280)</i></p>	<ul style="list-style-type: none"> • Gap – need to recognise heterogeneity. • Gap intra-org. aspects
<p><i>One potentially detrimental consequence of the roll out of the Third Mission through public policy is the pressure inadvertently placed on universities to emulate the strategies of other leading universities regardless of institutional fit (Etzkowitz et al., 2001), a phenomenon commonly referred to as institutional isomorphism or mission creep. (Nelles & Vorley, 2010b, p.347)</i></p>	<ul style="list-style-type: none"> • Institutional isomorphism
<p><i>Empirical literature has documented the heterogeneity of HEIs. In relation to the Third Mission, universities have</i></p>	<ul style="list-style-type: none"> • Universities are heterogeneous.

<p><i>been found to differ in at least three ways, namely the mix of Knowledge Exchange activities carried out, the partners involved in these activities and the geographical scope of Third Mission interaction.” (Kitagawa et al., 2016, p.6)</i></p>	<ul style="list-style-type: none"> • KE differs. • Partners differ. • Geographical scope differs
<p><i>Through the analysis of HEIF institutional strategies of 15 HEIs, we observe a logic - the philosophy, languages, and rationale - of Third Mission activities, where both isomorphic forces and heterogeneous institutional logics are at work. Despite the descriptive and exploratory nature of the above empirical analysis, the HEIF institutional strategies 2011-2015 provide a unique set of empirical evidence, which highlighted how each HEIs selects and adapts their activities and how institutional strategies reflect different models of Third Mission implementation.” (Kitagawa et al., 2016, p.22)</i></p>	<ul style="list-style-type: none"> • Logics • Philosophy languages and rationale
<p><i>Despite the fact that universities are changing their Third Mission strategies in response to the implementation of a performance-based funding system, universities still set different objectives and follow various approaches. In general, the current funding system appears to not fully take into consideration the heterogeneous ecosystem of universities that consists of different resources, levels of bureaucracy, varieties of research, and Third Mission activities.” (Degl’Innocenti et al., 2019, p.10)</i></p>	<ul style="list-style-type: none"> • Isomorphic performance-based funding system • Heterogenous ecosystem
<p><i>“Universities have been pushed towards the Entrepreneurial University model to meet external macro environmental demands by adopting similar practices and internal changes despite their institutional diversity and organisational differences” (Sánchez-Barrioluengo et al., 2019, p.472)</i></p>	<ul style="list-style-type: none"> • Pushed towards Entrepreneurial University model. • Links Entrepreneurial University to isomorphic

Table 9-9 - Exemplar Data Extracts Indicating Isomorphism and Need for Heterogeneity

9.3.3 Exposure Theme 3 - There is a lack of understanding about the factors that make up the Third Mission

This theme was originally part the ‘Miscellaneous’ theme, however after repeating some interpretive analysis, a central organising concept based around there “*being a lack of clarity*” formed. The corpus indicated there that there is some level of consensus about the fact that there are gaps in relation to the Third Mission. Some gaps have already been illuminated in previous sections e.g., heterogeneity (Exposure Theme 2e, p.217), and this section shows further key gaps highlighting a lack of clarity.

Underdefined Exposure Theme 3a Lack of recognition of institutional diversity in defining the Third Mission.

As mentioned earlier, heterogeneity is a key characteristic of the Third Mission (Section Exposure Theme 2e, p.228). This is also referred to as an '*institutional diversity*' in the data. Because it is recognised that it is a key gap in defining the Third Mission, I am led to my next proposition:

Proposition - a lack of recognition of the institutional diversity of universities in the UK contributes to an ongoing state of confusion over defining the Third Mission.

Underdefined Exposure Theme 3b Lack of awareness of the characteristics of the Third Mission.

The Exposure Theme 3b Sub-theme discusses the 'awareness' of gap characteristics associated with exposure to UK Third Mission activity. Understanding the lack of awareness of universities in the UK helps me to identify characteristics of the Third Mission. This is a key sub-theme to help answer Research Questions 3,4 and 5.

Factors identified in the data include: 'Communication gap', 'Knowledge Exchange gap', 'knowledge impact gap', 'methodological gaps', 'scope creep', 'societal gap', 'theoretical gaps', 'training gap' and understanding the 'Third Mission gap'.

Example extracts to highlight the *lack of awareness* include:

Zawdie, who suggested in 2010 that there is a:

“Call for more research to bridge the knowledge gap between the abstract conceptualizations of the contemporary university and the empirical studies of the Third Mission.” (Zawdie, 2010, p.153)

Almost a decade later, Sánchez-Barrioluengo, Benneworth (2019) wrote:

“There is therefore a need to fill these two gaps, firstly relating to a more precise characterisation of the different missions and their relationships to core university knowledge processes, and secondly, for more analytic research on universities' wider regional (non-commercial) knowledge impacts (the developmental impacts).” (Sánchez-Barrioluengo & Benneworth, 2019, p.215)

Proposition - a lack of awareness by individuals in universities contributes to a continued state of confusion over Third Mission activity.

Underdefined Exposure Theme 3c - Lack of defining the strategic mission in relation to the Third Mission.

The Exposure Theme 3c Sub-theme delineates the '*strategic mission gap*' characteristics of being exposed to UK Third Mission activity in terms of recognised gaps. Understanding the lack of strategic mission of universities in the UK helps identify characteristics of the Third Mission. This is a key Sub-theme to help answer Research Questions 3,4 and 5. University Strategy was discussed in Section Exposure Theme 1d (p.218), recognising that University strategy exerts control over Third Mission activity (circle of control). It highlighted seven decisions a university needs to consider (centralised vs decentralised/reward vs reinforcement/ change vs stability/competition vs collaboration/ dedicated vs ad hoc/focussed vs diffused/passive vs active), leading to the next proposition:

Proposition: More focus on a university building *awareness* of its current situation and need for change, will help identify what Third Mission goals they would like to build.

The Exposure Theme 3c factors collected from the data were diverse, including: 'department gap', 'international gap', 'university-to-university gap', 'university-business gap', 'funding gap' (European paradox), 'intangible gaps', 'lack of Third Mission alignment', 'consideration of internal structures', 'heterogenous strategies', 'catalysation of institutional change', 'consideration of other theoretical approaches', 'generation of impact' and 'diversification of income'.

The diversity of these factors indicates the breadth of confusion, hence my ensuing proposition:

Proposition - a lack of clarity in '*strategic mission*' by universities contributes to an ongoing state of confusion over Third Mission activity.

Underdefined Exposure Theme 3d - Lack of definition of entrepreneurial culture in relation to Third Mission.

The Exposure Theme 3d Sub-theme captures the '*entrepreneurial culture*' gap characteristics of being exposed to UK Third Mission activity. Understanding the lack of entrepreneurial culture of universities in the UK is another aid to identification of characteristics of the Third Mission. This is an important Sub-theme to help answer Research Questions 3,4 and 5.

Factors arising from the data include 'innovation Gap', 'adopting an entrepreneurial orientation', 'defining university entrepreneurship', 'becoming an engine of the knowledge economy', 'adopting an evolutionary approach', 'expanding Third Mission to include KE, not just KT', 'consideration of social capital as well as financial capital', 'exploitation of knowledge', 'exchange of knowledge' and 'university-business-collaboration'.

With such a diverse mix of factors, I take a chronological exploration of exemplar extracts relating to 'entrepreneurial culture', towards answering RQ4 and RQ5.

Starting with Woollard et al, (2007), who associated the Third Mission with *Entrepreneurial University*, - they see entrepreneurial culture as an '*essential mechanism*'. This is the same with Vorley and Nelles (2009), who also added that entrepreneurial strategies and systems are linked to '*cultural change*'. Next, Martin and Turner (2010) conducted a study on '*Entrepreneurial universities – the key ingredient in the recipe for UK innovation?*', which highlighted '*organisational culture*' as a key issue, especially in relation to collaboration and response to change. They noted so-called 'invisible issues': "*Whether cooperation occurs within universities therefore depends on more invisible issues, relationships, internal politics and the organizational culture.*" (Martin & Turner, 2010, p.275).

These '*invisible*' issues relate to the Third Mission context discussion on '*soft/tacit*' indicators of the Third Mission (Section Context Theme1b.3, p.159) and relate to '*change*', which was discussed in Section Context Theme1a.1 p.142). They also recognised that the term '*entrepreneurial culture*' is used in policy documents (HEFCE, 2009), but "*There has been little study so far of the impact of Third Mission soft factors.*" (Martin & Turner, 2010, p.275). Zawdie (2010) also supported the fact

that the Third Mission is underpinned by '*entrepreneurial culture*'. Most recently, Martin et al. (2019) referred to continued problems relating to *measuring* cultural aspects:

"In the UK, 'financial and numeric data are used as a proxy for university engagement with the economy and society as seen in for example contract research income' (HESA, 2016; coverage webpage). These measures do not show cultural aspects; however, they are important given earlier discussion of the problems for traditional institutions in adopting an entrepreneurial culture." (Martin et al., 2019, p.283)

The data available indicates that there remains a gap associated with measuring impact of Third Mission soft factors. This gap is considered further in Section 9.4.3 (p.277).

The data indicates that an organisational culture that has entrepreneurial characteristics is an antecedent to achieving the Third Mission. Identifying these entrepreneurial characteristics will depend on whether a broad or narrow definition of '*entrepreneurialism*' is adopted by a university. This led me to my next two propositions:

Proposition - An '*entrepreneurial*' organisational culture is required to achieve the Third Mission.

Proposition - A lack of definition of '*entrepreneurial culture*' in relation to the Third Mission in the UK contributes to a continuing state of ambiguity in defining the Third Mission.

Exposure Theme 3e - Lack of cohesive Third Mission measurement.

The Exposure Theme 3e Sub-theme captures the gaps in ‘measurement’ characteristics within the context of being exposed to UK Third Mission activity. This is a key Sub-theme to help answer Research Questions 3,4 and 5.

Factors identified from the data include: ‘defining what to measure’, ‘lack of methodology’, ‘lack of specific tools’, ‘narrow focus’, ‘REF’, ‘resource’ and ‘measurement of performance’. Some of these factors are highlighted in Table 9-10 as exemplar data extracts.

Exposure Theme 3e Indicator 1 – Defining what to measure.

Data Extracts	Noticings
<p><i>“Third Mission activities have received substantial policy and academic attention and there is a perceived need for new indicators to support their management, guide policy action and provide empirical evidence for research on their nature and impact. Yet, despite substantial effort, there has been little progress towards the generation of clear, internationally comparable datasets.”</i> (Molas-Gallart & Castro-Martínez, 2007, p.1)</p>	<ul style="list-style-type: none"> • Need new indicators
<p><i>“While indicator development continues linked to policy development and implementation, there is little room for improvement. To move away from this environment is extremely difficult.”</i> (Molas-Gallart & Castro-Martínez, 2007, p.12)</p>	<ul style="list-style-type: none"> • Issue – linked to policy development and implementation
<p><i>“The focus on best practice can prove problematic in policy implementation as policy lessons are often difficult to transfer to institutions with different initial conditions.”</i> (Vorley & Nelles, 2009, p.291)</p>	<ul style="list-style-type: none"> • Narrow focus • Best practice doesn’t account for heterogeneity
<p><i>“There is a significant gap in the university sector in both the measurement of entrepreneurial activities within the university, as well as the reporting and disclosure of measures to the university's external environment. These reasons highlighted that there is a widespread dispute about which measures are more suitable in assessing the performance of Third Mission and, at present, this debate is still open.”</i> (Secundo et al., 2017, p.231)</p>	<ul style="list-style-type: none"> • Lack of consensus on what to measure

<p><i>“Measuring Third Mission performance becomes more challenging than the other traditional activities since no consensus about the Third Mission activities of universities exists.” (Secundo et al., 2017, p.231)</i></p>	<ul style="list-style-type: none"> • IC a potential mechanism
<p><i>“There is a widespread dispute about which measures are more suitable for assessing the performance (and impact) of Third Mission of universities and the debate is still open.” (Secundo et al., 2017, p.231)</i></p>	<ul style="list-style-type: none"> • Third Mission of universities is relatively new, • No consensus
<p><i>“Evaluation criteria for the Third Mission performance of universities are now key for university managers and policy makers. However, despite the undeniable importance of universities for regional development, the definition of indicators for measuring Third Mission performance remains problematic.” (Secundo et al., 2017, p.236)</i></p>	<ul style="list-style-type: none"> • SOGI and geographical diversity
<p><i>“More research to better define indicators and measure them across time is still needed for a strategic management of Third Mission activities.” (Secundo et al., 2017, p.238)</i></p>	<ul style="list-style-type: none"> • Need to categorise Third Mission activities
<p><i>“It is problematic to measure the “success” of HEIs with respect to Third Mission activities. In this context, the impact generated by these activities represents an important driver for success. However, it is also difficult to set the criteria and identify the impacts to be measured.” (Degl’Innocenti et al., 2019, p.3)</i></p>	<ul style="list-style-type: none"> • Measuring ‘success’ is difficult

Table 9-10 Exemplar Data Extracts – Defining What to Measure

The definitions of indicators are problematic and that this is due in part to contextual factors (Section 9.2, p.140) and that they relate to ‘levels’ (Section 2.7.2, p.29). In terms of the nature of data needed, I have discussed informal/qualitative/soft indicators (Section 9.3, p.204) and agree there continues to be a challenge for universities in defining and measuring indicators. This results in my following proposition:

Proposition - a lack of cohesive measurement methodology contributes towards a confusion in evidencing impact of the Third Mission.

9.3.4 Exposure Theme Conclusion

This chapter aimed towards answering RQ3-RQ5 (Section 1.6, p.7). A review of the data highlighted Exposure propositions towards answering RQ3. See (Table 9-11) below.

From Exposure Theme	Towards RQ3: From the themes of Third Mission activity, how may a university (in particular, a Business School) create the appropriate conditions to achieve the Third Mission?
Propositions	<p>1. Build Shared Clarity:</p> <p>The lack of clarity in ‘strategic mission’ by universities contributes to an ongoing state of confusion over Third Mission activity.</p> <p>2. Boost Awareness:</p> <p>A lack of awareness by individuals in universities contributes to a continued state of confusion over Third Mission activity.</p> <p>More focus on a university building ‘awareness’ of its current situation and need for change, will help identify what Third Mission goals they would like to have.</p>

Table 9-11 Exposure Considerations of Creating the Appropriate Conditions Towards Achieving the Third Mission

Study of the data also revealed Exposure considerations (Section 9.1, p.138) towards answering RQ4 as well. See (Table 9-12) below.

From Exposure Theme	Towards RQ4: How may a university (in particular, a Business School) effectively conduct Third Mission activities with business (industry) to achieve the Third Mission?
Consideration	<p>Agree upon a measurement methodology:</p> <p>A lack of cohesive measurement methodology contributes towards a confusion in evidencing impact of the Third Mission.</p>

Table 9-12 Exposure Considerations Towards Conducting Third Mission Activity

Through the lens of ‘Exposure’ to Third Mission, reviewing the corpus also led to Third Mission definition propositions towards answering RQ5 (Table 9-13).

From Exposure Theme	RQ5: What definitions of Third Mission and Third Mission activity will evolve in the context of the DBA to inform a theoretical framework?
Third Mission Definition Propositions	<ul style="list-style-type: none"> • The Third Mission is whatever policy says it is, and it is constantly re-invented over time. • <i>The Third Mission is integrated with teaching and research missions.</i> • The definition of Third Mission could be on a narrow to broad continuum - rather than one size fits all. • The interaction between university and business is not new but the definition of Third Mission <i>is</i> a newer concept. • Entrepreneurialism (in its broadest definition) is associated with the broadest definition of the Third Mission. • Knowledge is associated with all the narrowest, narrow, broad, and broadest definitions of the Third Mission. • Currently, the UK Third Mission is perceived as isomorphic. • ‘Hard’ activities are defined under the ‘narrow and limited view’ of the Third Mission, driven by easy-to-quantify metrics, through tangible activity. • Third Mission activity is about economic performance through formal mechanisms; however, it is also about informal mechanisms to commercialise research/knowledge. • Formal and hard activities are grouped together in the context of Third Mission activity. • ‘Knowledge transfer’, ‘hard’ and ‘formal’ activities are associated firstly with a commercialisation of science and technology focus and secondly, with tangible/explicit/quantitative measurement. • Soft/informal characteristics come under the ‘broader definition’ of Third Mission. • Informal and soft activities are associated with a Business and Management focus and with tacit/intangible/qualitative measurement. • Knowledge Exchange appears to be an umbrella term used to describe Third Mission activity towards the Third Mission. • Knowledge Exchange has broadened from ‘technology transfer’ roots to encompass both hard and soft activities, emphasising two-way ‘exchange’ rather than one-way ‘transfer’ of knowledge between a university and business. • An ‘entrepreneurial’ organisational culture is required to achieve the Third Mission. • A lack of definition of ‘entrepreneurial culture’ in relation to the Third Mission in the UK contributes to a continuing state of ambiguity in defining the Third Mission.

Table 9-13 Exposure Considerations Towards Defining the Third Mission

9.4 Mechanisms – Overarching Theme

This section incorporates the Mechanism Themes (Figure 9-11) by following the data synthesis methodology introduced in Chapter 6. Throughout the chapter, the discussion of the generated themes iterates with their continued synthesis and interpretation of the data. It includes a mix of descriptive reporting of data extracts and interpreting the meaning (within the specific context of achieving the Third Mission in a UK university). Due to the volume of extracts (NVIVO), a few exemplars are used as ‘indicators’ towards answering the Research Questions. Some extracts are longer than others to ensure the link between emergent concepts and Third Mission is indicated, in line with the approach.

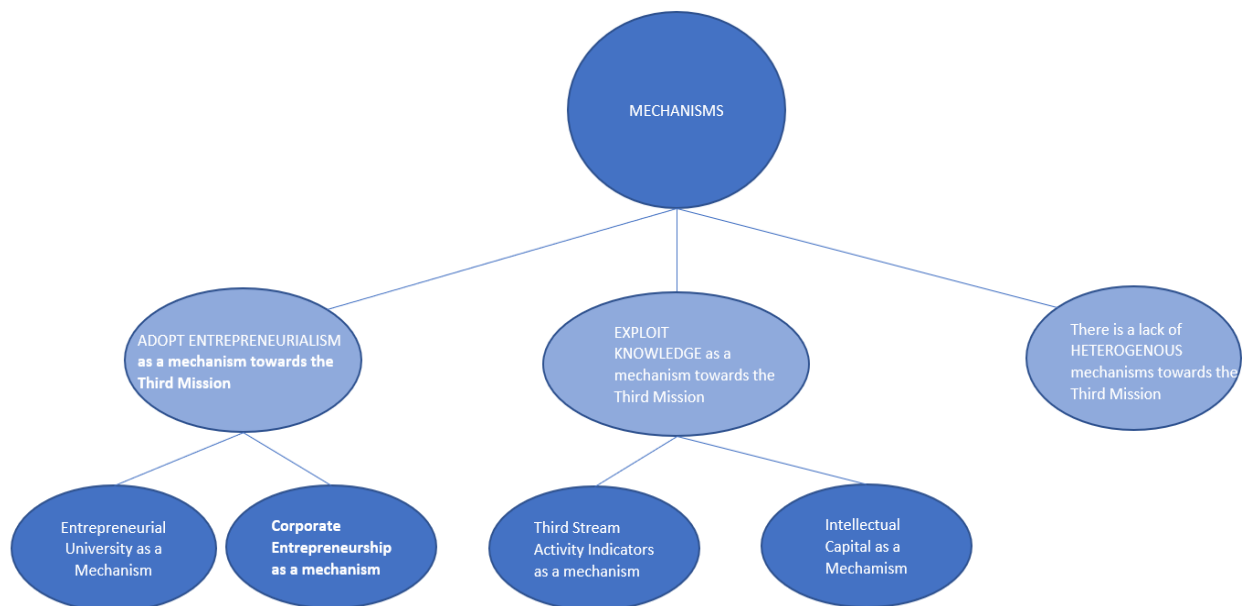


Figure 9-11 Third Mission Mechanism Themes and Sub-themes

The overarching theme (based on CEMO) captures the mechanism characteristics of UK Third Mission activity. This is based on attempting to define what ‘*mechanisms*’ help explain the relationship between *Exposure* (to Third Mission activities) and *Outcomes* (Impact).

The central organising concept of the *Mechanisms* Theme is that “*it involves methodologies (frameworks) and methods (tools and models) towards achieving the*

Third Mission". The mechanisms may help identify the relationship between *Exposure* to Third Mission activity (Section 9.3, p.204) and the *Outcomes* of Third Mission activity (Section 9.5, p.282).

It has become clear from previous chapters that the Third Mission in policy is ambiguous, and universities are left to interpret Third Mission activity (based on their own contexts). Thus, Third Mission strategies within universities risk being ambiguous, due to a lack of clarity from policy. The methodologies and methods used by universities appear to focus on those measured (and funded) by Government, where universities adopt a 'one-size-fits-all' approach. To help a university make informed decisions about Third Mission activity, often 'success cases' are shared, reinforcing a 'mimic' approach:

"Despite repeated and protracted efforts in several European countries and at Entrepreneurial University level to develop a common set of 'Third Mission' indicators to assess the nature and impact of university activities on their socio-economic environment, and to enable longitudinal and cross-country studies, progress has been, at best, sluggish. We are confronted with a disorderly clutter of partial indicators stemming from questionnaires and data-gathering initiatives developed at international, national, or regional level, with varying degrees of robustness and little, if any, comparability." (Molas-Gallart & Castro-Martínez, 2007, p.2)

Three themes were generated from interpretation of the dataset in relation to *Mechanisms*. They were based around 'entrepreneurial mechanisms', 'knowledge mechanisms' and 'lack of heterogenous mechanisms'. The following sections discuss each in turn and use exemplar extracts as indicators.

9.4.1 Mechanisms Theme 1 – Adopt 'entrepreneurialism' as a mechanism towards the Third Mission

The central organising concept for this theme is "*entrepreneurial mechanisms*", which have been signalled in the dataset by some authors, as being key mechanisms towards the Third Mission. However, there is a diversity of mechanisms shown in the body of data. This is due to differing schools of thought, which may have contributed to continued ambiguity on whether 'entrepreneurialism' is a 'defining' characteristic of the Third Mission. The *mechanism* factors revealed two Sub-themes. Firstly '*entrepreneurial university*' as a mechanism towards achieving the Third Mission and *secondly* '*Corporate Entrepreneurship*' as a

mechanism. This section therefore explores the theoretical stance of the authors of the articles and the associated entrepreneurial mechanisms they propose for Third Mission activity.

Mechanisms Theme 1a - Entrepreneurial University (EU) as a mechanism.

Etzkowitz (1983) – Entrepreneurial University (conceptual source)

The Entrepreneurial University was originally conceptualised by Etzkowitz (1983) with a focus on '*organizational characteristics of entrepreneurial universities*' and in a regional level context (Woollard, 2010, p.416). Eighteen of the twenty-one articles referred to Etzkowitz (1998) or Etzkowitz and Leysdorff (2000) in relation to entrepreneurialism, suggesting the concept has influenced Third Mission research. There is no mechanism explicitly linked to the Third Mission and Etzkowitz (1983) in the data extracts.

Clark (1998) Five Pathways of Transformation

From the *Entrepreneurial University* perspective, Clark (1998), also cited in Woollard (2010), further developed the concept, adding to the school of thought by conducting case studies of exemplar institutions which led to the '*five pathways of transformation to create entrepreneurial universities*' with a:

“Strengthened steering core; an expanded developmental periphery; a diversified funding base; a stimulated academic heartland; and an integrated entrepreneurial culture. However, for a number of reasons this work offers a difficult platform from which to develop or extend theory.” (Woollard, 2010, p417)

This mechanism was not explicitly linked to the Third Mission by Clark (1998) in the data extracts. Three points of interest emerge from this model: firstly, the title of the model referring to '*transformation*' relates to the importance of recognising '*change*' when creating entrepreneurial universities; secondly, an '*integrated entrepreneurial culture*' also relates to change; thirdly, a '*stimulated academic heartland*' relates to '*Individual*' level (SOGI), which has been identified as being a key consideration (Section 9.1, p.138) for this study and is discussed further in Chapters 10 and 11.

Benneworth Framework (2017) – Four elements of internal university structure

In 2017, Benneworth developed a variant of Clark’s Five Pathways of Transformation (Sánchez-Barrioluengo & Benneworth, 2019). Grown from *Entrepreneurial University* concepts, Benneworth identified only *four* elements of internal university structure, in explicit reference to developing the Third Mission. Table 9-14 defines each of the elements towards analysis of Third Mission performance:

Element	Definition from extracted data
Steering Core	<i>“The steering core, related to the leadership and strategy of each university, is measured by the availability of a strategic plan at institutional level for business support.”</i> (Sánchez-Barrioluengo & Benneworth, 2019, p.209)
Administrative Machinery	<i>“Two variables are included to describe the administrative machinery, related to the rules, procedures and incentives that exist at institutional level to impulse knowledge transfer activities and social engagement at regional level: the requirement to report the creation of IPR and the existence of rewards for the IPR generated.”</i> (Sánchez-Barrioluengo & Benneworth, 2019, p.210)
Internal Coupling	<i>“Three main variables specify coordination and linkages that make up the internal coupling of the university, all of them related to the existence of internal structures or departments for specific connection mechanisms with non-academic agents: assistance to SMEs, interaction with business and community and searching for IPR opportunities.”</i> (Sánchez-Barrioluengo & Benneworth, 2019, p.210)
Academic Heartland	<i>“Finally, academic heartland covers the specificities of individual academics that engage with regional agents at different levels: with the community, with clients and/or public partners.”</i> (Sánchez-Barrioluengo & Benneworth, 2019, p.210)

Table 9-14 Four Elements of Internal University Structures. Source: Benneworth 2017 cited in (Sánchez-Barrioluengo & Benneworth 2019)

The model appears to suggest a top-down structure, measured through a strategic plan, although it is unclear whether all SOGI levels help inform the strategy. The ‘*academic heartland*’ refers to all SOGI levels, but in terms of geographical diversity seems to focus just on regional level. ‘*Internal coupling*’ and ‘*administrative machinery*’ risk an isomorphic approach.

Sánchez-Barrioluengo and Benneworth (2019) Advanced *Entrepreneurial University Structural Configuration Model*

In 2019, a hybrid approach was developed from the Benneworth model (2017), explicitly for Third Mission, by Sanchez-Barrioluengo and Benneworth (2019), partly to mitigate the isomorphic approach. The concepts of Perkmann et al. (2013) cited in Sánchez-Barrioluengo and Benneworth (2019) on commercialisation activities (spin-offs and IPR) and engagement activities (collaborative research, R&D contracts, and technical services) were integrated. See (Figure 9-12).

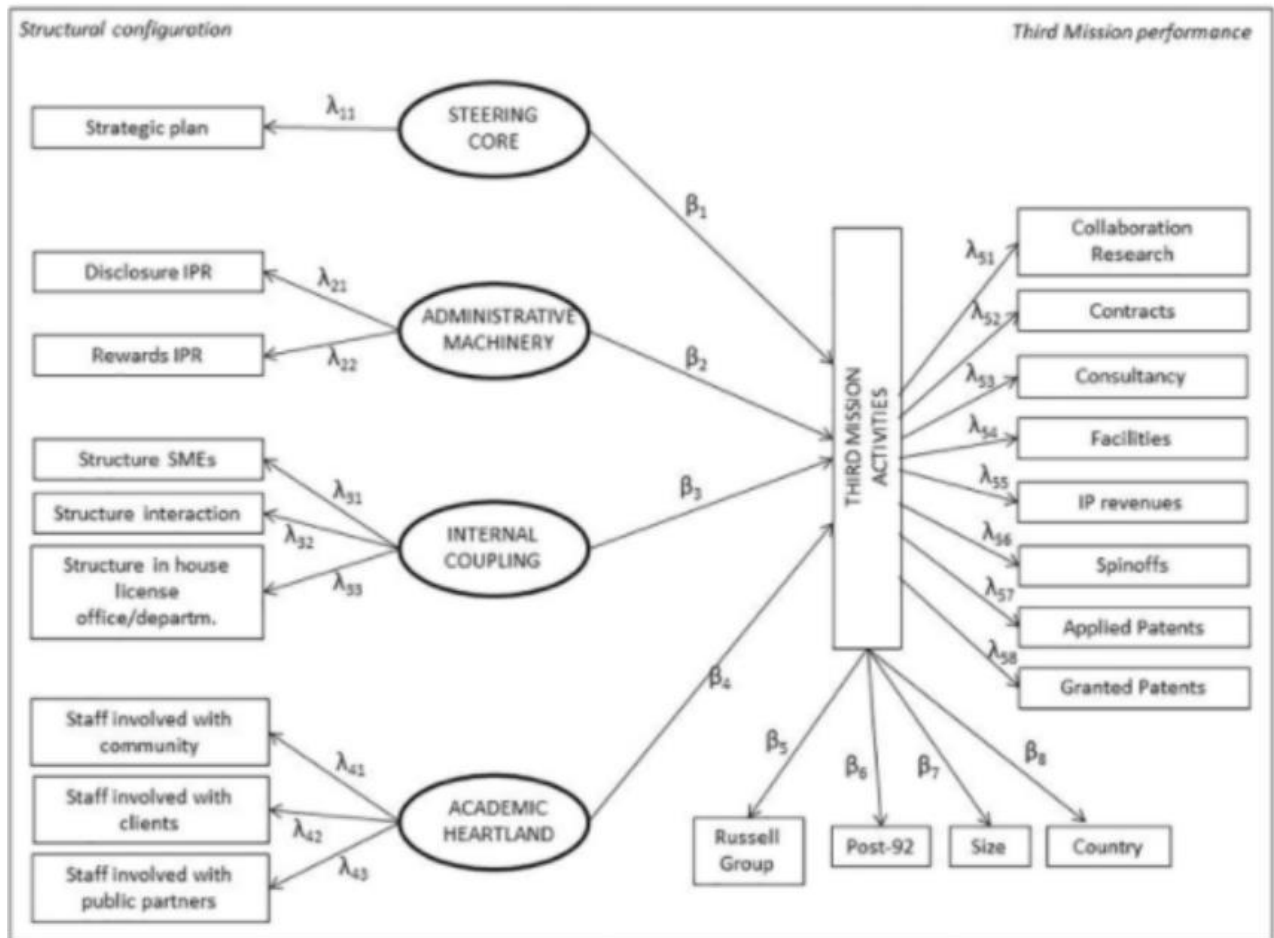


Figure 9-12 Theoretical Model. Source: (Sánchez-Barrioluengo & Benneworth, 2019, p.210)

The model considers different types/modes of university, and list Third Mission activities, which, although limited in range, do include soft and hard activities (Section Exposure Theme 1a, p.207). The internal structures do not signal whether there is integration with the first and second missions and Figure 9-12 suggested a ‘top-down’ rather than ‘bottom-up’ structure.

Etzkowitz and Leydesdorff (1995; 2000) Triple Helix

The Triple Helix has been described as a framework for *innovation* (Zawdie, 2010) which has been used: “...for analysing policies and programmes to address economic development through a university-premised approach” (Pugh, 2017, p.984) The framework was not explicitly intended for the Third Mission, since it was developed earlier:

“The Triple Helix concept was first proposed by Etzkowitz and Leydesdorff (1995; 2000) in the context of the evolutionary theory of innovation (Nelson and Winter, 1977; 1982) to explain the systemic nature of the interaction between universities (engaged in knowledge generation and transfer), industry (engaged in the application of knowledge) and Government (engaged in the provision of the requisite policy framework for knowledge circulation to thrive).” (Zawdie, 2010, p.152)

The Triple helix appears to be linked to technology, innovation, competitive advantage:

“Etzkowitz and Leydesdorff (2000) describe the evolution of tripartite relationships between university, industry, and Government through the Triple Helix III model which, they claim, most countries are currently trying to achieve. These concepts have been developed further at the regional level as a means of constructing competitive advantage.” (Woollard et al., 2007, p.388)

The concept of the Triple Helix has not received support from all researchers in the dataset, perhaps partly due to differences in university culture in the USA and UK: “Some would view the entrepreneurial paradigm as a threat to the traditional integrity of the university and would argue that it should be firmly resisted.” (Zawdie, 2010, p.152). Nonetheless, Klofsten and Etzkowitz suggested it was in fact a key framework: “In triple helix terms, university, industry, and Government constitute the key institutional framework of post-industrial, knowledge-based societies.” (Klofsten & Etzkowitz, 2005) cited in (Pugh, 2017, p.983).

Based on the STEM conceptual roots and its isomorphic implementation, the scope of the model has a *narrow* Third Mission focus. Pugh stated:

“Whilst it is clearly necessary for policymakers to study best practice elsewhere and design the most effective innovation policy possible, a model that is too prescriptive and normative does not adapt to regional circumstances. The triple helix falls into such a category, and its application as a policy blueprint in Wales has largely failed to drive innovation through the university sphere.” (Pugh, 2017, p.991)

Nevertheless, policy has been driving Third Mission activity via the use of the Triple Helix model. Zawdie has directly connected the Third Mission and Triple Helix as ‘interdependent’ concepts:

“Universities in many countries have come a long way from their traditional ivory tower stance to assume an increasingly dynamic entrepreneurial role by strategically connecting to key players in the wider economy. This development has led to the emergence of two interdependent concepts – the Triple Helix and the Third Mission.”
(Zawdie, 2010, p.151)

Pugh highlighted the risk of mimicking the Triple Helix model to achieve the Third Mission in Wales:

“The Triple Helix in its original conceptualization provides little space for third-sector organizations, civil society, intermediaries, or other actors that may have an important role to play in the system. More investigation of these dynamics in heterogeneous settings is needed to provide appropriate conceptualizations for governments in weaker regions like Wales.” (Pugh, 2017, p.990)

The risks of mimicking have been duly noted. This reinforces the need to understand both *external* and *internal* context when planning for Third Mission activity.

Pugh et al. (2016) mentioned a *quadruple helix* and Pugh expanded on this in 2017, whilst also mentioning even a *quintuple helix*:

“There is a need for more investigation of the applicability of leading theories in weaker regions: efforts are being made to broaden the Triple Helix to incorporate more spheres through a quadruple and quintuple helix (Carayannis & Campbell, 2012) and to test its application in developing settings.” (Pugh, 2017, p.983)

Quadruple Helix is defined by (Carayannis & Campbell, 2009, p. 330) as cited in Pugh as ‘*non-governmental knowledge production, utilization, and renewal entities as well as other civil society entities, institutions and stakeholders*’. No other studies in the corpus of data referred to ‘quadruple helix’. (Pugh, 2017, p.984)

Quintuple Helix is mentioned as an emerging term by Pugh (2017) but was not defined. This was the only reference to quintuple helix in the corpus of data.

Audretsch Keilbach, and Lehman (2006) - Broader Entrepreneurial University

In 2006, a broader definition of Entrepreneurial University was offered by Audretsch, Keilbach, and Lehman (2006) cited in Pugh et al. (2016). They wrote that it was:

“Any university that contributes and provides leadership for creating entrepreneurial thinking, actions, institutions and entrepreneurship capital.” (Pugh et al., 2016, p.1389). Eight years later, Audretsch (2014) argued that:

“...the role of universities stretches beyond generating technology transfer (through, for example, patents, spin-offs, and start-ups) encompassing wider roles such as contributing and providing leadership for creating entrepreneurial thinking, actions, institutions, and entrepreneurial capital.” (Pugh et al., 2018, p.1836)

So, the definition has indeed broadened and explicitly states an expansion outside technology transfer boundaries.

Pugh, et al. (2018) - Dual model - Entrepreneurial University and region

Pugh et al. (2018) adopted the broader Audretsch definition of the Entrepreneurial University to develop a dual model with explicit reference to the Third Mission. They focussed on identifying common Third Mission roles and activities within two entrepreneurial departments. A key focus was the role of the *management school* (Section Context Theme2b.2, p.187). Interestingly, the mission of the departments was ‘*research into entrepreneurship*’ where:

“All teaching and engagement activities are underpinned by research into entrepreneurship, and this is the key factor which sets entrepreneurship departments apart from the wider Entrepreneurial University as a whole.” (Pugh et al., 2018, p.1845)

So, I come to my following proposition:

Proposition – A central organising concept of an Entrepreneurial Department (or Business School), aimed at the Third Mission, would need to be ‘*entrepreneurialism in its broadest definition*’.

Pugh et al. called for further research into ‘*entrepreneurial departments*’ and I add that there is also a lack of reference to Business Schools in the literature too (Section Context Theme2b.2, p.188). Pugh et al. developed a dual model based on Audretsch, Keilbach, and Lehman (2006) to offer a broader definition of the EU:

“A dual model of engagement is proposed, whereby the entrepreneurship department operates within the framework of the Entrepreneurial University, but also as a regional actor in its own right.” (Pugh et al., 2018, p.1835)

The dual model proposed a more formal route of engagement, via the wider Entrepreneurial University and informal route, through an entrepreneurship department (Figure 9-13).

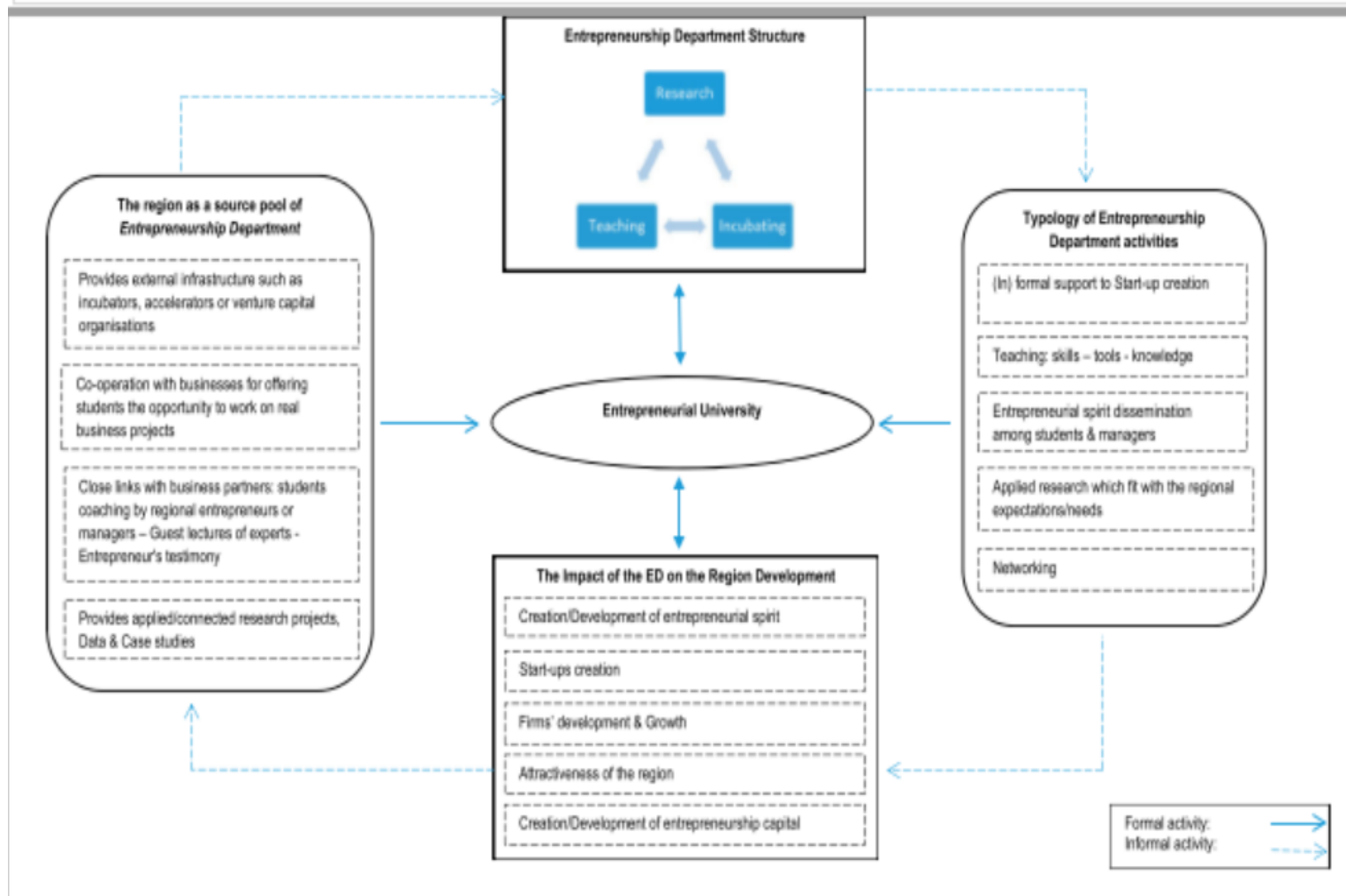


Figure 9-13 – Formal and Informal Forms of Engagement Between Entrepreneurship Department and Region. Source: (Pugh et al., 2018, p.1848)

Within the context of entrepreneurial universities, Pugh et al. (2018) generated six categories of activities within a framework (Table 9-15)

1. **educating** the current and next generation of entrepreneurs, managers, and innovators to increase the entrepreneurial capital of the region.
2. providing **programmes** and services to businesses in the locality to enhance growth, resilience, and vitality.
3. playing **leadership** or governance roles in the region and strengthening local economic networks through participation.
4. conducting world class **research** into entrepreneurship (and associated areas), which underpin all activities.
5. mobilizing and **transferring** entrepreneurial experience (Fayolle & Redford, 2014).
6. creating an entrepreneurial **culture**.

Table 9-15 Entrepreneurial Activities. Source: Adapted from Pugh et al. (2018)

Through their broader *Entrepreneurial University* lens, they see three groups of mechanisms: firstly, ones already established in literature (licensing, patenting, technology transfer offices and science parks, spin-offs, contract research, consulting, internal rules and procedures and 'academic entrepreneurship'); secondly, entrepreneurial department-established mechanisms (practitioner networking, ad hoc advice, physical and social incubation, human capital development and leadership, external teaching, collaborative research and bridging policy and practice); and thirdly, 'extra' mechanisms teaching next generation entrepreneurs, student research projects in SMEs, conferences and events for regional stakeholders, stimulating an entrepreneurial culture and atmosphere, delivery of Government business support programmes, training courses for local SMEs/entrepreneurs and combining research and teaching and practice around entrepreneurship (Pugh et al., 2018). The first group indicates the focus in literature is on the formal/hard/KT mechanisms which are defined under the narrower definition of Third Mission, whereas the other two groups illuminate an integration of teaching, research, leadership, and culture, suggesting adoption of the broader definition of the Third Mission:

“A particular characteristic of the entrepreneurship department, which sets them apart from other departments within the university, is the way teaching, research and engagement come together.” (Pugh et al., 2018, p.1846)

Within the broader definition of the Third Mission in terms of and how teaching and research are integrated, the use of informal and formal mechanisms links to heterogeneity, and how relationships and networking are measured are discussed further in the Outcomes section (Section 9.5, p.282).

9.4.1.1 Limitations of the Entrepreneurial University Model

Limitations of the Entrepreneurial University model as a mechanism towards achieving the Third Mission include seven main indicators:

Mechanisms Theme 1a Indicator 1– Fragmentation in literature.

In 2010, Nelles and Vorley acknowledged a fragmentation in literature: *“While growing literatures on the Entrepreneurial University and university entrepreneurship have emerged, they are broadly conceptualized and overly fragmented”*. (Nelles and Vorley 2010a, p.161). They split university entrepreneurship and Entrepreneurial University definitions because they say they have very different conceptual sources:

“This literature is divided in its focus on micro studies of university entrepreneurship and macro studies of the Entrepreneurial University, but both foci consider different aspects of the same central question. Namely, how do universities address and adapt to the challenges of the entrepreneurial turn in higher education policy, which exerts pressure to increase social and economic engagement outside of the academy?” (Nelles & Vorley, 2010a, p.162)

They cited Rothaermel et al. (2007) who *“intentionally defined university entrepreneurship broadly to include any entrepreneurial activities in which a university could be involved.”* (Nelles & Vorley, 2010a, p.164). To try to bridge the gap, Nelles and Vorley:

“Advance[d] the concept of entrepreneurial architecture as an analytical framework to understand the organizational dynamics of the contemporary university and fuse two dominant discourses on the entrepreneurial evolution of higher education. We offer a pragmatic approach for institutions to respond to the challenges of the Third Mission.” (Nelles & Vorley, 2010a, p.161)

Mechanisms Theme 1a Indicator 2 - Threat to traditional integrity.

Countering the entrepreneurial approach is Zawdie (2010), who refers to the entrepreneurial paradigm and that it is 'a threat to the traditional integrity of a university':

"But this cultural shift towards the Entrepreneurial University position, however important for the pursuit of the Third Mission, is not without challenges. For instance, some would view the entrepreneurial paradigm as a threat to the traditional integrity of the university and would argue that it should be firmly resisted." (Zawdie, 2010, p.152)

Mechanisms Theme 1a Indicator 3 – Lack of 'social' aspects.

Sánchez-Barrioluengo, Benneworth in 2019, suggested the entrepreneurial model focusses on commercialisation and innovation and there is no mention of 'social' aspects:

"The Entrepreneurial University model (Clark, 1998; Etzkowitz, 1983) focuses mainly on commercialization activities (Perkmann et al., 2013), with new university structures linking academic scientists with potential research users via a supportive intermediary environment (Siegel et al., 2007) acknowledging the importance actively and strategically promoting the different pathways by which knowledge supports innovation (Uyarra, 2010)." (Sánchez-Barrioluengo & Benneworth, 2019, p.207)

Mechanisms Theme 1a Indicator 4 – Link to 'mimicking'.

Sánchez-Barrioluengo, Benneworth, (2019) link to the USA-based, Bayh-Dole act, which has been associated with the limitation of 'mimicking' (Section Context Theme1b.1, p.151):

"The Entrepreneurial University (Model 1) is mainly described by spinoff and patent activities, specifically the latter, and not by IP revenues. What has made it popular as a model for universities has been the explosion globally of the idea of patenting as a potential lucrative income stream for universities. The change came from America in the 1970s and formalised by the 1980 Bayh–Dole Act in USA (Berman, 2011). As a result, the number of US universities engaging in technology transfer and licensing increased eightfold and the volume of university patents fourfold (Mowery and Shane, 2002)." (Sánchez-Barrioluengo & Benneworth, 2019, p.213)

Mechanisms Theme 1a Indicator 5 – Link to 'isomorphism'.

Sánchez-Barrioluengo, Uyarra, Kitagawa (2019) cite Etzkowitz & Leydesdorff (2000),

who highlighted an Entrepreneurial University concept risks an isomorphic development path:

“In this expected transition towards the entrepreneurial university, the diverse and dynamic ways in which individual universities are pursuing this agenda is therefore overlooked. This runs the risk of presenting the entrepreneurial university as a ‘global phenomenon with an isomorphic developmental path’ (Etzkowitz & Leydesdorff, 2000, p. 313).” (Sánchez-Barrioluengo et al., 2019, p.471)

However, Sánchez-Barrioluengo, Uyarra, Kitagawa noted that this was being questioned:

“Universities have been pushed towards the entrepreneurial university model to meet external macro environmental demands by adopting similar practices and internal changes despite their institutional diversity and organisational differences. The implicit portrayal of the entrepreneurial university model as an inevitable, homogeneous, and isomorphic development path (Etzkowitz & Leydesdorff, 2000) has recently been put into question.” (Sánchez-Barrioluengo et al., 2019, p.472)

‘Homogenous’ and ‘isomorphic’ concepts were discussed in Section Context Theme1a, p.137) and contribute to the new *Third Mission Framework* in Section 10.2.3 (p.280).

Mechanisms Theme 1a Indicator 6 – Lack of ‘tacit’ aspect.

The term ‘*tacit*’ was identified as a gap (Section 1.4.2, p.5) and linked with informal Third Mission activity (Section Exposure Theme 1b, p.211). Martin, Warren-Smith and Lord, (2019), addressed the importance of the ‘tacit’ aspect of an Entrepreneurial University culture. They explored fifteen universities’ Third Mission aims through EA and they used the term ‘ecosystem’ with regard to supporting knowledge application via practical knowledge and social capital:

“While all members of the institution are included in delivering third mission aims, these intermediary roles are often funded solely by EA money from government, with third mission aims and targets. Set up outside of traditional research, teaching and administrative functions, these roles are as an essential part of EA structures and systems, housed often in central bodies – in special ‘corporate’ liaison, Knowledge Exchange, business engagement or technology transfer offices. These intermediaries are described as important components of the Entrepreneurial University ecosystem, supporting knowledge application via practical knowledge and social capital.” (L. Martin et al., 2019, p.284)

Mechanisms Theme 1a Indicator 7 – Ongoing Gaps in defining Entrepreneurial University.

There remain gaps in defining the scope of an 'Entrepreneurial University'. The following example extracts help explore them in a chronological order.

First, the term was introduced by Etzkowitz (1983) and Clark (1998), however, there is an 'evolving' use of the term, for example, Woollard (2010) calls upon Kuratko's (2005) concept of 'Corporate Entrepreneurship' as:

"...a detailed review of two highly regarded theoretical propositions, one taken from the body of literature relating directly to the Entrepreneurial University (Clark, 1998) and one taken from the body of literature relating to corporate entrepreneurship (Kuratko et al, 2005)." (Woollard, 2010, p.415)

This led to Woollard proposing that to be an Entrepreneurial University you change at the 'core'. Woollard went on to put forward the 3S model (Systemic, Significant and Sustained) which, he states, 'must' be achieved by a university, if it is to be called an Entrepreneurial University (Section Mechanisms Theme 1b, p.255).

Second, moving forward six years, Pugh et al. (2016) adopted a broader definition of an Entrepreneurial University, taken from research by Audretsch, Keilbach, and Lehman (2006):

"This paper understands the Entrepreneurial University following Audretsch, Keilbach, and Lehman (2006), who see it as 'any university that contributes and provides leadership for creating entrepreneurial thinking, actions, institutions, and entrepreneurship capital'." (Pugh et al., 2016, p.1359)

Later research from Pugh et al. (2018) cited Audretsch (2014) who argued:

"The role of universities stretches beyond generating technology transfer (through, for example, patents, spin-offs and start-ups) encompassing wider roles such as contributing and providing leadership for creating entrepreneurial thinking, actions, institutions and entrepreneurial capital." (Pugh et al., 2018, p.1836)

Returning to 2016 for a moment, Kitagawa, Barrioluengo & Uyarra (2016) cited Clark (1998), Etzkowitz and Leydsdorff (2000) as sources. They suggested the model of the Entrepreneurial University has provided 'rationale for active policy' – perhaps this partly explains why the term Entrepreneurial University is *broadening* towards more generic 'commercialisation'. They say that:

"The concept of the 'entrepreneurial university' (Clark, 1998) describes the strategic attempts of HEIs to respond to reductions in public funding and to actively engage with industry and businesses 'with the objective of improving regional or national economic performance as well as the university's financial advantage and that of its faculty' (Etzkowitz and Leydesdorff, 2000; p.313) [...] more recently [...] universities

have been pushed towards internal change to meet environmental demand through a variety of institutional governance mechanisms.” (Kitagawa et al., 2016, p.4)

Third, not all definitions have been *broadening*. For example, Secundo et al. (2017) emphasised ‘*commercialisation of science and transfer technologies*’ as a definition but also offered an alternative broader definition:

“The term ‘entrepreneurial university’ (Clark, 1998; Etzkowitz et al., 2000; Gibb and Hannon, 2006) has been adopted to describe universities that effectively transcend their traditional mission by advancing innovation and transfer technologies. A growing body of literature related to entrepreneurial universities and academic entrepreneurship equates these developments to the commercialization of science.” (Secundo et al., 2017, p.229)

It appears that different schools of thought have been developing the term, and it seems that one term has been driven by theory and the other by policy.

Fourth, in Pugh et al. (2018) linked Entrepreneurial University with ‘*knowledge and innovation*’ cited from Fayolle & Redford, 2014 and Mian, 2011. At this time, the focus still seemed to be on tangible (easy-to-measure) aspects of Third Mission activity, which is indicated using the term ‘*knowledge transfer*’ (which is associated with the ‘narrower’ technology-focussed definition):

“The ‘entrepreneurial university’ has gained prominence as a knowledge and innovation actor, key to competitiveness, stimulation of economic growth and wealth creation in today’s globalized world (Fayolle & Redford, 2014; Mian, 2011). Studies in regional economic development have shown that universities are eager to position themselves as ‘entrepreneurial’ and building links to increase their impact within regions and beyond in tangible ways through engaging in Third Mission activities, such as licensing, spin-out and ‘knowledge transfer’.” (Pugh et al., 2018, p.1835)

At this time, they also observed how only little research had been conducted on entrepreneurship at the department level of a university: “*Relatively little research has addressed the roles and activities of entrepreneurship departments within the discourse of the entrepreneurial university.*” (Pugh et al., 2018, p.1836) Likewise, there is very little on ‘*entrepreneurial activity*’:

“Actually, making universities think and act entrepreneurially is a challenge, compounded by the lack of definition or consensus about what an entrepreneurial university is (Fayolle & Redford, 2014).” (Pugh et al., 2018, p.1836)

Fifth, Pugh et al. (2018) also differentiated *Entrepreneurial University* from ‘*academic entrepreneurship*’:

“The entrepreneurial university concept can be understood at the institutional level, whereas academic entrepreneurship refers to the activities and roles undertaken by individuals (Baldini et al., 2014).” (Pugh et al., 2018, p.1837)

Sixth, Pugh et al. (2018) cited Audretsch & Keilbach’s (2008) definition of EU:

“An entrepreneurial university can be any university that contributes and provides leadership for creating entrepreneurial thinking, actions, institutions and entrepreneurship capital (Audretsch & Keilbach, 2008).” (Pugh et al., 2018, p.1837)

This definition is the closest so far in aligning to the concept of the Third Mission as defined in Chapter 1, but still has discontinuities.

Mechanisms Theme 1b Corporate Entrepreneurship as a mechanism.

Having explored the Entrepreneurial University as a mechanism, this section explores '*Corporate Entrepreneurship*'.

Kuratko et al. (2005) – Corporate Entrepreneurship (Conceptual source)

Kuratko et al. (2005) was cited in (Woollard 2010) as the source of the theoretical concept of '*Corporate Entrepreneurship*'. Woollard indicated that this was an older theoretical proposition compared to EU:

“Although mainly developed in the context of commercial organizations, the corporate entrepreneurship research domain is more mature than that of university entrepreneurship...” (Woollard, 2010, p.415)

Furthermore, the concept is based on organisational level characteristics *“rather than identifying methods and processes that might create the desired patterns of behaviour.”* (Woollard, 2010, p.415)

Woollard questioned the applicability of the Kuratko et al., model in a university context, due to lack of *relevance* to university sector: *“The theoretical model of Kuratko et al. is based on a rigorous methodology, its relevance to the university context might still be questioned.”* (Woollard, 2010, p.416)

Woollard mitigated this issue by developing an integrated model called '3S':

Woollard (2010) - 3S Hybrid

Woollard married corporate entrepreneurship (Kuratko et al., 2005) with university entrepreneurship (Clark, 1998) into an 'Integrated Theoretical model' called the 3S university entrepreneurship system, with 3S defined as Systemic, Significant and Sustained (Woollard, 2010).

The model was not explicitly designed with the Third Mission in mind. Its conceptual source was based on corporate entrepreneurship, which was integrated with the Entrepreneurial University concept. This led to a number of propositions made by Woollard (2010) that are of interest towards the Research Questions of this study.

Woollard articulated three key propositions about defining an *Entrepreneurial University* which all related to 'entrepreneurial behaviour':

“Proposition 1. For an institution to be described as an Entrepreneurial University, entrepreneurial behaviour must be systemic. That is, entrepreneurial behaviour must penetrate most aspects of the university’s operations and be widely dispersed throughout the organization [...]

Proposition 2. For an institution to be described as an Entrepreneurial University, entrepreneurial behaviour must be of a scale that it has a significant impact on the institution’s overall income [...]

Proposition 3. For an institution to be described as an Entrepreneurial University, entrepreneurial behaviour must be sustained over time and become an ongoing feature of the organization’s modus operandi.” (Woollard, 2010, p.413)

'Behaviour' is discussed as a key characteristic of the *Outcomes Theme* of Third Mission in Section 9.5, p.282). Woollard also identified both tangible and intangible factors:

“The university entrepreneurship process and its outputs generate institutional-level outcomes that may take the form of tangible factors – for example financial returns and a diversified funding base; or less tangible, enhanced strategic capabilities – for example, increased strategic choice and the development of an entrepreneurial culture.” (Woollard, 2010, p.420)

Woollard went on to recognise SOGI factors:

“Individual-level outputs from university entrepreneurship impact on both the inputs to and the effectiveness of the entrepreneurial process itself. Outputs from university entrepreneurship must be perceived positively at the individual level for 3S university entrepreneurship to be achieved and maintained.” (Woollard, 2010, p.421)

Woollard used '*Four key theoretical conjectures*' to underpin his work (Table 9-16). These conjectures directly address '*antecedents*' towards creating the *appropriate* conditions towards the Third Mission. These antecedents are considered in the design of a new *Third Mission Framework* (Chapter 10, p.278).

- (1) *Corporate entrepreneurship is an organizational process aimed at specific organizational objectives.*
- (2) *Certain conditions have to be in place before entrepreneurial activity can be stimulated. Five such antecedent conditions are identified:*
- *management support (facilitation and promotion of entrepreneurial behaviour by top-level managers).*
 - *work discretion/autonomy (top-level stance on toleration of failure, decision-making latitude, freedom from excessive supervisory oversight).*
 - *rewards/reinforcement (reward systems based on performance, highlighted achievements, encourage pursuit of challenging work)*
 - *time availability (supportive workload models, create time to pursue innovation); and*
 - *organizational boundaries (systems for evaluating, selecting, and applying innovations).*
- (3) *Outcomes of entrepreneurial processes impact on satisfaction at the individual level (impacts on scale and sustainability of entrepreneurial behaviour) and the organization level (impacts on support and resources).*
- (4) *Contextual factors impact on both the process and outcomes.*

Table 9-16 Four Key Theoretical Conjectures. Source: (Woollard, 2010)

Woollard built a hybrid model (Figure 9-14, p.259) by integrating concepts from Clark (1998) and Kuratko et al. (2005) which led to a new framework that:

“...locates university entrepreneurship as an organizational process within an overarching entrepreneurial system depicted as an input–process– output model, in an attempt to clarify our understanding of the phenomenon.” (Woollard, 2010, p.418)

Given that the 3S conjectures were about ‘*behaviour*’, this model appears to focus on ‘*process*’:

“University entrepreneurship is defined as an organizational process driven by systemic, significant and sustained (3S) entrepreneurial behaviour with the objective of achieving desired organizational outcomes. An institution can only be said to be an entrepreneurial university when the 3S state has been reached.” (Woollard, 2010, p.418)

However, Woollard did acknowledge the importance of ‘*behaviours*’, especially with regards to ‘*resistance*’ of staff:

“The issue of resistant staff, whether resulting from an unsupportive culture or not, is not a trivial one. The desirability of creating entrepreneurial universities is far from being universally accepted, with some regarding the increased managerial control associated with the phenomenon as a sinister development for the future of universities.” (Woollard, 2010, p.423)

Having been duly warned by Woollard about resistance of staff, my new *Third Mission Framework* includes *how* to mitigate this (Section 10.3.3, p.293).

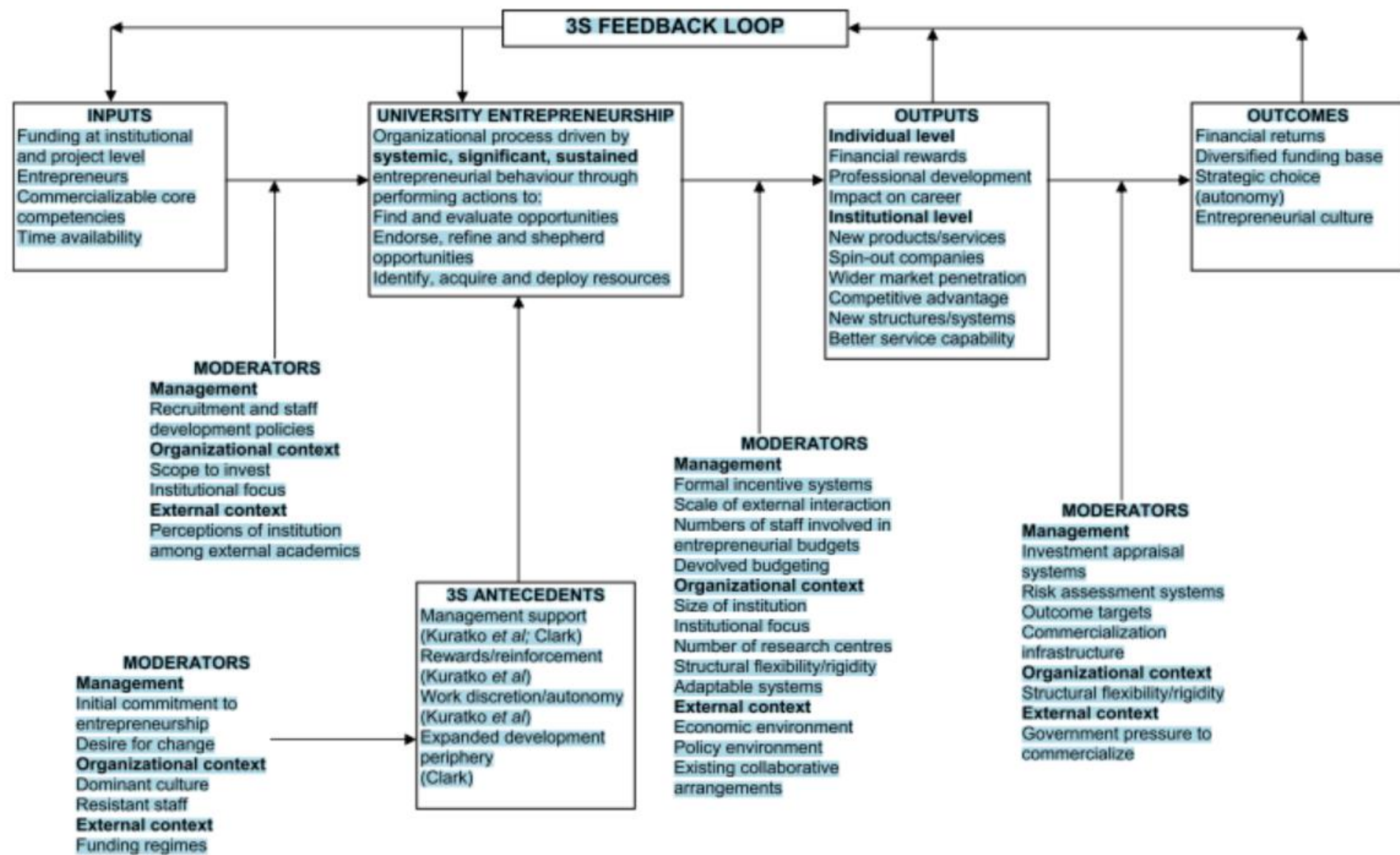


Figure 1. Integrated theoretical model of the 3S university entrepreneurship system.

Figure 9-14 The Integrated Theoretical Model of the 3S University Entrepreneurship System. Source: (Woollard, 2010)

Burns (2005) Entrepreneurial Architecture in Corporate Entrepreneurship

Linking back to Section Context Theme2a1.1 (p.165), Burns was identified in the data extracts as the source of '*Entrepreneurial Architecture*' (EA). This was within '*corporate*' perspective, rather than '*Entrepreneurial University*' perspective and was not linked to the Third Mission: "*Entrepreneurial Architecture* was coined by Burns (2005) as an organizational framework for understanding entrepreneurship in a corporate context." (Nelles & Vorley, 2010a, p.168)

Vorley and Nelles (2009) - Entrepreneurial Architecture

Nelles and Vorley advanced EA from its corporate context to a '*University Entrepreneurship*' context (Context Theme2a1.1, p.165), thus bringing the two schools of thought together. They also explicitly link to the Third Mission in their development of the framework. As a result, I make the following proposition:

Proposition -You need to assess if you want to develop your Third Mission approach through a '*corporate entrepreneurship lens*' if yes, then the Entrepreneurial Architecture Model can guide you.

Having identified the use of EA from a '*corporate entrepreneurship*' perspective, this section explores its merging with Entrepreneurial University and Third Mission perspectives towards answering RQ3 and RQ4.

EA has been posited as a theoretical, practical, organisational, and conceptual Framework:

"Based on a study of UK higher education institutions, this article builds on Burns' (2005) notion of 'entrepreneurial architecture' to understand the internal dynamics that underpin the coordination and consolidation of the third mission. The third mission has been politically created through numerous (prescriptive) funding programmes; however, the next phase of the third mission demands an understanding beyond prescription. The concept of entrepreneurial architecture provides a grounded theoretical contribution to the study of university entrepreneurship, while also offering institutions and policy makers a pragmatic approach to institutional development in the context of the third mission." (Vorley & Nelles, 2009, p.284)

The framework acts as a mechanism “to explain the dynamics of entrepreneurship and describes the relational contracts within and around firms or organisations.” (Vorley & Nelles, 2009, p.288) Its use is to help set up ‘routines and norms’ as: “conduits through which knowledge and innovation can profitably flow to other actors and the market.” (Nelles & Vorley, 2010a, p.168)

EA is made up of five interdependent elements (Figure 9-15) that can only be achieved if all five are implemented: “These are interrelated and overlapping; however, the presence and coordination of all five is required in order to secure successful adaptation to the third mission.” (Vorley & Nelles, 2009, p.289). Following conceptualisation in 2009, they constructed an emergent framework for the ‘Contemporary University’, in 2010:

Entrepreneurial element	Defined as:	Referenced in existing literature by:
Structures	entrepreneurial infrastructure including TTOs, incubators, tech parks, business portals, etc.	Del Campo et al. (1999); Collins and Wakoh (2000); Friedman and Silberman (2003); Owen-Smith and Powell (2003); Powers and McDougall (2005); Siegel et al. (2003, 2004)
Systems	networks of communication and the configuration of linkages between structures and departments, admin, etc.	Bercovitz et al. (2001); Etzkowitz and Klofsten (2005); Powers and McDougall (2005); Siegel et al. (2003, 2004); Wright et al. (2004)
Strategies	institutional goals elaborated in planning documents; includes internally determined formal incentive structures	Del Campo et al. (1999); Henrekson and Rosenberg (2001); Jensen et al. (2003); Markman et al. (2004); Owen-Smith and Powell (2003); Powers and McDougall (2005); Schmiemann and Durvy (2003); Siegel et al. (2003, 2004); Thursby and Kemp (2002); Thursby and Thursby (2004); Wright et al. (2004)
Leadership	qualification and orientation of key leaders (administration, board of directors, department heads, star ‘scientists’) towards the Third Mission	Clark 2001; Siegel et al. (2004)
Culture	institutional, departmental and individual attitudes and norms towards the third stream	Clark 2001; Jacob et al. (2003); Kenney and Goe (2004); Kruecken 2003; Siegel et al. (2003, 2004)

Figure 9-15 Elements of Entrepreneurial Architecture: Defined and Identified. Source: (Nelles and Vorley 2010)

The framework appears to adopt the narrower definition of Third Mission, since it focusses on ‘scientists’ and third stream (Section Exposure Theme 2a, p.220), thus

inherently creating a barrier towards adoption as a mechanism by 'non-scientific' disciplines within a university:

“With the emergence of the third mission widely acknowledged by academics and practitioners alike, an entrepreneurial architecture provides a framework to examine and analyse the third-stream activities of contemporary universities. Entrepreneurial architecture emphasises coordinating and embedding third stream activities, which is fundamental to enable institutional development beyond the third mission itself.”
(Vorley & Nelles, 2009, p.288)

Whilst the narrow view of Third Mission is articulated in the framework, there are a few elements of interest that suggest mitigation. Firstly, it suggested 'inherent economic bias's is avoided through reference to Knowledge Exchange the:

“Concept of entrepreneurial architecture also avoids an inherent economic bias in its conception of Knowledge Exchange. It can therefore be flexibly applied to the processes of patenting and licensing or to social or political engagement under the third mission.” (Vorley & Nelles, 2009, p.292)

Further review on this conception of Knowledge Exchange is needed as to whether it is a narrow or broad conception. Secondly, there is reference to using EA as an organisational change tool:

“...entrepreneurial architecture is just as effective in analysing organisational change (and identifying potential weaknesses) in highly research-intensive universities as it is in universities with smaller research bases.” (Vorley & Nelles, 2009, p.291)

'Change tools' are considered as part of the new *Third Mission Framework* (Section 10.3.3, p.293). Thirdly, it is a 'flexible', 'practical' framework:

“As a pragmatic approach this model provides a framework for policy makers but is not a set of rigid prescriptions. Rather, entrepreneurial architecture emphasises consolidating and embedding these five elements flexibly and with sensitivity to organisational contexts and strengths.” (Vorley & Nelles, 2009, p.292)

Despite these mitigations, the framework's narrow definition of Third Mission needs addressing before using it towards the broader conception of the Third Mission.

Hence my following proposition is:

Proposition – EA needs to be advanced using the *broader* definition of Third Mission before it can be used as a heterogenous mechanism.

Martin, Warren-Smith, and Lord (2019) – Entrepreneurial Architecture Testing

Ten years after Nelles and Vorley conceptualised EA within Entrepreneurial University and Third Mission, Martin, Warren-Smith, and Lord tested the EA framework. They found EA to be ‘partially functioning’ in a context of ‘*climate of change*’:

“From an overall perspective, the study shows EA partially functioning. It offers a contextualized view of culture set within a climate of change, with investment in EA traceable for at least ten years to deliver third mission aims of Knowledge Exchange and business engagement.” (Martin et al., 2019, p.293)

From their review, it appeared that physical structures were in place. However, there was a lack of ‘*Social Architecture*’ (SA):

“Despite EA strategies, the picture emerging was that universities had embedded physical components to a greater or lesser degree without effective social architecture, shown by conflicts between stated and actual routines and norms and by consistent barriers to third mission work.” (Martin et al., 2019, p.281)

The worry is that, within this ‘*climate of change*’, a mismatch between EA and SA can lead to conflict towards organisational aims:

“In designing organizations to achieve third mission aims, EA is important. Even where the structures, strategies, systems, leadership, and culture appear to be in place; however, the resulting routines and norms may act against organizational aims. Those designing and redesigning their institutions might look at the experience suggested here to understand how important it is to embed social architecture to ensure effective actions. Measuring cultures and having this as part of institutional targets might also support better results.” (Martin et al., 2019, p.281)

In 2019, the authors called for ‘individual university level understanding’ of routines and norms in view of the Third Mission and the ‘power’ of senior management:

“The study adds new knowledge about how EA is expressed at individual university level. The findings show the need for more research to understand those routines and norms which shape third mission progress in UK universities and how power relations impact in this context, given the pivotal role of the power exerted by the senior manager.” (Martin et al., 2019, p.281)

They identify social architecture as a gap and this links in with my proposition that EA adopts a narrow definition of Third Mission. This reinforces the fact that a further exploration of the cultural component is needed: *“The cultural component of EA was described by participants in terms of practice and the beliefs underpinning these.”*

(Martin et al., 2019, p.289). The cultural component is considered with regards to behaviours in the Outcomes Theme Section (Section 9.5.2, p,286).

Wolcott and Lippitz (2007) - Four Modes of Corporate Entrepreneurship

In 2019, Freel, Persaud et al., proposed the use of the Wolcott and Lippitz (2007) 'Four Modes of Corporate Entrepreneurship Framework' to be developed as a Third Mission mechanism, with an emphasis on resourcing, where responsibility lies, and strategy is as such:

“Rather like Wolcott and Lippitz (2007), the issues are concerned with where entrepreneurial responsibility resides and whether resources must be dedicated or ad hoc. Beyond this, the central issue is that the variety of third mission activities observed in related studies (Abreu and Grinevich, 2012) and the current evidence of potential underexploited capacity call for a more considered approach to third mission strategy setting. We believe that the framework developed by Wolcott and Lippitz (2007) may be useful starting point.” (Freel et al., 2019, p.18)

The framework is made up of four 'modes' indicated by a continuum derived from resources being 'ad hoc to dedicated' and responsibility being 'diffused to focussed' (Figure 9-16).

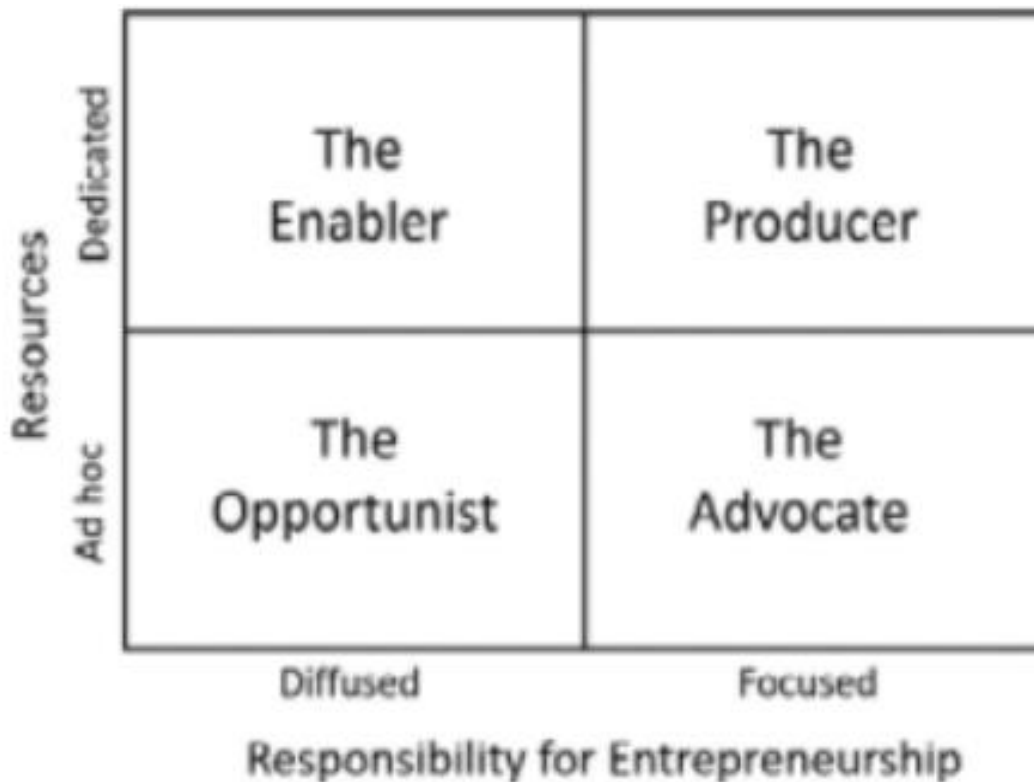


Figure 9-16 Four modes of Corporate Entrepreneurship. Source: Wolcott and Lippitz (2007) cited in Freel et al. (2019, p.19)

Freel et al., specifically suggested that the Opportunist and Enabler modes are a good starting point towards the Third Mission:

“Our intuition is that universities will benefit most from a diffused responsibility for entrepreneurship. Our findings suggest that Third Mission capacities may be found in previously neglected places. The opportunist and enabler models seem to be a natural starting point for engaging the groups of academics who are pro-mission but lack necessary resources and opportunities.” (Freel et al., 2019, p.19)

Two of the reasons for suggesting using these modes are ‘*engaging groups of academics*’ (individual level – SOGI) and ‘*lack of necessary resources*’. Both these reasons relate to *change management theory* and are discussed further in the Outcomes Theme Section (p.268). In addition, Freel, et al., signal the need for a ‘*high trust environment*’ with transparency:

“To be effective, these approaches require a high trust environment. Moreover, the enabler model requires that university administrators provide dedicated resources with transparent processes for resource access, active senior management support, and incentives and rewards that recognise the breadth of the Third Mission.” (Freel et al., 2019, p.19)

9.4.1.2 Limitations of Corporate Entrepreneurship

In summary the limitations of the *Corporate Entrepreneurship* model as a mechanism towards achieving the Third Mission include:

- **Mechanisms Theme 1b Indicator 1** - Lack of *relevance* to university sector.
- **Mechanisms Theme 1b Indicator 2** - Lack of focus on *behaviours*.
- **Mechanisms Theme 1b Indicator 3** - EA lacks *social architecture*
- **Mechanisms Theme 1b Indicator 4** - Four modes of Corporate Entrepreneurship are untested.

Having explored the *mechanisms* that have emerged from an ‘*entrepreneurial underpinning*’ conceptualisation, the next section explores what emerges when ‘*knowledge*’ is the central organising concept.

9.4.2 Mechanisms Theme 2 - Exploit *knowledge* as a mechanism towards the Third Mission

'*Knowledge*' is the central organising concept of this theme and has been evidenced as being a defining characteristic of the Third Mission. Knowledge Exchange (Exposure Theme 1c, p.206) and Knowledge Transfer (Exposure Theme 1a, p.198) has already been identified as an '*Exposure*' characteristic associated with Third Mission activity. Mechanisms Theme 2 outlines the terms associated with '*knowledge*' that may act as mechanisms (methodology and methods) towards the Third Mission. Exploring knowledge mechanisms can help a university decide which terms 'fits' with their organisational culture.

The factors include 'Intellectual Capital', 'Knowledge Exchange', 'Knowledge-based Enterprise', 'Knowledge Capitalisation', 'Knowledge Commercialisation', 'Knowledge Economy', 'Knowledge Exchange Framework', 'Knowledge Factory', 'Knowledge Transfer' and 'Knowledge Users'.

This is a key interpretive theme from the data, which uses diverse terminology that is nonetheless key in understanding the characteristics of Third Mission activity. It is a key theme to help answer Research Questions 3,4 and 5.

Appendix P contains the identified *knowledge* factors, with example data extracts, to aid interpretation within the Third Mission context. It is apparent that some terms have retained currency from their use in multiple articles over the last fifteen years, for example, 'Knowledge Exchange', 'knowledge economy' and 'intellectual property'. Some terms are only referenced by a few authors within the corpus, for example 'knowledge capitalisation' (Freel et al., 2019; Watson et al., 2016) and 'knowledge commercialisation' (Charles et al., 2014; Degl'Innocenti et al., 2019). Other terms are only even referenced once within the dataset, for example 'intellectual capital' (Secundo et al., 2017)

I suspect that the some of the terms are purposely selected by policy makers. For example, the term 'knowledge transfer' has evolved in policy towards 'Knowledge Exchange' and 'Knowledge Exchange framework', the term 'transferring knowledge' suggested just a one-way communication, whereas 'Knowledge Exchange' suggested two-way communication. '*Knowledge transfer*' is historically positioned

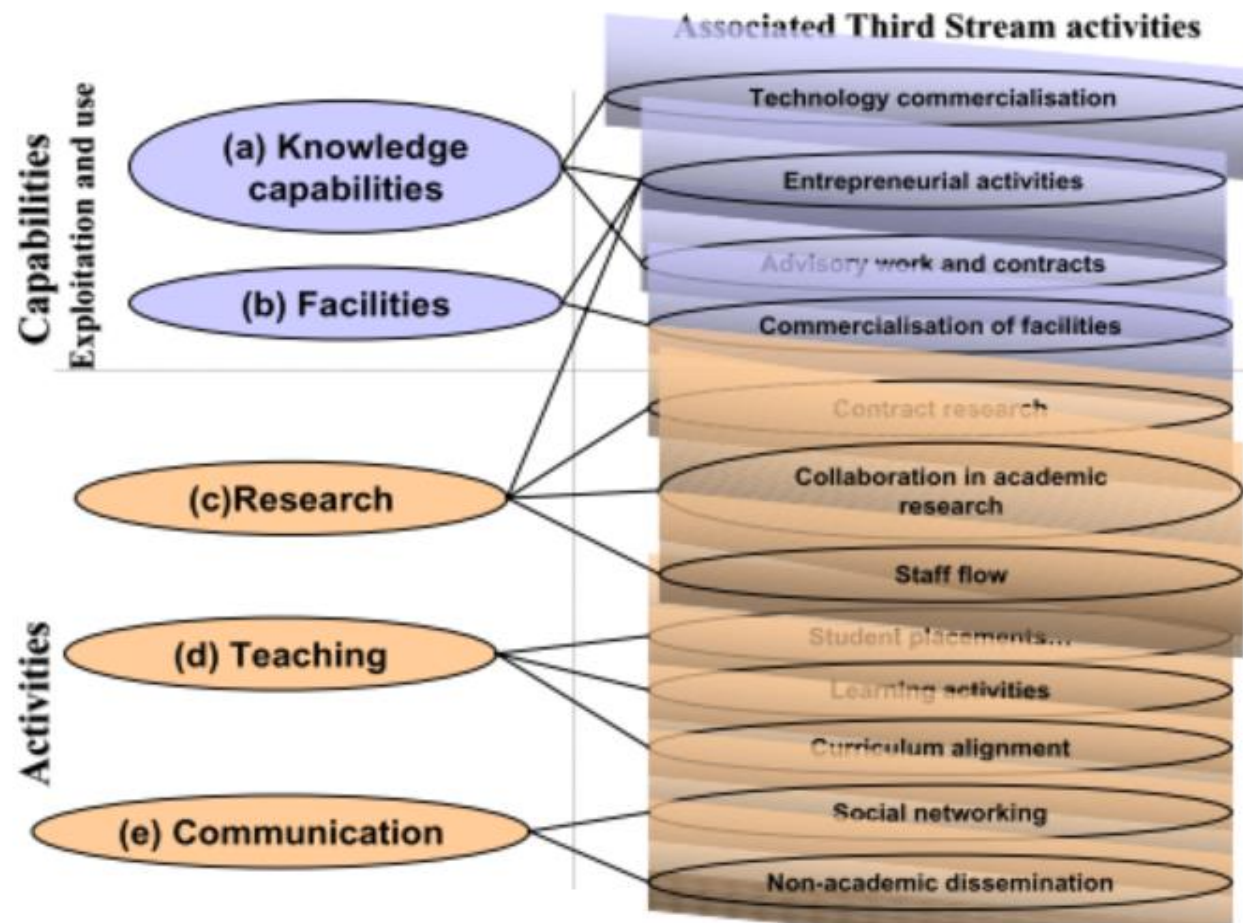
within the narrower definition of the Third Mission, as it relates to ‘science and technology transfer’, whereas ‘*Knowledge Exchange*’ appears to be more closely aligned with the *broader* definition of the Third Mission (Section Exposure Theme 2a, p.220).

Referring to Appendix P, if one is a change management practitioner, the term ‘knowledge factory’ and ‘knowledge exploitation’ have to be used carefully and within specifically-defined contexts, because both the terms ‘factory’ and ‘exploitation’ may inadvertently trigger negative connotations by some academics who may perceive ‘they’ are being exploited. Another example of academic barriers towards a term are demonstrated in the dataset towards the term ‘academic enterprise’: “*The very concept of ‘academic enterprise’ has not been well received by the majority of academic staff.*” (Woollard et al., 2007, p.395)

Mechanisms emerging from this exploration include the UK Government-driven ‘Knowledge Exchange Framework’ (KEF), ‘Research Excellence Framework’ (REF), ‘HEBCI survey’, ‘Knowledge Exploitation Programme’, and ‘Knowledge Transfer Partnerships’. However, there were few in the way of theoretical mechanisms. Two are seen in the corpus of data: Firstly, the Intellectual Capital Framework (Secundo, Perez et al. 2017) and secondly, the ‘Third Stream Activity Indicators’.

Mechanisms Theme 2a - Molas-Gallart and Castro-Martínez (2007) - Third Stream Activity Indicators as a Mechanism.

The model (Figure 9-17) was a result of a study commissioned by the Russell Group and cited in Molas-Gallart and Castro-Martínez (2007) entitled: *Measuring Third Stream Activities* (2002). Its focus was based on a policy implementation perspective of Third Mission activity. The study specifically explored Third Mission activity indicators towards generation and *exploitation of knowledge, with a spin on informing funding metrics (hence the term ‘third stream’)*. It contributed to a change in policy terminology from ‘knowledge transfer’ to ‘Knowledge Exchange’ and broadened the scope to include social as well as economic factors.



Source: Molas-Gallart et al. (2002)

Figure 9-17 Third Stream Activity Indicators. Source: (Molas-Gallart et al. (2002), cited in Molas-Gallart and Castro-Martínez (2007, p.7)

Concerns about 'lopsided' metrics led the Russell Group universities to reach out for tenders 'for a study to develop a system of indicators for Third Stream activities'. The results called for:

"The need for a comprehensive definition of third mission activities, which would necessarily result in a more complex system of indicators that was initially envisaged. It identified some 65 potential indicators organised under 12 different classes of third mission activity and suggested a roadmap towards the implementation of a system of indicators and the eventual development of a funding formula." (Molas-Gallart & Castro-Martínez, 2007, p.7)

They proposed that universities teach, research and 'communicate the results of their work'. As a result, in 2005, HEFCE submitted a formula that included broader Third Mission activities and started to use the term 'Knowledge Exchange' instead of 'knowledge transfer':

"In part this approach has been made possible by the way in which HEFCE had previously broadened its own third mission data collection activities. The fourth survey, published in January 2005, added other forms of social exchange to the traditional business interaction indicators that focused earlier versions. Noticeably, the new survey referred to knowledge 'exchange' rather than 'transfer', and the exercise was renamed the 'Higher Education-Business and Community Interaction (HEBCI) Survey'." (Molas-Gallart & Castro-Martínez, 2007, p.8)

This leads me to my following proposition:

Proposition – Third Mission should focus on Knowledge Exchange activity rather than just KT activity.

Mechanisms Theme 2b - Secundo et al. (2017) - Intellectual Capital (IC) Framework as a Mechanism.

The Intellectual Capital (IC) Framework was developed specifically to measure Third Mission performance (Secundo et al., 2017), with a focus on 'intangible' aspects:

"The academic work related to measure the intangible assets and Intellectual Capital (IC) of universities, which is rooted in the accounting and management literature, offers a new perspective to measure and capture Third Mission activities of universities." (Secundo et al., 2017, p.230)

Intangible assets are linked to both direct and indirect social value by Secundo, Perez et al. and they highlighted that, although some studies have been attempted in the use of IC, "there is hardly any literature dealing with how to capture Third Mission

activities of universities from an Intellectual Capital perspective.” (Secundo et al., 2017, p.230).

The framework for Intellectual Capital is about setting up an ‘IC Ecosystem’ based on human capital, organisational capital, and social capital (Figure 9-18).

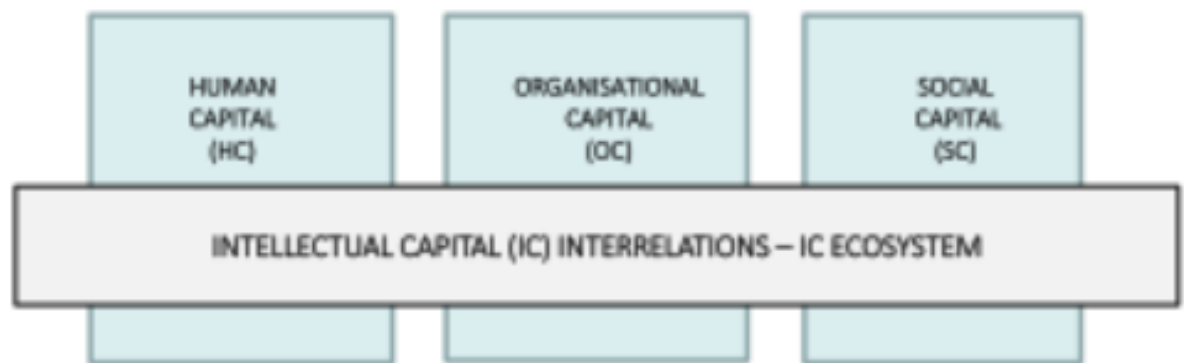


Figure 9-18 The Intellectual Capital Ecosystem in Universities. Source: Secundo et al. (2017, p.232)

The model considers Intellectual Capital in different ‘types’ of university, which they define as ‘*Research University*’, ‘*Entrepreneurial University*’, and ‘*Regional University*’ (Figure 9-19, p.271). These definitions may differ from the types defined in Section Context Theme2a (p.190). It could be argued that a university might be able to *choose* to be heterogenous and adopt ‘*modes*’ rather than a type. For example, in Figure 9-19, the three university types are treated and defined separately, whereas a ‘*heterogenous university*’ could have characteristics of all three types of IC, thus possessing ‘*modes*’: ‘*research mode*’, ‘*entrepreneurial mode*’ and ‘*regional mode*’. Limiting a university to a ‘*type*’ goes against the need to recognise heterogeneity of universities.

	Characteristics	Human capital (HC)	Organisational capital (OC)	Social capital (SC)
Research university	World class universities attract best academics and best students. There may be a mismatch between the strategic goals of a world class university and the needs of local community e.g. social science research may be conducted according to the 'world' trends neglecting the local context and needs.	It is assumed that academics transfer their tacit and explicit knowledge to students and other members of the academic community.	Quality research is therefore an 'acid test' for taking a 'total quality' picture of a university.	Strong brand and economic ties with wealthy sponsors and donors including the graduates.
Entrepreneurial university	An entrepreneurial university allows supporting the creation of entrepreneurial attitudes that constitutes an engine of economic growth and it is increasingly involved with industry both as human capital provider and seed-bed of new firms and creation/diffusion of an enterprising culture.	Human capital component includes the staff, students and researcher with an "Entrepreneurial mindset" or involved into the creation of economic and social value from a new technology or scientific insights.	Organisational or structural capital include more the assets created by human capital in terms of spin off, spin out activities, research contract, innovative products and services developed.	Social capital include here particular the relationships with business communities, institutions and all the stakeholders of the innovation ecosystems in which the university is located.
Regional university	Its excellence is based on strong ties with the local community including local businesses, secondary schools and graduates who constitute the labor source in the region. There is usually a mismatch between the strategic goals of a regional university and the criteria evaluated in world university rankings. The local focus is often considered as a hindrance to becoming a world-class university.	Staff is recruited among local academics. Unless the local regulations prohibit 'inbreeding' a large proportion of academic staff are recruited from university's graduates. Good understanding of local context enables quality teaching.	Organisational capital aims to support that the university can serve the needs of the local community and educational demand by regional economy and specific social needs.	Strong local brand usually not recognised beyond the region, serving local communities and business needs.

Figure 9-19 Intellectual Capital in Different Types of University. Source: Secundo et al. (2017, p.233)

Another limitation of this model when applied to Third Mission activity (Figure 9-20, p.273) is that, through its use of terminology, it reflects the narrower definition of Third Mission. For example, the term 'third stream' (relates to a narrow funding focus of Third Mission activity) and the term 'technology transfer' is emphasised in the centre column (relates to hard/formal/tech measures). Despite these limitations, however, there is a consideration of SOGI levels and social aspects, indicating that the Third Mission is in fact a multi-level phenomenon and is broader than having just economic factors.

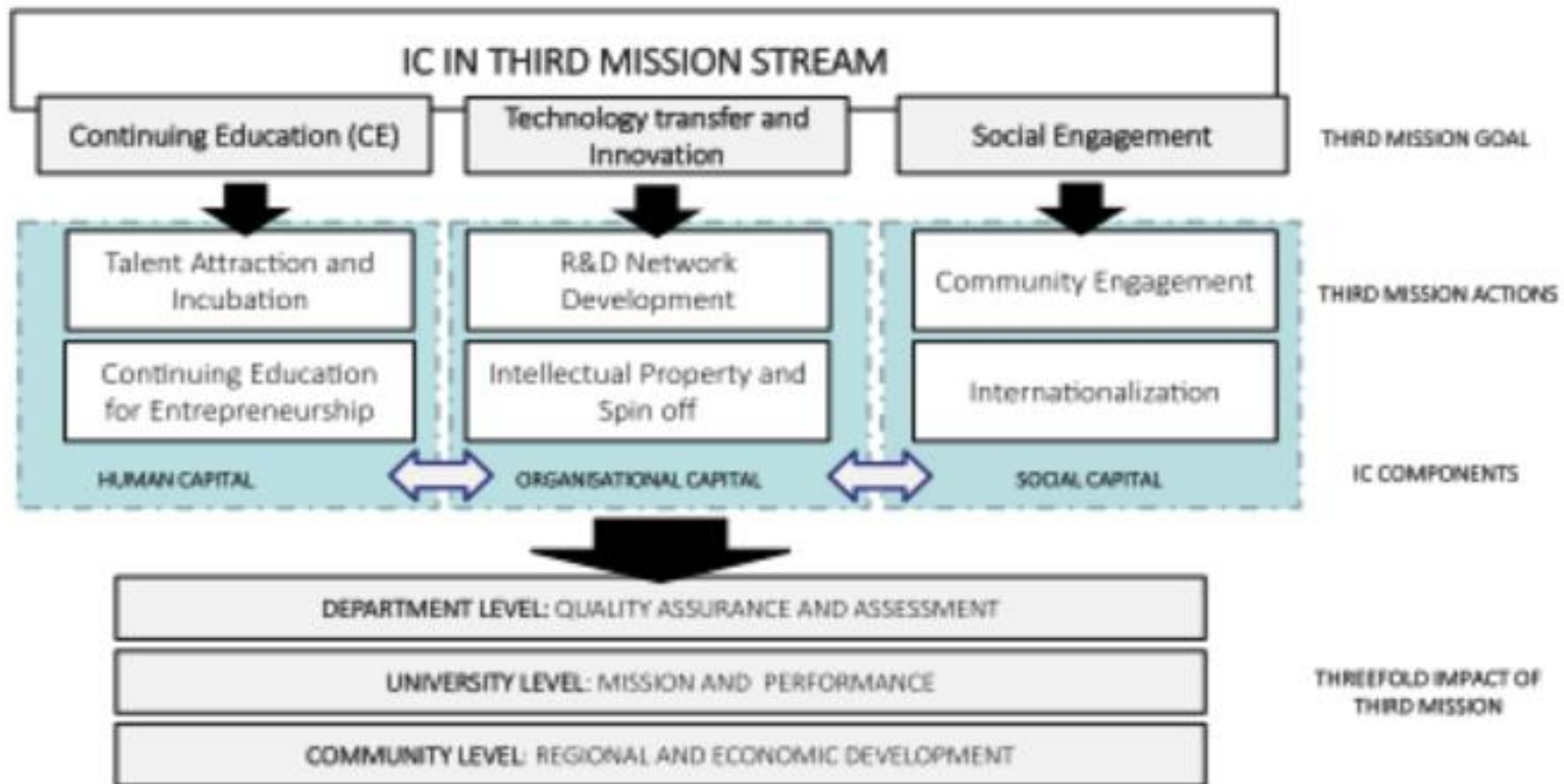


Fig. 3. The third mission of university: A performance framework IC based.
Source: Own elaboration.

Figure 9-20 The Third Mission of a university: A performance framework Intellectual Capital Framework. Source: Secundo et al. (2017, p.235)

A deeper exploration of the measures in the Intellectual Capital framework's uses indicates a continued focus on quantitative measures, e.g., number of research fellows, number of incubators, number of partners and number of community events. The model measures technology transfer (narrower definition of Third Mission) as well as continuing education and social engagement (broader definition of Third Mission). Please see (Figure 9-21, p.275).

Third mission goals	Third mission processes	Human capital (HC)	Organisational capital (OC)	Social capital (SC)
Technology transfer and innovation	Intellectual property and spin offs	No. of staff involved in creative commons and social innovation project No. of start-ups/spin-offs founded by graduates/Higher Education Institution employees. No. of staff funded by competitively funded R&D projects	No. of incubators co-owned by the university; No. of patents, licenses, trademarks co-owned by university;	No. of international awards received; No. of consortiums
	R&D network development	No. of joint publications with non-academic authors; No. of postgraduate students and postdoctoral researchers directly funded by private business.	Success rate in R&D project applications; No. of shared (open access) laboratories or buildings.	No. of joint international R&D projects. No. of (new) partnerships in R&D projects; No. of companies co-funding research or education activities carried out by university. No. of corporate clients co-funding education of their staff; No. of international students in CE programmes. % of staff with entrepreneurship experience
Continuing education	Continuing education (CE) for entrepreneurial competence	No. of staff delivering CE with experience in launching start-ups/spin-offs; % of staff teaching in CE programmes	No. of active CE programmes; No. of ECT (European Credit Transfer) credits of the delivered CE programmes.	% of staff/students with qualifications obtained abroad.
	Talent attraction and incubation	No. of HEI staff who attended continuing training courses; No. of research fellows (scientific staff funded by scholarships)	No. of staff employed for talent attraction and incubation (e.g. external co-operations)	
Social engagement	Social engagement with the community	No. of academic staff involved in volunteering advisory; No. of media appearances on public issues; No. of academic staff involved into the regional planning; No. of citizens attending workshop and scientific events; No. of external stakeholders (managers, policy makers, etc.) involved into curriculum design and delivery.	No. of events open to community/public; No. of research initiatives with direct impact on the community; No. of museum centres managed or co-managed by the structure	No. of partners (academic/non-academic) in projects that do not generate income No. of institutions involved into formal agreement with university.
	Internationalisation	No. of scientific staff who stayed abroad for at least 5 days; No. of faculty presentations at scientific conferences;	No. of scientific journals with university staff serving on editorial boards;	No. of partner institutions delivering joint degree programmes; % of students engaged in inward and outward international mobility.

Figure 9-21 Measuring the Third Mission of Universities Adopting an Intellectual Capital Perspective. Source: (Secundo, Perez et al. 2017)

Despite the narrow focus, this model does have an underpinning concentration on 'knowledge' and could be further adapted for use based on the broader definition of the Third Mission. They do note their own limitations, for example, they perceived the difficulty of exchanging tacit knowledge:

“The exchange of tacit knowledge between the university and its external environment, a vital element of the third mission, is difficult to quantify. Consequently, studies often focus on outreach activities that can be easily measured (E3M, 2010), such as the commercial exploitation of spin-offs, patents, and licensing (Feldman, 2003; Jensen et al., 2003), and thus omit a range of activities that are, due to their qualitative nature, more difficult to measure.” (Secundo et al., 2017, p.236)

Also, they saw the difficulty in linking social and economic factors and called for further research:

“More research to better define indicators and measure them across time is still needed for a strategic management of third mission activities and to place universities at the core of regional development. Future research lines would also need to implement exercises to categorize, map and benchmark Third Mission activities of universities across Europe.” (Secundo et al., 2017, p.238)

For these reasons, and due to the fact that Intellectual Capital is 'knowledge-centric', this model is explored further in the Outcomes Theme section (9.5, p.268).

Summary of Mechanisms Theme 1 and Mechanisms Theme 2

All the 'entrepreneurial' articles in the corpus stem from the 'narrow' entrepreneurial conceptual background of the Entrepreneurial University or CE. Thus, the Third Mission also has evolved from this narrower conceptualisation. This is a part of the historic development of terms associated with the Third Mission in the UK. The challenge may be to help people become more aware of historical context, because awareness and understanding are vital foundation stones of acceptance and adaptation.

Two main 'conceptual' mechanisms emerged from the data: firstly, *Corporate Entrepreneurship* and secondly, *EU*. Some authors conjoined these concepts to build mechanisms to help accomplish the Third Mission including the 3S mechanism (Woollard, 2010) and EA mechanism (Nelles & Vorley, 2010a).

Mechanisms associated with the Third Mission mainly evolved from an Entrepreneurial University and/or CE perspective. Most mechanisms were aimed at finding ways to meet or challenge external metric requirements e.g., REF, KEF, HEBCI.

As mentioned earlier, '*knowledge*' has been recognised as a *central organising concept* of the Third Mission, therefore any framework that is developed should have this concept as its centre. Having 'university entrepreneurship' or 'corporate entrepreneurship' as a core defining factor may contribute to ambiguity (due to the lack of consensus in describing the terms), and thus might be problematic for gaining buy-in at department and individual levels. With such diverse mechanisms offered within the dataset, the only common factor is that 'knowledge' is central to all of them. Thus, my next proposition is as follows:

Proposition – Third Mission should have a central organising concept of 'knowledge'.

9.4.3 Mechanisms Theme 3 – There is a lack of heterogenous mechanisms towards the Third Mission

The central organising concept of this theme is "*the absence of heterogenous mechanisms to help create appropriate conditions for a university towards the Third Mission*". Given RQ3 seeks to identify '*appropriate conditions*' and given the perception of the need for heterogeneity seen in previous chapters, there is certainly a lack of mechanisms identified in the dataset that addresses this. The term '*heterogeneity*' has been signalled as associated with the Third Mission, indicated via an exploration of external and internal *context* (Section Context Theme2a, p.16) and investigation of *exposure* to Third Mission activity (Section Exposure Theme 2e, p.228).

In Section 9.3 (p.204), Third Mission exposure was linked to heterogeneity with Sub-theme Exposure Theme 2e capturing indicators from the dataset, discussing terms like '*isomorphic*' and '*one size fits all*' (as the opposite of heterogenous). Now this section focusses on the defining factors for Third Mission with regards to *heterogeneity*. It is recognised as being an essential pre-requisite for a university to become an EU. A key characteristic identified was that currently the Third Mission is

perceived as isomorphic (in the dataset) with clear pointers towards a perception that the Third Mission needs to embrace the heterogeneity of universities.

As a result of iterations of analysis and synthesis of context-exposure-mechanism discussion, the Mechanisms Theme 3 theme shows up the gaps in 'heterogenous mechanism characteristics' of Third Mission activity. Heterogenous factors identified from the data include: 'Bottom up - Top Down', 'Centralise – Decentralise', 'Hard – Soft', 'Tacit – Tangible', 'Formal – Informal', 'Isomorphic – Homogenous', 'mimicked', 'One size fits all', 'Partner – Transactional' (networking and relationship), and 'Social – Economic'. In planning for a new theoretical and practical framework and towards answering RQ3 – RQ5, the following are therefore considerations (Section 9.1, p.138):

- There are indicators of top-down mechanisms in the dataset but no indicators of bottom-up mechanisms.
- There are indicators of centralised and decentralised mechanisms, however it is unclear about the advantages and disadvantages of each approach.
- There are indicators of 'mature' hard measures and conceptually 'immature' indicators of soft measures. The soft measures have been converted into quantitative measures based on 'volume' but there is lack of perception-based qualitative measures.
- There are indicators of tangible mechanisms and but few indicators of tacit mechanisms -except for IC, which focussed on quantifying human, social and organisation intellect.
- There are formal indicators throughout the dataset (linked to policy drivers) but only few on informal measurement mechanisms in practice.
- Triple helix is presented as a 'mimic' template but has been criticised for being a 'one-size-fits-all' approach. Not many in the way of original alternative mechanisms have been identified in the dataset that have adapted to the broader Third Mission definition.
- Plenty of emphasis has been placed on transactional mechanisms but little on measuring quality, impact, and satisfaction via partner mechanisms.

These heterogenous factors and considerations are further explored in Chapter 10 as part of a new theoretical and practical framework.

9.4.4 Mechanisms Theme Conclusion

This chapter has explored the dataset in order to analyse mechanisms used for Third Mission activity. Synthesis of three mechanism themes has enabled both a descriptive and an interpretive approach with which to construct a new perspective on potential ‘mechanisms’ to use towards achieving the Third Mission. Firstly, ‘entrepreneurialism’ has been identified (in the dataset) as a key conceptual mechanism of the Third Mission, with two main schools of thought informing mechanisms-generation: Entrepreneurial University and Corporate Entrepreneurship.

Secondly, ‘*knowledge*’ has been identified (in the dataset) as a key conceptual mechanism of the Third Mission, especially with regards to an underarticulated ‘integration of missions’ theory. The Intellectual Capital Framework has been explicitly linked to Third Mission but under the narrower definition. However, it has potential to be advanced for use under the broader Third Mission definition.

Finally, a lack of heterogenous mechanisms has been identified in the data. The call for consideration of the heterogeneity of universities in measuring Third Mission activity has been highlighted in the Context and Exposure chapters. The outcomes of a lack of heterogenous mechanisms are discussed in the next chapter.

This interpretation of the corpus of data has highlighted propositions towards answering RQ3 and (Table 9-17).

From Mechanism Theme	Towards RQ3: From the themes of Third Mission activity, how may a university (in particular, a Business School) create the appropriate conditions to achieve the Third Mission?
Propositions	<p>Decide conceptual approach:</p> <ul style="list-style-type: none"> • A central organising concept of an Entrepreneurial Department or Business School aimed at the Third Mission would need to be ‘<i>entrepreneurialism</i>’ in its broadest definition. • EA needs to be advanced using the broader definition of Third Mission before it can be used as a heterogenous mechanism. <p>Decide on tailored mechanisms:</p> <ul style="list-style-type: none"> • There are indicators of top-down mechanisms in the dataset but no indicators of bottom-up mechanisms.

	<ul style="list-style-type: none"> • There are indicators of both centralised and decentralised mechanisms, however, the advantages and disadvantages of each approach are unclear. • There are indicators of ‘mature’ hard measures and conceptually ‘immature’ indicators of soft measures. The soft measures have been converted into quantitative measures based on ‘volume’ but there is a lack of perception-based qualitative measures. • There are indicators of tangible mechanisms and but only few indicators of tacit mechanisms, excepting IC, which focussed on quantifying human, social and organisation intellect. • There are formal indicators throughout the dataset (linked to policy drivers) but few on informal measurement mechanisms in practice. • Plenty of emphasis has been placed on transactional mechanisms but little on measuring quality, impact, and satisfaction via partner mechanisms.
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Table 9-17 Mechanisms Considerations for Creating the Appropriate conditions Towards Achieving the Third Mission

Interpretation of the corpus of data highlighted the mechanisms of the Third Mission in the UK leading to seven considerations (Section 9.1, p.138) towards answering RQ4 (Table 9-18).

From Mechanisms Theme	Towards RQ4: How may a university (in particular, a Business School) effectively conduct Third Mission activities with business (industry) to achieve the Third Mission?
Considerations	Triple helix is presented as a ‘mimic’ template but has been criticised for a ‘one-size-fits-all’ approach. Few in the way of original alternative mechanisms have been identified in the dataset that have adapted to the broader Third Mission definition.

Table 9-18 Mechanisms Considerations Towards Conducting Third Mission Activity

Interpretation of the corpus of data through the lens of ‘mechanisms’ to help activate Third Mission led to Third Mission definition propositions towards answering RQ5 (Table 9-19).

From Mechanisms Theme	RQ5: What definitions of Third Mission and Third Mission activity will evolve in the context of the DBA to inform a theoretical framework?
Propositions	<ul style="list-style-type: none"> • Third Mission should focus on Knowledge Exchange activity rather than just KT activity. • Third Mission should have a central organising concept of ‘<i>knowledge</i>’.

Table 9-19 Mechanisms Considerations Towards Defining the Third Mission

9.5 Outcomes – Overarching Theme

This section ties together the *Outcomes* themes by following the data synthesis methodology introduced in Chapter 6. These themes have been interpreted from indicators identified in the dataset. This enables both a descriptive and interpretive approach with which to construct a new perspective on the outcomes of the Third Mission, based on re-interpretation of the data. Exploring the Outcomes themes (figure 9-22), contributes to answering RQ3-5 (Section 1.6, p.7). Due to the volume of extracts (NVIVO), just a few exemplars are used as ‘indicators’ towards answering the Research Questions. Some extracts are longer than others. This is necessary to ensure the link between emergent concepts and Third Mission is shown, in line with the approach.

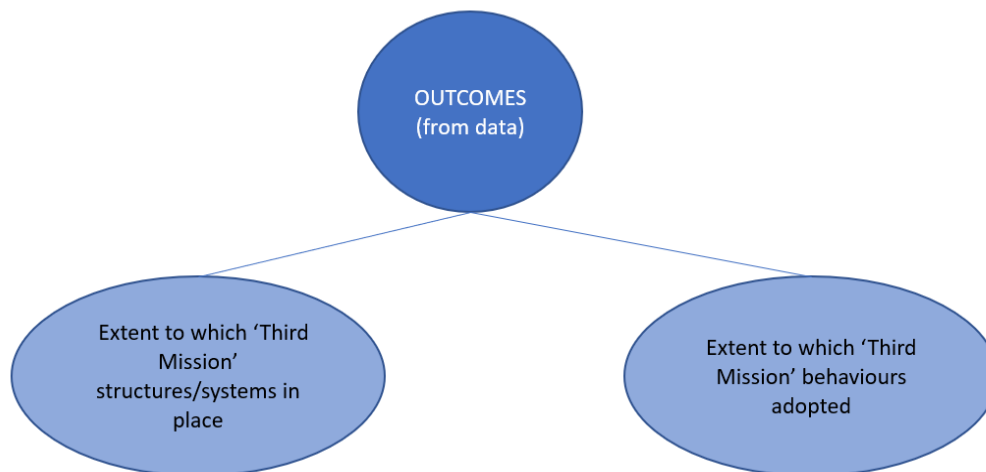


Figure 9-22 Outcome Themes

The *Overarching Theme* (based on CEMO) captures the *Outcome* characteristics of UK Third Mission activity as indicated by the data. The interpretation takes into consideration the context (that external drivers change over time), exposure (that Third Mission is broadening, and is about knowledge, heterogeneity, and entrepreneurialism) and mechanisms (that they are diverse, because they aim to meet multiple different goals) which I explored earlier. There is diversity in the corpus of data about the definition of the Third Mission. By exploring what theorists indicate the ‘goals’ of the Third Mission may help provide new insight. Therefore, the central organising concept of the Outcome Theme arose following interpretation of ‘*perceived goals of the Third Mission*’ from the data.

Two themes were generated from the excerpts. The first is that Third Mission outcomes are about ‘the extent to which Third Mission structures and systems are *in place*’. The second theme is that Third Mission outcomes are about ‘the extent to which Third Mission behaviours towards the Third Mission have been *adopted*’.

9.5.1 Outcome Theme 1 – Extent to which there are ‘Third Mission’ structures/systems in place.

The central organising concept of Outcomes Theme 1 is the “*extent to which there are Third Mission structures/systems in place*”. The inverted commas are used, as not all data explicitly refers to the Third Mission, although the Third Mission activities have also been related to more general terms like ‘entrepreneurial activities’ in earlier chapters.

Table 9-20 presents exemplar extracts from the dataset, which have been interpreted into ‘Perceived Structure/Systems (SS) Outcomes of Third Mission’ (Column B). The perceived SS outcomes of Third Mission in the dataset range from being relatively generic (e.g., ‘Entrepreneurial Transformation’, ‘HE Sector Benefits’ and ‘Increase Value Creation’) to being more specific outcomes (e.g., ‘Enterprising Institution’ and ‘Integrate or Separate’). The mechanisms highlighted (in the data extract) to measure the outcomes (Column C) are all generic (e.g., ‘Mutually Reinforcing Synergies’, ‘Admin Machinery’ and ‘Systems Used’) except for one specific mechanism -that ‘Entrepreneurial Architecture is embedded and consolidated’.

A	B	C	D
Data extracts	Perceived SS Outcomes of Third Mission	Via measuring	SOGI level
<p><i>“The scale and range of enterprise activities support our conclusion that, institutionally, NEWUNI cannot at present be described as an enterprising or Entrepreneurial University – indeed, the revised strategic plan itself supports this conclusion, and the extent to which it will develop as an enterprising institution is yet to be seen.” (Woollard et al., 2007, p.396)</i></p>	Enterprising Institution	Entrepreneurial activities	O
<p><i>“The extent to which institutional objectives of university entrepreneurship are met will be a function of the effectiveness of the systems used to exploit entrepreneurial outputs.” (Woollard, 2010, p.424)</i></p>	Institutional objectives	Systems used	O
<p><i>“The extent to which internal institutional configurations affect the production of these benefits on the UK Higher Education sector.” (Sánchez-Barrioluengo & Benneworth, 2019, p.206)</i></p>	HE Sector benefits	Institutional configurations	S
<p><i>“The extent to which universities are able to engage with their regional contexts depends to a degree on how the administrative machinery responds to this challenge, and its amenability to regarding external engagement as a legitimate university activity.” (Sánchez-Barrioluengo & Benneworth, 2019, p.208)</i></p>	Regional external engagement	Admin machinery	O
<p><i>“Although universities are increasingly encouraged to facilitate Knowledge Exchange within their regions, the extent to which universities engage with regional partners has been found to be contingent on the mode of interaction, the type of university (e.g., age and research intensity) and the characteristics of the region, including the presence of innovation support structures and structural characteristics of firms.” (Sánchez-Barrioluengo et al., 2019, p.475)</i></p>	Regional external engagement	Mode of interaction, university type, structures, and geography	S/O

<p><i>“The degree to which third stream structures such as TTOs operate as departments within the university as opposed to isolated and administratively separated organizations is as much a function of their institutional design as their integration into systems of coordination.” (Vorley & Nelles, 2009, p.289)</i></p>	Integrate or separate	Structures	O
<p><i>“Successful appropriation to the Third Mission depends on the degree to which entrepreneurial architectures are embedded and consolidated within contemporary universities”. (Vorley & Nelles, 2009, p.290)</i></p>	TM	Entrepreneurial Architecture embedded and consolidated	O
<p><i>“The increasing importance of the entrepreneurial orientation moves the attention toward the identification/categorization of those essential constituents of IC, which should be able to provide universities with a higher degree of competition by improving the value creation process.” (Secundo et al., 2017, p.231)</i></p>	Increase value creation	Competition	O
<p><i>“Empirical evidence suggested universities are exhibiting a large heterogeneity both in their degree and form of their entrepreneurial transformation.” (Sánchez-Barrioluengo & Benneworth, 2019, p.207)</i></p>	Entrepreneurial transformation	Heterogeneity	S
<p><i>“The degree of internal coupling between core and peripheral structures and activities, ensuring spill-over effects and mutually reinforcing synergies.” (Sánchez-Barrioluengo & Benneworth, 2019, p.208)</i></p>	Internal coupling	Mutually reinforcing synergies	O
<p><i>“Scholars have highlighted the tensions and contradictions that are likely to emerge between different university missions and activities and argued that the degree and form of this entrepreneurial transformation is likely to vary across countries and types of universities.” (Sánchez-Barrioluengo et al., 2019, p.472)</i></p>	Entrepreneurial transformation	Country and university type	S

Table 9-20 Perceived Structure/Systems (SS) Outcomes of Third Mission

Further exploration of the extracts, with regards to SOGI Levels (Column D), indicates that the systems/structures outcomes, and corresponding mechanisms with which to measure (Column C) relate to Organisational/University level and Society/External levels. No systems/structures outcomes were indicated at Individual or Group level.

9.5.2 Outcome Theme 2 - Extent to which 'Third Mission' behaviours adopted.

The central organising concept of this theme is “*extent to which Third Mission behaviours are adopted*”. The inverted commas are used, as not all data explicitly refers to the Third Mission, although the Third Mission activities have also related to entrepreneurial activities in earlier chapters.

Table 9-21 presents exemplar extracts from the data set which have been interpreted into 'Perceived Behaviour Outcomes of Third Mission'. These perceived behaviour outcomes of Third Mission in the dataset range from being relatively generic (e.g., 'organisational evolution', 'actor partnerships' and 'antecedent conditions') to being more specific behaviour outcomes (e.g., 'perceived positive individual-level outputs' and 'volume and or strength of external collaborations'). The mechanisms highlighted to measure the behaviour outcomes are all generic (e.g., measure 'routines and norms', leadership', 'entrepreneurial behaviour', 'Unique internal capabilities' and 'Use of University knowledge').

A	B	C	D
Data extracts	Perceived Behaviour Outcomes of Third Mission	Via measuring	SOGI level
<i>“The principal value of architectures is the extent to which they establish routines and norms – conduits through which knowledge and innovation can profitably flow to other actors and the market (Kay, 1993).” (Vorley & Nelles, 2009, p.288)</i>	Profit	Routines and norms	O
<i>“Leadership relates both to the extent to which key actors can shape and alter structures and processes, and to the strategic vision that governs organisational evolution.” (Vorley & Nelles, 2009, p.289)</i>	Organisational evolution	Leadership	O
<i>“The remainder of the paper focuses on the implications of the newly formalised socio-economic role of universities in relation to teaching and research, and to what extent it affects the institutional development of the university itself.” (Nelles & Vorley, 2010b, p.345)</i>	Institutional development	Socio-economic roles	O
<i>“To what extent have universities managed to shed their long-standing ‘ivory tower’ image and engage in the pursuit of the Third Mission?” (Zawdie, 2010, p.151)</i>	Lost ‘ivory tower’ image/engage Third Mission	Third Mission activity	O
<i>“If an institution was already operating at the 3S state, it is conceivable that perceived negative individual-level outputs could dampen entrepreneurial behaviour to such an extent that the 3S state could not be maintained.” (Woollard, 2010, p.421)</i>	3S impact	Entrepreneurial behaviour	I
<i>“The theoretical model presented in the preceding sections attempts to identify and describe the essential components of the entrepreneurial system that defines 3S university entrepreneurship. However, such a system does not exist independently of management actions or the influence of environmental context. These factors, to a greater or lesser extent,</i>	3S delivers UE impact	Management actions and	O

<p><i>act to moderate the effective functioning of the entrepreneurial system and, in large measure, determine if and to what extent the system delivers 3S university entrepreneurship.”</i> (Woollard, 2010, p.423)</p>		<p>environmental context</p>	
<p><i>“The critical importance of perceived positive individual-level outputs to developing 3S university entrepreneurship has been outlined in a previous section. In this context, the extent of management actions to establish formal financial and non-financial incentive systems, and the ease with which individuals can engage with such systems, impacts directly on individual perceptions of behaving entrepreneurially.”</i> (Woollard, 2010, p.423)</p>	<p>Perceived positive individual-level outputs</p>	<p>Management actions Incentives Ease</p>	<p>I</p>
<p><i>“The moderating effect of the economic and policy environment, and the effectiveness of the entrepreneurial process itself, may in turn be moderated by the extent of existing collaborations with other organizations, including other universities, to develop and exploit entrepreneurial opportunities.”</i> (Woollard, 2010, p.424)</p>	<p>Volume and or strength of external collaborations</p>	<p>Exploiting opportunities</p>	<p>S/O</p>
<p><i>“Recent work has also begun to question the high level of policy expectations, with little understanding of the actual processes of knowledge flows, the contextualisation of the complexities of actors, and the extent to which regional economic or city-region development can be actually achieved through the utilization of university knowledge.”</i> (Charles et al., 2014, p.6)</p>	<p>Regional development</p>	<p>Use of university knowledge</p>	<p>O</p>
<p><i>“Against the ‘one-size-fit-all’ isomorphic pressures, each university creates their own approaches and models of Third Mission by targeting different areas of activities, partners, and geographical areas, and by combining different set of missions, capabilities, and resources. However, there is a significant variety in the extent to which individual HEIs can actually implement these strategies by generating unique internal capabilities.”</i> (Kitagawa et al., 2016, p.1)</p>	<p>Implement strategies for Third Mission</p>	<p>Unique internal capabilities</p>	<p>O</p>
<p><i>“The extent that Third Mission activities are undertaken by individual faculty members (Cesaroni & Piccaluga, 2016), understanding their attitudes towards the evolving role of universities in economic systems will aid in crafting policies and strategies for successful implementation”.</i> (Freel et al., 2019, p.11)</p>	<p>Faculty members conduct Third</p>	<p>Understand individual attitudes</p>	<p>G/I</p>

	Mission activities		
<i>“The extent that “some academics are attitudinally predisposed to commercialise their findings or possess prior knowledge that makes them more capable of recognizing entrepreneurial opportunity.” (Freel et al., 2019, p.12)</i>	Build capability to recognise entrepreneurial opportunities	Predisposition to Third Mission	I
<i>“It is individual scientists that undertake third mission activities and studies of their attitudes are remarkably rare. However, engagement – in type, in extent and with whom – appears to vary somewhat systematically across institutions.” (Freel et al., 2019, p.19)</i>	Engagement	Attitudes	I
<i>“The degree of resistance to, or acceptance of, increasing entrepreneurial behaviour is likely to impact directly on management efforts to create and sustain the necessary antecedent conditions.” (Woollard, 2010, p.423)</i>	Entrepreneurial behaviour Antecedent conditions	Resistance Management efforts	I
<i>“The degree of engagement in Knowledge Exchange with actors at the sub-national level.” (Kitagawa et al., 2016, p.11)</i>	Actor partnerships	Engagement in KE	S
<i>“In line with our present purpose, Lam (2011) reflects on the implications of self-determination theory and argues that the manner in which academic scientists respond to different kinds of incentives is influenced by the degree of congruence between their personal values and the targeted activity.” (Freel et al., 2019, p.13)</i>	Target activity	Congruence with personal values	I

Table 9-21 Perceived Behaviour Outcomes of Third Mission

Further exploration of the extracts with regards to SOGI Levels (Column D), indicates that the behaviours outcomes and corresponding mechanisms to measures (Column C) relate to *Individual/academic*, *Organisational/university* level and *Society/external* level (SOGI). One outcome referred to *Group* level in conjunction with *Individual* level 'Faculty members conducting Third Mission activities' (Table 9-21). This leads to my penultimate proposition in this section for achieving the Third Mission:

Proposition – Individual change towards Third Mission behaviours is essential to achieve the Third Mission.

9.5.3 Outcomes Theme Conclusion

The dataset indicates that measures for structural/systems-based outcomes tend to focus on Organisational and Society levels (SOGI), whereas measures for behaviour-based outcomes also include Individual level measures. My final proposition for this chapter is based on the exploration of Context-Exposure-Mechanisms-Outcomes (CEMO):

Proposition – The Third Mission needs to embrace both systems/structures and behaviour outcomes and measures at all SOGI levels.

The exploration of the outcomes indicated in the dataset leads to this consideration (Section 9.1, p.138) for a university:

Consideration – Consider how generic or specific you want your Third Mission goals to be.

This chapter aimed towards answering RQ3 -5 (Section 1.6, p.7). The interpretation of the corpus of data highlighted one proposition towards answering RQ3 and (Table 9-22), one consideration towards answering RQ4 (Tables 9-23) and one consideration towards answering RQ5 (Table 9-24):

From Outcome Theme	Towards RQ3: From the themes of Third Mission activity, how may a university (in particular, a Business School) create the appropriate conditions to achieve the Third Mission?
Consideration	<ul style="list-style-type: none"> Consider how generic or specific you want your Third Mission goals to be.

Table 9-22 Outcome Considerations for Creating the Appropriate Conditions Towards Achieving the Third Mission

From Outcome Theme	Towards RQ4: How may a university (in particular, a Business School) effectively conduct Third Mission activities with business (industry) to achieve the Third Mission?
Consideration	<ul style="list-style-type: none"> Individual change towards Third Mission behaviours is essential to achieve the Third Mission.

Table 9-23 Outcome Considerations Towards Conducting Third Mission Activity

From Outcome Theme	Towards RQ5: What definitions of Third Mission and Third Mission activity will evolve in the context of the DBA to inform a theoretical framework?
Consideration	<ul style="list-style-type: none"> The Third Mission needs to embrace both 'structures and 'behaviour' outcomes and measures, at all SOGI levels.

Table 9-24 Outcome Considerations Towards Defining the Third Mission

9.6 Reflections - Themes

The exploration of the Third Mission, using a Modified Qualitative Systematic Literature Review (MQSLR) approach has shown the Third Mission is a rich tapestry indeed. This has led to propositions towards a university creating an *appropriate* environment for Third Mission activity (RQ3), considerations towards a university conducting Third Mission activity (RQ4) and indicators towards a new definition of Third Mission (RQ5). The Themes have been formed under four *overarching themes*:

1. Third Mission Context – Split into three key themes of External, Internal and Interface-Ecosystem context of the UK Third Mission.

2. Third Mission Exposure – This included what is to be exposed to the Third Mission and a variety of Third Mission definitions. Thus, the Third Mission definition can be dependent on each universities own context.

3. Third Mission Mechanisms – This included what tools are currently used to measure the Third Mission (according to the dataset). The mechanisms hailed mainly from two different theoretical roots either *Corporate Entrepreneurship* or *Entrepreneurial University*.

4. Third Mission Outcomes – This revealed that the dataset looked to measure the extent to which Third Mission systems and behaviours were adopted but that the mechanisms being used were struggling to capture behaviours.

9.7 Next Steps

The next chapter pulls together all the propositions and considerations that emerged from exploring the data, to generate a new Third Mission theoretical and practical framework. It is practical to enable universities (with their Business Schools) to conduct their own Third Mission exploration and theoretical, in order to answer RQ3 and RQ4.

Chapter 10 - A NEW THEORETICAL AND PRACTICAL FRAMEWORK TOWARDS ACHIEVING THE THIRD MISSION

10.1 Introduction

I have generated new insight into the phenomenon called the Third Mission, via my own approach of a modified qualitative systematic literature review (adapted from Tranfield, Denyer and Smart, 2003). A rich description has been constructed to enable the creation of a new theoretical and practical framework towards achieving the Third Mission. This has been aligned to my thesis goals (Section 1.9, p.12) to explore the Third Mission as a complex and multi-level phenomenon where it is noted that each university (and its Business School) has its own particular culture, which may lead to different routes through this process (Section 1.8.1, p.10). The resulting Third Mission Framework can be used by a university, independently of any external context.

This chapter answers the following Research Questions (RQs):

- RQ3: From the themes of Third Mission activity, how may a university (in particular, a Business School) create the appropriate conditions to achieve the Third Mission?
- RQ4: How may a university (in particular, a Business School) effectively conduct Third Mission activities with business (industry) to achieve the Third Mission?

In addition, it offers an updated Conceptual Framework (Section 10.2, p.293), and a new theoretical and practical framework for a university (and their Business School) to achieve the Third Mission (Section 10.3, p.297).

10.2 Updated Conceptual Framework

A Provisional Conceptual Framework (Section 2.2, p.18) was developed from the scoping search (Appendix A) to inform the Research Questions which guided the MQSLR approach. In Chapter 9, the characteristics and themes towards the Third Mission were established from the corpus of articles to form a rich description. Figure

10-1 (p.295) shows the development *from* the Provisional Conceptual Framework *to* the Updated Conceptual Framework, as a result of the MQSLR.

Figure 10-1 visualises the updated conceptual framework. This has been possible only as a result of conducting the Modified Qualitative Systematic Literature Review. The context of this conceptual framework is set within the context of the boundaries of this thesis. It illustrates that UK Government drives the Third Mission through LEPs, Policy and third-stream funding. A university's unique Third Mission context, exposure and mechanisms leads to heterogenous outcomes. For example, the choices a university makes then drives involvement/or lack of involvement of their Business School and academics. The Third Mission *Interface ecosystem* (where university staff interact directly with businesses) may be 'formalised' or 'informal' (but exists either way). As a result of Third Mission activity a university currently reports back to Government via the REF and KEF.

The following sub-sections explain the key conceptual aspects of Figure 10-1.

Updated Conceptual Framework

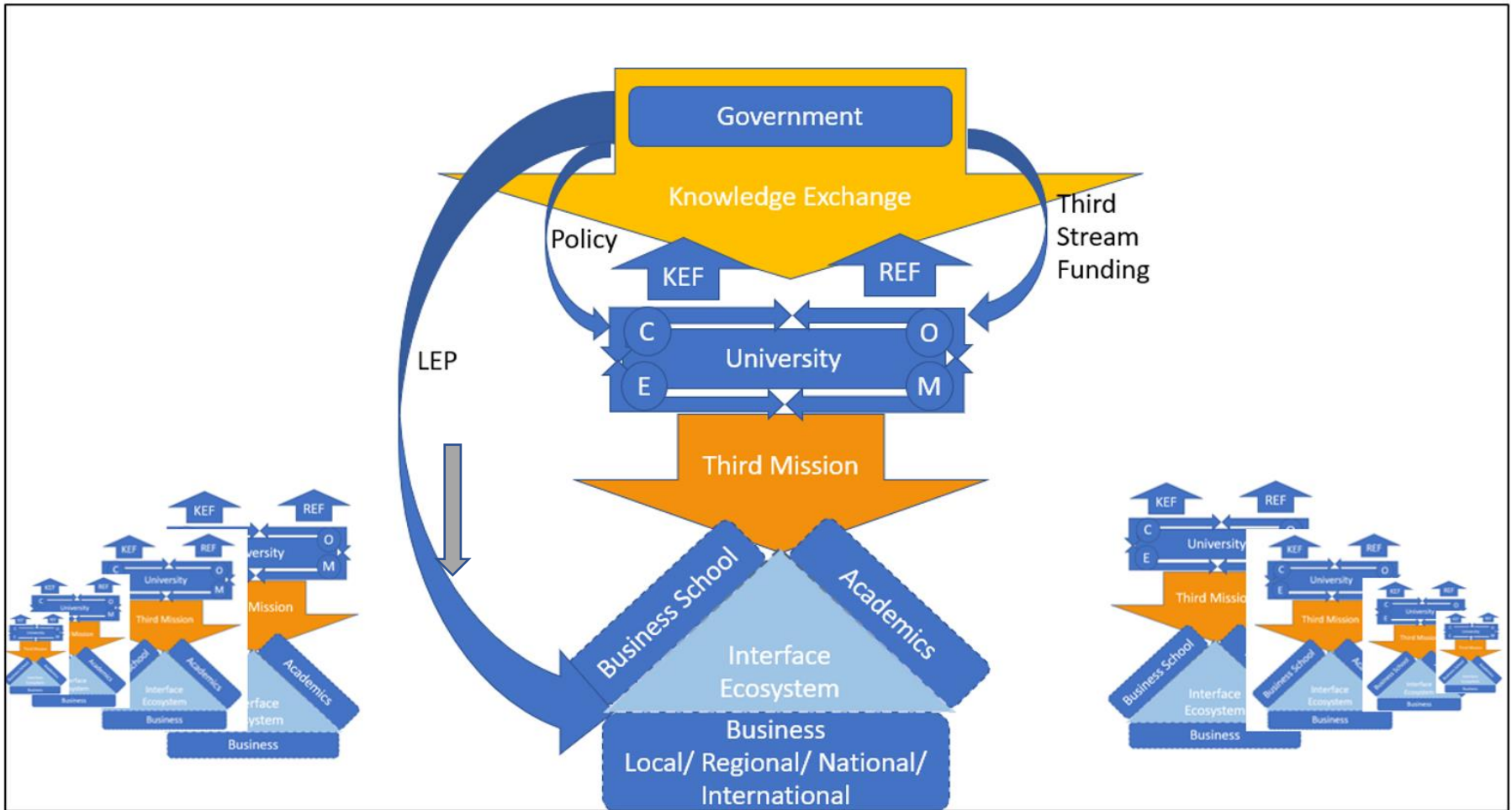


Figure 10-1 Development of the Updated Conceptual Framework *from* the Provisional Conceptual Framework. Source: Authors Own

10.2.1 SOGI – Multi-level Phenomenon

SOGI levels are mapped into the new conceptual framework. SOGI was defined in Section (Section 2.7.2, p.29) where *Society* is “*anything external to a university*”; *Organisation* is represented by “*a university/HEI*”; *Group* is represented by the “*Business School*”, and *Individual* is represented by “*academics*”. SOGI is used to highlight a key conceptual aspect - that the Third Mission is a ‘*multi-level*’ phenomenon (RQ5 – see Section 11.2.4, p.308). SOGI also places the ‘*Business School*’ into the conceptual framework as a ‘*primary*’ mechanism, for achieving the Third Mission.

10.2.2 University Phenomenon

The Third Mission is ‘*uniquely*’ associated with a university/HEI (RQ5 – see Section 11.2.4, p.308). As highlighted in Section 9.3.2 (p.220), a university has two other missions (teach and research), and the Third Mission is specifically associated to a university/HEI. Therefore, a UK university is responsible for ‘*translating*’ UK Government policy to generate their own Third Mission.

10.2.3 Heterogenous Phenomenon

A key conceptual aspect of the Third Mission is that the phenomenon is ‘*heterogenous*’ and dependent on the sole context-exposure-mechanisms-outcomes (Exposure Theme 2e, p.217) of each university (RQ5). Therefore Figure 10-1 illustrates that each university CEMO is ‘*unique*’, based on indicators identified in Chapter 9.

10.2.4 Interface Ecosystem

Each university will have either a ‘*formalised*’ or ‘*underdefined*’ interface ecosystem. The research shows the ‘*Interface ecosystem*’ exists whether acknowledged or not by a university. The term was defined in Section Context Theme3 (p.277) as an ‘*emergent*’ theme from the dataset and is a ‘*key element*’ to achieving the Third Mission.

10.2.5 Knowledge Exchange

Chapter 9 revealed that the UK Government has shifted towards using the term '*knowledge exchange*' in the last 5 years. The latest UK Government measurement tool is the Knowledge Exchange Framework (KEF) however, the REF (Context Theme1a.1, p.143) also still captures impact and value from research. Although the UK Government terminology has shifted focus, '*knowledge exchange activity*' and '*Third Mission activity*' refer to the same activities, according to the dataset (RQ5 – see Section 11.2.4, p.308). A difference is that whereas 'Third Mission' is uniquely associated with a university, '*knowledge exchange*' isn't.

10.3 A New Theoretical and Practical Framework

As a result of the MQSLR and informed by the Updated Conceptual Framework (Figure 10-1, p.295), a *new* theoretical and practical framework has been generated, specifically to aid a university in achieving the Third Mission. The '*Third Mission Framework*' incorporates CEMO (Section 2.7.1, p.28) and SOGI (Section 2.7.2, p.29) in a new way and introduces a new '*Third Mission Continuum*', from theoretical underpinnings (Figure 10-2, p.299).

Figure 10-2 summarises in one page infographic the new theoretical and practical framework. It is made up of a number of new tools separated into three distinct phases,

The first (Where are we now?) is designed to aid a university to Identify the status of their current Third Mission status by using a '*TM Catalyst Conversation*' on *heterogeneity* and using the companion CEMO/SOGI Grid to map the results. The term *Catalyst* was defined in Section 1.6 (p.8) as ““*An event or person causing change*” (OED, 2023). This term has therefore been used as part of the framework to ensure focus is on '*instigating change*' as a result of a conversation.

The Second Phase (Where are we going?) uses a TM Catalyst conversation on *definitions* to populate a bespoke university TM SOGI Matrix and TM Continuum – thus mapping the unique Third Mission for a single university, regardless of any external context.

The Third Phase (How do we get there?) involves a Catalyst Conversation on *measuring the Third Mission* and uses tools including a new TM SOGI Measurement Matrix and TM Transition Plan.

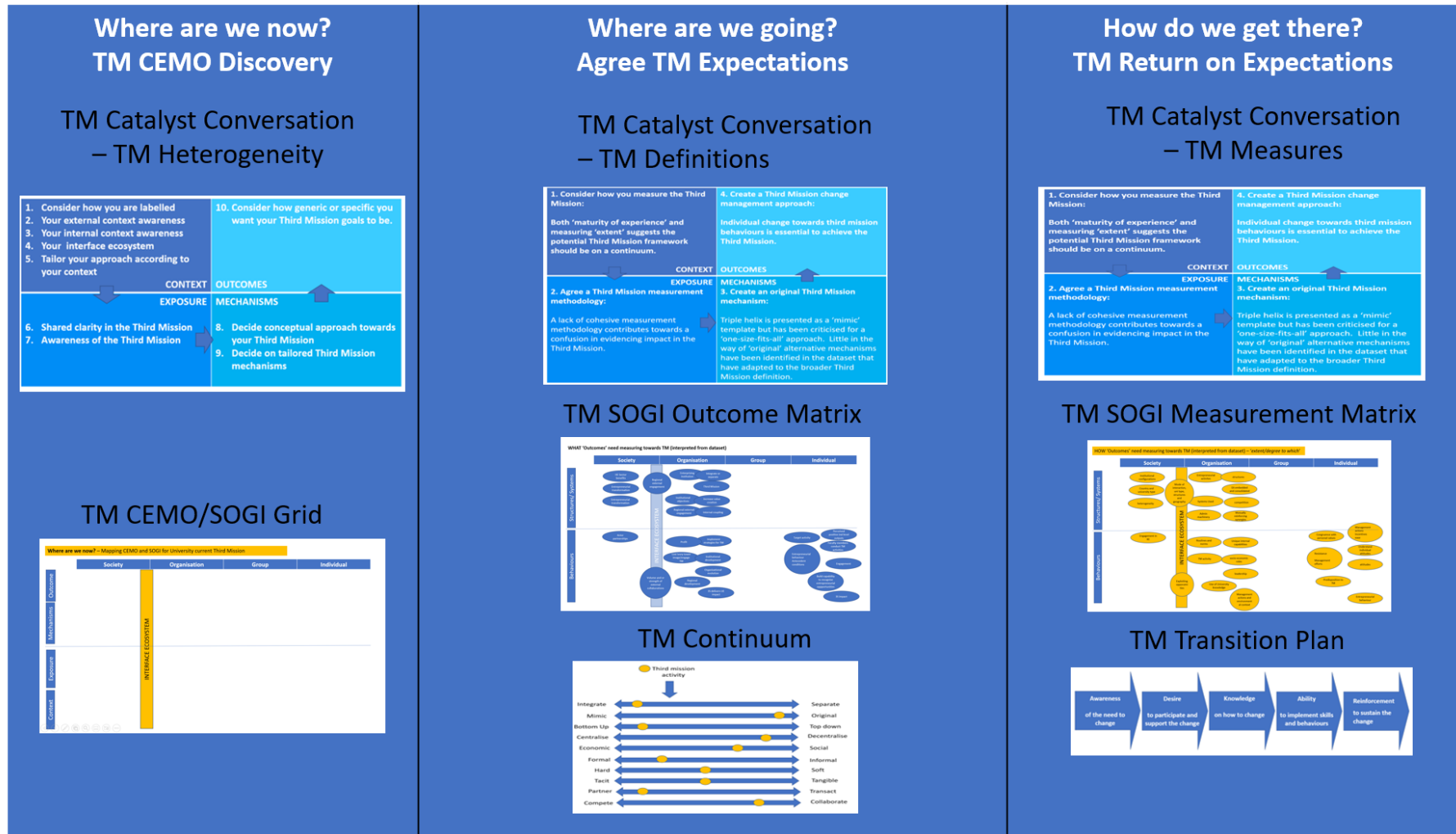


Figure 10-2 New Theoretical and Practical Framework Towards Achieving the Third Mission.

The following sections introduce and explain each part of the new *Third Mission Framework* to answer RQ3 and RQ4.

10.3.1 Where are we now?

The first step of the *Third Mission Framework* is to help a university review '*where are we now?*' in terms of working towards achieving the Third Mission.

Given the heterogenous nature of each university, it is important to recognise and acknowledge the *current* and *unique* Third Mission Context-Exposure-Mechanisms-Outcomes (CEMO) for each university. This can be achieved through a discovery phase (*Where are we now?*). This phase has been identified as an essential *antecedent*, towards creating the '*appropriate*' conditions for the Third Mission, for a specific university (RQ3).

Each part of CEMO is defined to aid the design of this step:

1. **Context** – '*Third Mission (external/internal/interface) currently experienced by a university*'.
2. **Exposure** – '*Third Mission definitions and activities in current use by a university*'.
3. **Mechanisms** – '*Third Mission methodologies, methods, and metrics in current use by a university*'.
4. **Outcomes** – '*current Third Mission goals of a university*'.

Having defined CEMO, two activities have been designed to aid completion of the '*where are we now?*' phase. The first has been coined the '*Third Mission Catalyst Conversation*' and the second is the new '*Third Mission CEMO/SOGI Grid*'. The following sections present each in turn.

10.3.1.1 Third Mission Catalyst Conversation – Third Mission Heterogeneity

This section contributes to RQ3: From the themes of Third Mission activity, how may a university (in particular, a Business School) create the appropriate conditions to achieve the Third Mission?

As part of the new practical *Third Mission Framework*, the interaction with people at all SOGI levels is essential, therefore ‘*Third Mission Catalyst Conversations*’ form part of the framework. The first is ‘*Third Mission Catalyst Conversation – Third Mission Heterogeneity*’ which starts the ‘*Where are we now?*’ phase. It is aimed at understanding the unique Third Mission CEMO of a specific university and raise their awareness of the need to create the ‘appropriate’ conditions for Third Mission (Figure 10-3).

Figure 10-3 contains ten key *catalytic* topics to discuss with a university (generated as a result of the Modified Qualitative Systematic Literature Review), in order to raise awareness of the Third Mission heterogeneity *currently experienced* by a university.

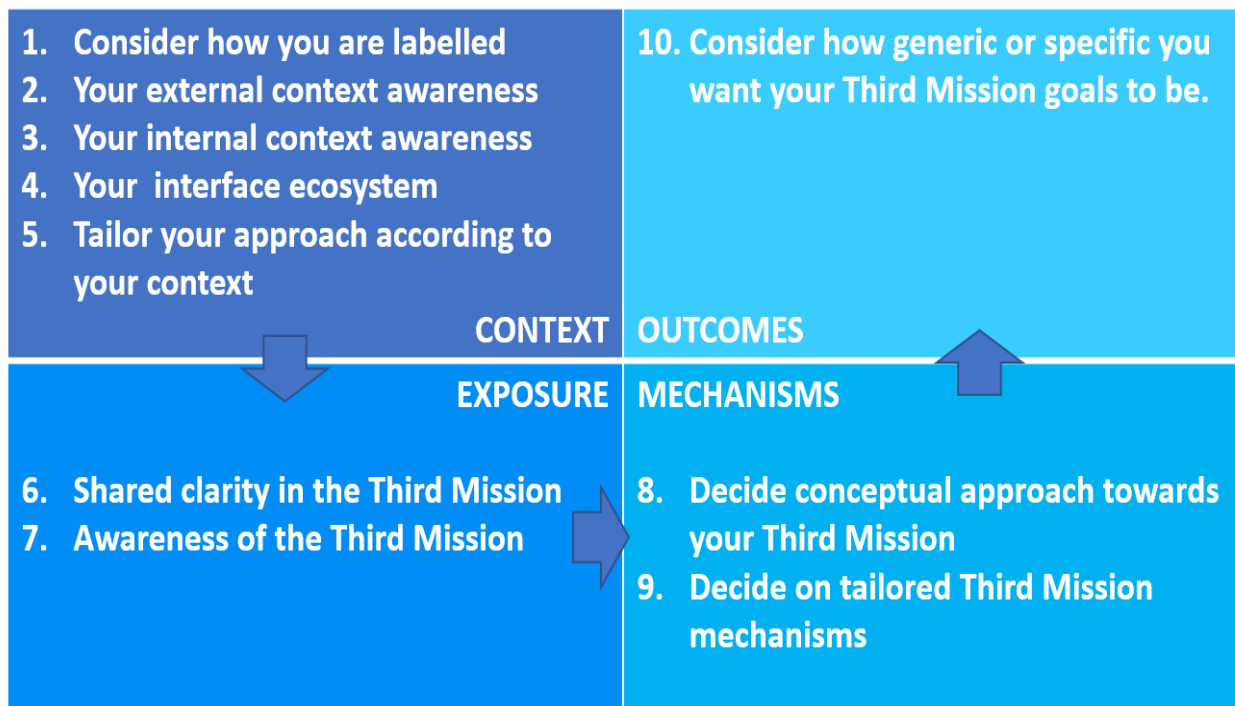


Figure 10-3 Third Mission Catalyst Conversation – Third Mission Heterogeneity

10.3.1.2 Third Mission CEMO/SOGI Grid

SOGI levels are a key part of the *Third Mission Framework* (Section 10.2.1, p.281). Each part of SOGI is defined specifically towards the context of the Third Mission. The Business School is included a primary Third Mission mechanism (Section 10.2.1, p.281).

- **Society** – External to a university
- **Organisation** – University/HEI
- **Group** – Business School
- **Individual** – Academic

The *Third Mission CEMO/SOGI Grid* (Figure 10-4) can be used as a companion method, for use during *Third Mission Catalyst Conversation/s*. This provides a visual aid for a university to map their current Third Mission Context-Exposure-Mechanisms-Outcomes (CEMO) for each SOGI (Society-Organisation-Group-Individual) level. For example, a university can answer the questions posed in Figure 10-3 (p.301) and map the answers onto this grid. Analysis can then be done to see what level (SOGI) the answers relate too and whether the focus is on Third Mission context, exposure, mechanisms or outcomes (CEMO). The output is a unique grid of the current status of the Third Mission in any university. This exercise would highlight gaps in their current approach and thus raise awareness to inform next steps.

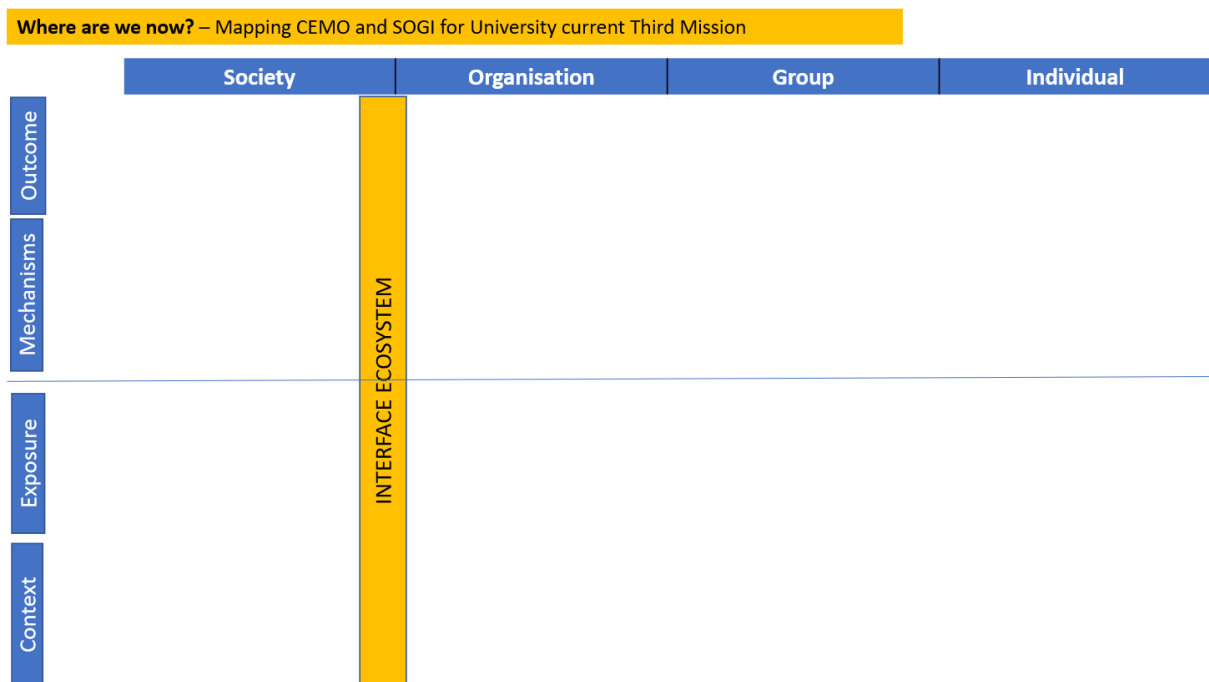


Figure 10-4 THE Third Mission CEMO/SOGI Grid

10.3.1.3 Summary

Exploring ‘*Where are we now?*’ via CEMO and SOGI enables a multi-level, systematic approach to understanding the heterogenous nature of a university and their current approach to Third Mission.

10.3.2 Where are we going?

This section contributes to RQ5: What definitions of Third Mission and Third Mission activity will evolve in the context of the DBA to inform a theoretical framework?

Having explored a universities unique Third Mission context, current definitions, mechanisms, and goals the focus then turns to ‘*where are we going?*’. Based on exploration of the data (Chapter 9) the focus of this part of the new framework is on three aims:

- Define Third Mission (with consultation at all SOGI levels).
- Agree ‘*expectations*’ with people at all SOGI levels.
- Confirm the heterogenous approach to Third Mission.

Three methods have been created to support this:

- Third Mission Catalyst Conversation – Defining Third Mission
- The Third Mission SOGI Outcome Matrix
- The Third Mission Continuum

10.3.2.1 Third Mission Catalyst Conversation – Defining Third Mission

This *Third Mission Catalyst Conversation* uses CEMO to explore the aspects of Third Mission that has some consensus (within the corpus of data) and the aspects that may be specific to a university (Figure 10-5).

Figure 10-5 contains eight key *catalytic* topics (generated as a result of the MQLR) for a university to discuss (with their Business School) about what they want to achieve with their own heterogenous Third Mission.

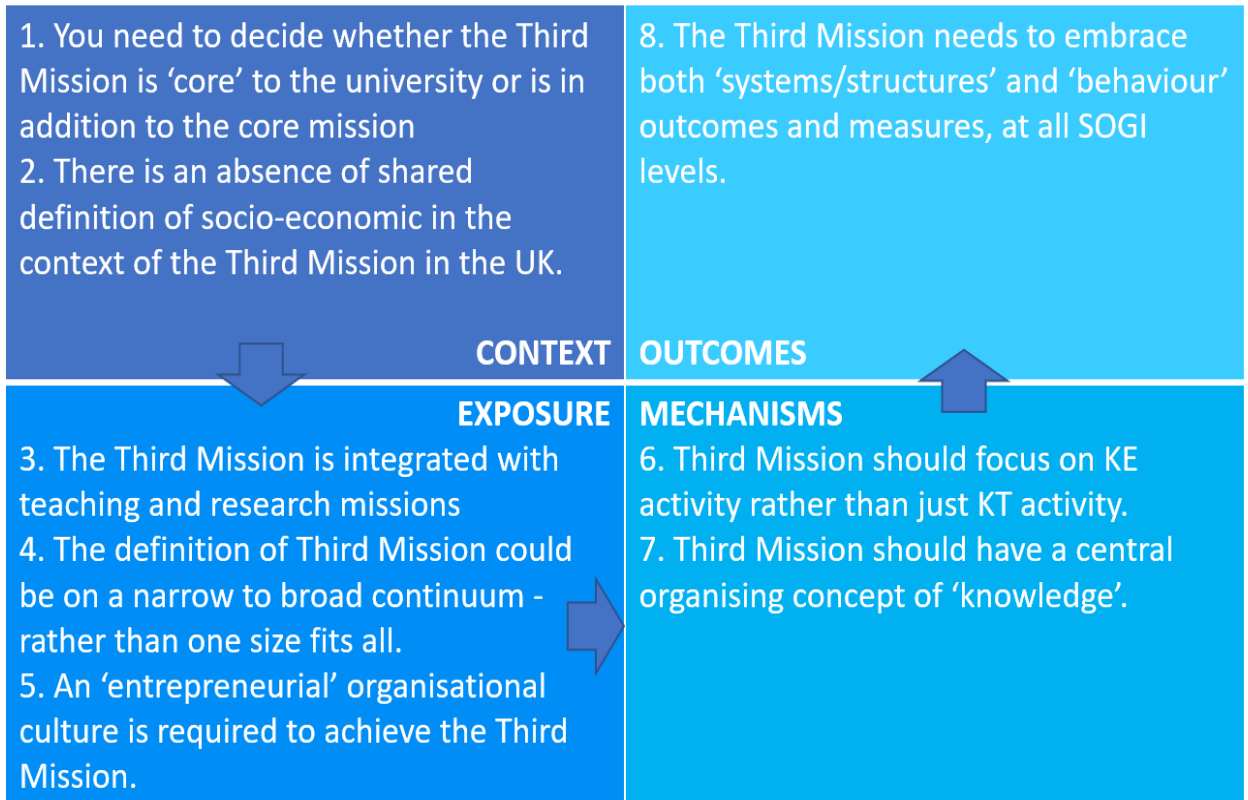


Figure 10-5 Where are we going? – Third Mission Catalyst Conversation – Defining Third Mission

10.3.2.2 Third Mission SOGI Outcome Matrix

To help a university set its own goals, the MQSLR has highlighted the need to integrate both a '*structure/system solution*' and '*people solution*' approach to achieve the Third Mission (Section 9.5, p.282). Therefore, a new *Third Mission SOGI Outcome Matrix* has been developed, as a tool, to aid decision-making by a university in the setting of their own '*expectations/goals* for the Third Mission. This enables measurement of both '*tacit*' and '*explicit*' factors of Third Mission (Section Mechanisms Theme 1a, p.240) as a '*return on expectations*' rather than a '*return on investment*'.

The MQSLR revealed that not all SOGI levels have been considered in determining the Third Mission (at least not in the corpus of data). For example, the MQSLR revealed Third Mission *Outcomes* were considered (in the dataset) for all the SOGI levels, except 'Group Level' (Business School) for 'behaviours' and except for 'Group' (Business School) and 'Individual Levels' (Academics) for 'Systems/Structures'. Figure 10-6 (p.306) illustrates the gaps found in the corpus of data from the MQSLR. The Figure shows a gap at Group Level (Business School). The corpus of data has identified that there was no data on Business Schools and the Third Mission. This finding can be used to trigger a '*Third Mission Catalyst Conversation*' for a university to consider when agreeing their own '*expectations*' for the role of their Business School in achieving the Third Mission.

WHAT 'Outcomes' need measuring towards TM (interpreted from dataset)

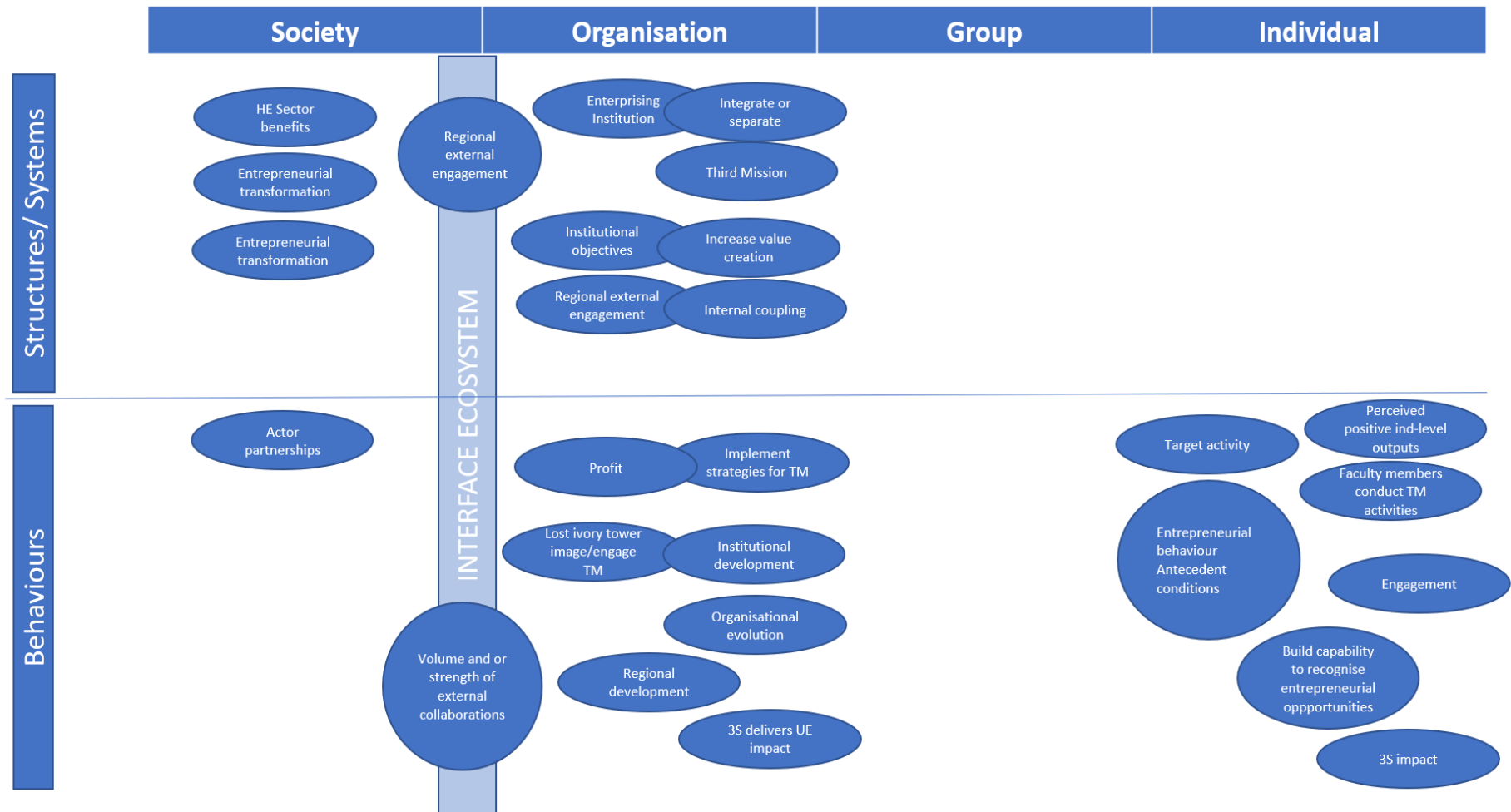


Figure 10-6 Third Mission SOGI OUTCOME Matrix

10.3.2.3 The Third Mission Continuum

Having considered the context and goals of a university's Third Mission, the next new tool enables mapping a unique profile for a university. As heterogeneity is a key conceptual element of Third Mission, the new practical framework towards the Third Mission, includes a *Third Mission Continuum*. This enables a university to uniquely indicate their own Third Mission landscape (Figure 10-7). This tool can be used to trigger a series of *Third Mission Catalyst Conversations* with a specific university. The items contained on the Third Mission Continuum (Figure 10-7) have been generated as a result of the Modified Qualitative Systematic Literature Review. Each item would require its own *Catalyst Conversation* to raise awareness of the unique university approach to their own Third mission.

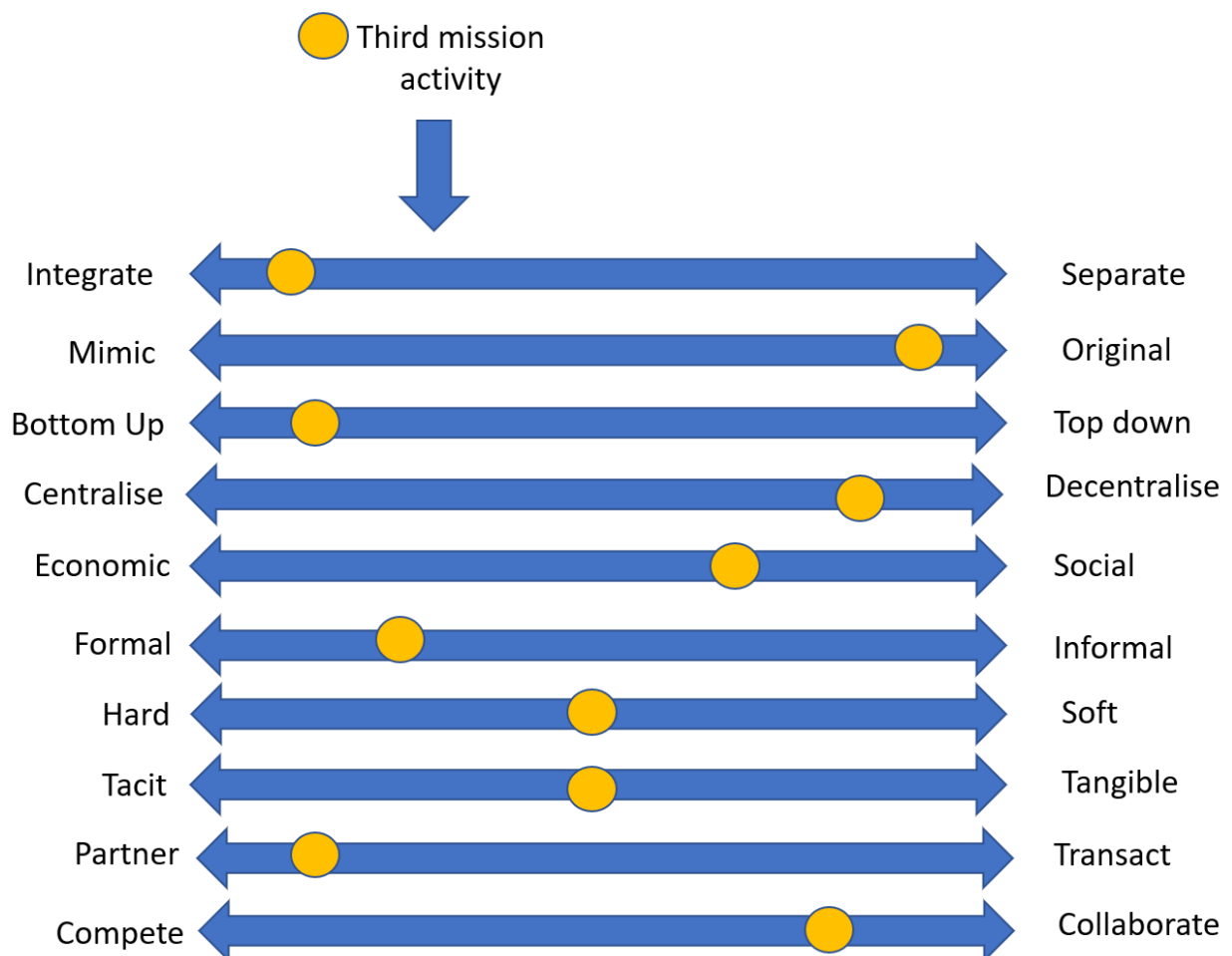


Figure 10-7 Third Mission Continuum

Using the *Third Mission Catalyst Conversation* approach (Section 10.3, p.283), each element of the *Third Mission Continuum* requires involvement at all SOGI levels (Section 10.2.1, 308). This to ensure the ‘*expectations*’ set are agreed and reflect the CEMO identified. One example, using the first element of the *Third Mission Continuum* (Integrate or Separate) is offered in the next section, however, it is noted this framework is ‘*emergent*’ and future research is needed to develop further.

10.3.2.4 Integrate vs Separate – An example ‘Third Mission Continuum Catalyst Conversation’.

A *Third Mission Catalyst Conversation* to discuss *integration and separation* includes linking to theory from the dataset - on ‘*knowledge*’ as a central organising concept of the Third Mission (Section Exposure Theme 2d, p.226).

The *Third Mission Catalyst Conversation* triggers a discussion with a university on whether ‘*knowledge*’ is recognised as being a central organising concept for a university’s other two missions (teaching and research). For example, Figure 10-8 (p.209) on the left side places ‘*knowledge*’ as a *central organising concept* for all three missions of a university, as a shared and agreed ‘*common factor*’.

The right side of Figure 10-8 recognises that knowledge is central to Third Mission, but the three missions don’t share the same *central organising concept* of ‘*knowledge*’. A small but significant difference in the definition of ‘*knowledge*’ from different mission perspectives (and SOGI levels) can arise. This small difference could create a lack of consensus between the different SOGI levels within a university. The *Third Mission Catalyst Conversation* can aid consensus building by a university towards their own shared definition of ‘*knowledge*’. For example, some researchers from the dataset indicate that the Third Mission is an ‘*add-on*’ and that it is part of the second academic revolution (Etzkowitz et al., 2000, cited in Nelles & Vorley, 2010b). Others argue that the ‘*so-called*’ Third Mission has always been an inherent part of a university, it has just been ‘*formalised*’ recently in Policy (Martin, 2012).

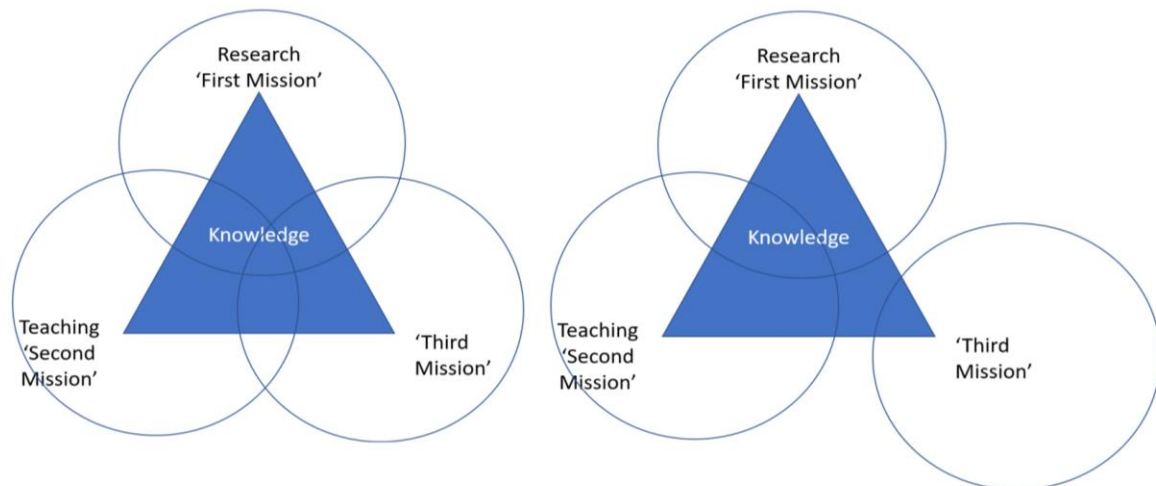


Figure 10-8 Integrate or Separate. Source: Authors own

Different viewpoints can aid discussion and decision-making for example, the data extracts indicated that the '*Intellectual Capital Framework*' (Secundo et al., 2017) (Section Mechanisms Theme 2b, p.269) and the '*Entrepreneurial Architecture Framework*' (Nelles & Vorley, 2010a) (Section Mechanisms Theme 1b, p.255) consider '*integration*' of missions. Whereas the '*Measuring the Third-Stream Indicators*' model (Molas-Gallart & Castro-Martínez, 2007) (Section Mechanisms Theme 2a, p.267) appears to keep the missions separate. The '*3S*' model (Woollard 2010) (Section Mechanisms Theme 1b, p.255) integrates theories but is unclear from the dataset whether they integrate missions. Many models do not articulate their stance on integration or separation within the data extracts so further study would be required.

Overall, it appears from the dataset that mission integration is connected to universities that place '*knowledge*' as the primary organising concept for all three missions, whereas if '*entrepreneurialism*' is the primary organising concept for the Third Mission then the missions will be separate. A university needs to decide whether their Third Mission is '*knowledge-centric*' or '*entrepreneurial-centric*':

It is not a simple discussion, nor a simple decision to make. This is a fundamental consideration that will impact the culture of a university. As '*knowledge*' is generated through research, I link back to '*knowledge production*' modes 1 and 2 (Section Context Theme2a.1.5, p.181). Here the Third Mission was linked to '*applied research*' as '*Mode 2*' knowledge production. At this point the *Third Mission*

Continuum Third Mission Catalyst Conversation would explore a university's stance on 'Applied Research'.

Applied Research is explicitly rereferred to in six out of the twenty-one articles in the dataset. The term has been linked to “*commercial imperatives*” (Nelles & Vorley, 2010b, p.342), ‘*older universities*’ (Kitagawa et al., 2016) ‘*suppressing theoretical research*’ and ‘*corruption of results*’ (Perkins et al, 2014 cited in Watson et al. (2016) who, also linked to ‘*isolation*’. As research (mode 1 and mode 2) is about ‘*generating knowledge*’ it appears that the difference between the modes is ‘*how*’ knowledge is generated is a cause for debate in the dataset. For example, some regard mode2 (within context of Third Mission) as a ‘*detractor*’ of mode1:

“In relation to research, the most common criticism levelled at the third mission is how it is regarded to detract from the tendency of institutions to undertake basic research (Nedeva, 2007).” (Nelles & Vorley, 2010b, p.346)

Some suggested there may be quality issues and a resulting lack off ‘*buy-in*’ from academics:

“Given that career progression was primarily based on international research publications and teaching excellence, many academics throughout the hierarchy did not see an adequate return on investment from activities associated with third stream initiatives.” (Watson et al., 2016, p.164)

Others worry about prioritisation:

“Understandably, these forms of engagement often demand more applied research, and an inevitable consequence of this is an increased emphasis and arguably prioritisation of applied research.” (Nelles & Vorley, 2010b, p.346)

However, some argue these concerns are unfounded:

“In short, the demise of (basic) research at the expense of the third mission is overstated.” (Nelles & Vorley, 2010b, p.346)

Of note for the *Third Mission Catalyst Conversation* is that ‘*attitudes*’ towards the Third Mission are influenced by ‘*perceptions*’ of the Third Mission, depending on a person’s own definition, for example, Freel et al., (2019) found a relationship between ‘*pro-mission attitudes*’ towards Third Mission activity and ‘*faculty members*’ who are involved in applied research: “*In short, and as hypothesised, faculty engaged in applied research are significantly more likely to hold promission attitudes.*” (2019, p.15).

Perhaps more emphasis on defining the Third Mission towards '*knowledge*' may reposition the role and value of applied research, as part of Third Mission activity and an integrated mission strategy. By integrating the three missions with one overarching '*knowledge mission*,' a common mission is then shared by all individuals within an institution. Therefore a '*shared/common goal*' could be deemed fundamental in achieving the Third Mission (RQ5) – Further research is recommended in this area.

10.3.2.5 Summary

Agreeing '*expectations*' through all SOGI levels (Third Mission SOGI Outcome Matrix) and conducting *Third Mission Catalyst Conversations (Third Mission Continuum)* confirm the heterogenous Third Mission for a university.

A university can choose whether to integrate or separate the Third Mission within their own institution. This is a key decision for a university as strategies, operating models and culture will differ as a result. At this point, it is important to highlight that there is no generic '*right*' or '*wrong*' answer. What is important is that a university chooses its option with self-awareness (via CEMO) and in agreement with all SOGI levels.

Having confirmed '*where are we going?*' the final part of the new framework considers '*how do we get there?*'

10.3.3 How do we get there?

This section contributes towards answering RQ4: How may a university (in particular, a Business School) effectively conduct Third Mission activities with business (industry) to achieve the Third Mission?

Having confirmed and agreed a university's unique Third Mission, this section focuses on '*How do we get there?*'. Practically at this point, the current Context-Exposure-Mechanisms-Outcomes (CEMO) would have been explored and shared with the university community, agreed Third Mission expectations would have involved consultation with all SOGI levels and there is '*agreement*.' Every member of staff in the university is aware of the current Third Mission situation, they can

articulate the challenge for the university to meet UK Government and society challenges. They now need to consider how they want to conduct and measure Third Mission activity at all SOGI levels.

Based on exploration of the data (Chapter 9) the focus of this part of the new *Third Mission Framework* is on two aims:

- A university agreeing how to ‘*measure*’ progress and impact towards its new Third Mission expectations.
- A change approach is used to involve all SOGI levels.

Three tools have been generated to do this:

- Conversation Catalyst – Third Mission Measures
- The ‘Third Mission SOGI Measurement Matrix’
- The Third Mission Transition Plan

The following section introduces and explains the methods towards a university achieving the Third Mission.

10.3.3.1 Third Mission Catalyst Conversation – Third Mission Measures

This *Third Mission Catalyst Conversation – Third Mission Measures* uses CEMO to explore the aspects of Third Mission that has some consensus (within the corpus of data) and the aspects that may be specific to a university (Figure 10-9, p.313).

Figure 10-9 contains four key topics (generated as a result of the Modified Qualitative Systematic Literature Review) under the titles of ‘Context’, ‘Exposure’, ‘Mechanisms’ and ‘Outcomes’. Each topic contains discussion prompts aimed at guiding a university through a ‘*catalytic conversation*’ to discuss *how to* achieve their own heterogenous Third Mission.

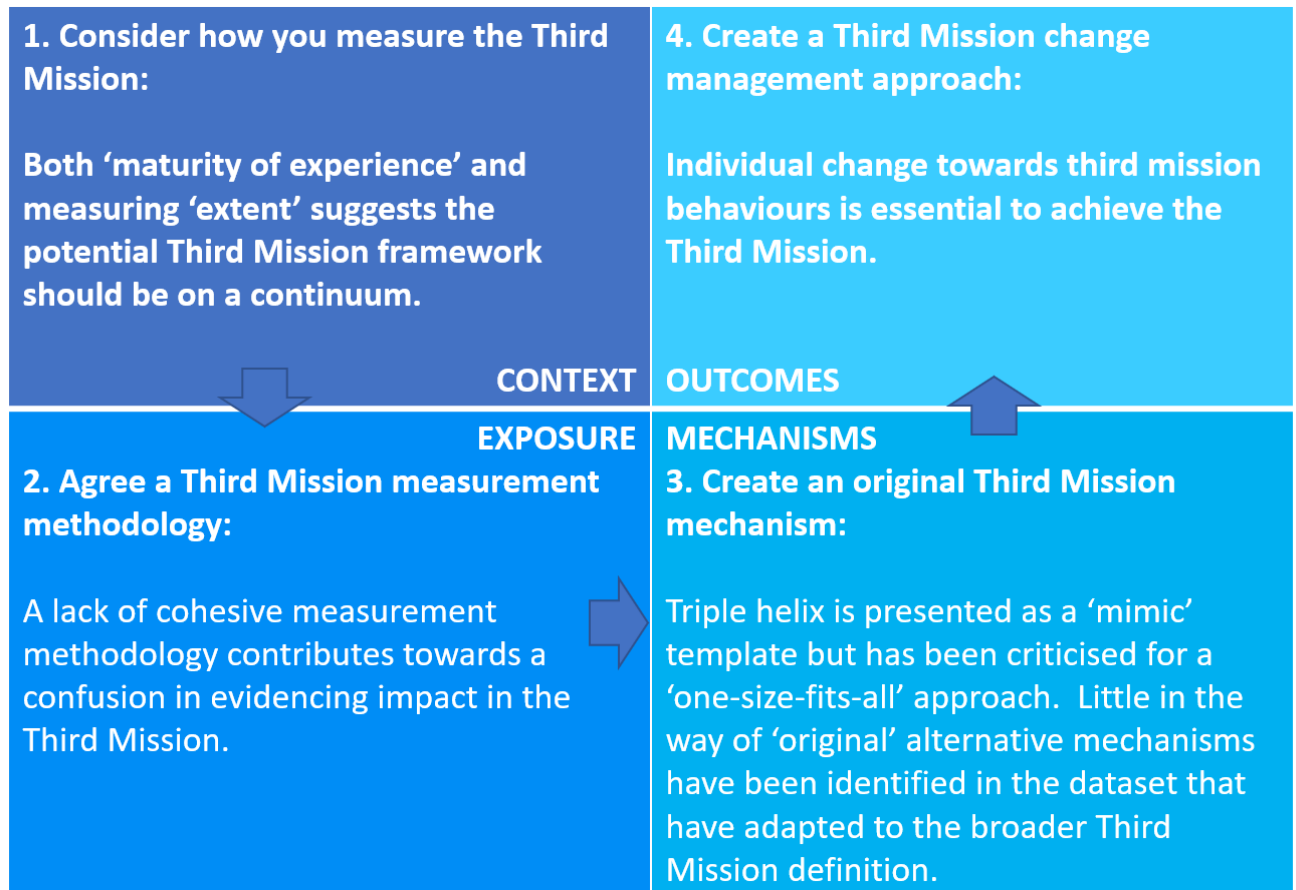


Figure 10-9 Third Mission Catalyst Conversation - Third Mission Measures

The Third Mission Measures are supported by the *Third Mission SOGI Measurement Matrix* and *Third Mission Transition Plan*:

10.3.3.2 Third Mission SOGI Measurement Matrix

As discussed in Section 9.5 (p.282), the '*extent/degree to which*' the expectations are being met is the measurement approach. A university, having agreed their '*expectations*', can then convert them into measurable '*targeted outcomes*' based on a '*Return on Expectation*' approach (triangulation of indicators – Section 7.4, p.94). These indicators act as evidence towards achieving the agreed expectation. This enables measurement of '*soft*' and '*hard*' measures and thus focus on '*behaviours*' as well as '*structures and systems*'.

The '*Third Mission SOGI Measurement Matrix*' has been generated from the dataset to highlight the types of measurables the dataset state as important towards achieving the Third Mission (Figure 10-10, p.296). This is used with a '*Third Mission Catalyst Conversation*', to trigger discussion for how a university can measure their agreed expectations.

Figure 10-10 (p.315) visualises the collated output from the Modified Qualitative Systematic Literature Review on how the Third Mission may be *measured*, based on an 'extent to which' approach that can be built based on a *Return of Expectations* model rather than a *Return-on-Investment* model (KEF). Please note the lack of consideration of measuring Business School and Individual levels. Figure 10-10 visually highlights how '*generic*' the measures are (in the corpus of data), thus appear to be more like aspirations than measurable goals. Also of note is the absence of measures on the SOGI Matrix for '*Group level*' (Business School).

This matrix can also be used in practice to trigger a specific discussion on what measures a university will target at each SOGI level and the value of including '*behaviour*' targets.

HOW 'Outcomes' need measuring towards TM (interpreted from dataset) – 'extent/degree to which'

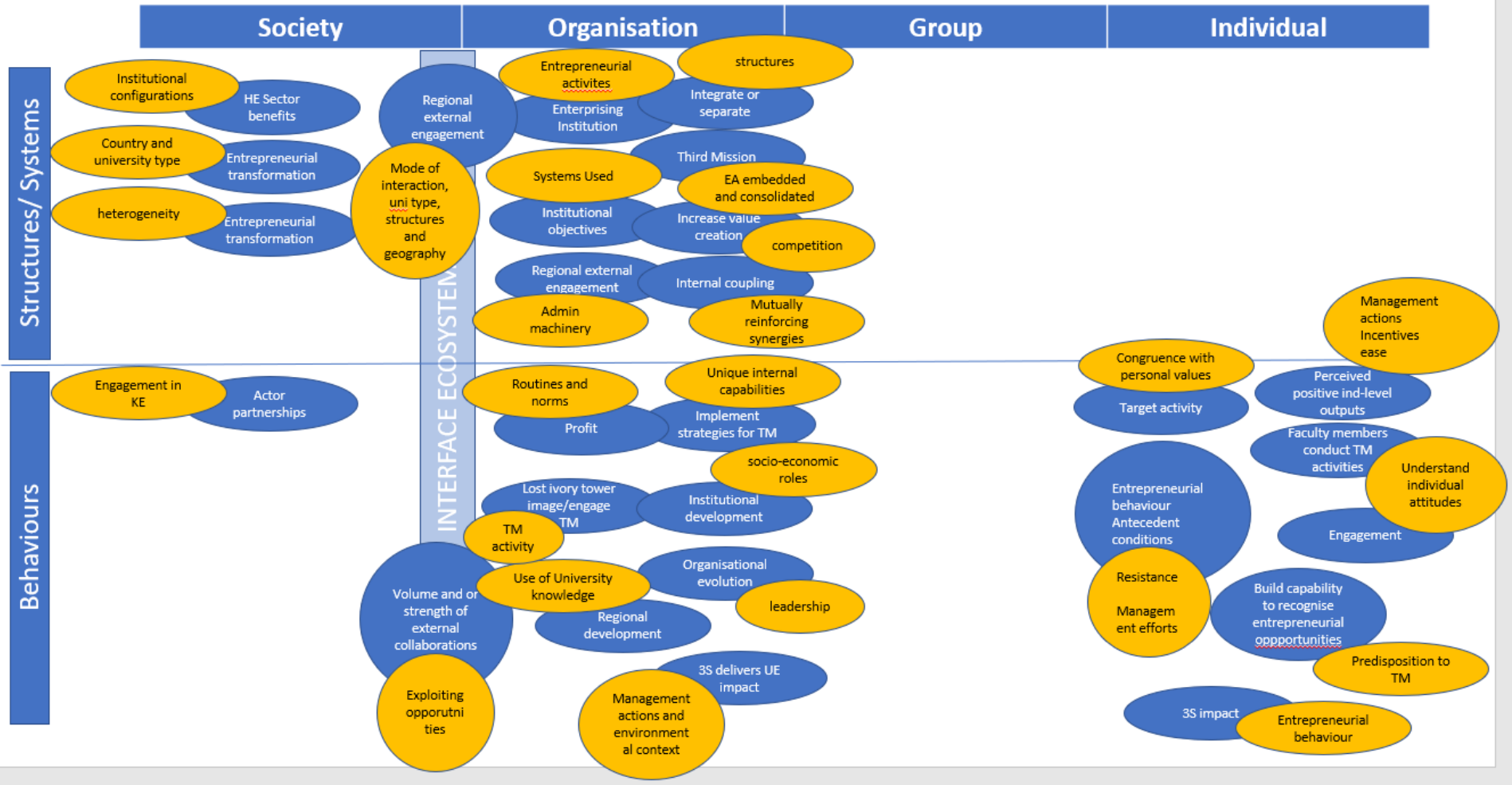


Figure 10-10 Third Mission Measures from dataset. Source: Author's own

10.3.3.3 Third Mission Transition Plan

Having agreed the expectations and measures, the foundations of a 'multi-level' (via SOGI) and 'heterogenous' (via CEMO) approach are in place towards a university to achieve the Third Mission (RQ3). To achieve the Third Mission however requires the hearts and minds of people, working interdependently towards shared expectations to also be achieved (RQ4). To transition a university (and the community of people within it) from their current Third Mission state (*where are we now?*) to a future Third Mission State (*where are we going?*) requires change. This means a change in the both the 'structures/systems' and the 'behaviours' - at all SOGI levels (Section 10.2.1, p.308).

Any change approach can be used by a university. For indicative purposes, the following example uses the PROSCI - ADKAR approach (Figure 10-11), to demonstrate how it can be incorporated into the *Third Mission Framework*.

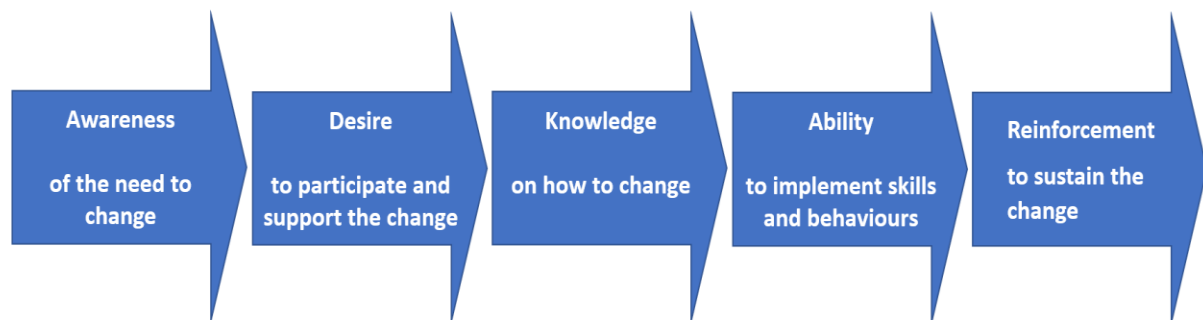


Figure 10-11 ADKAR

Awareness is built into the new *Third Mission framework* in the '*Where are we now?*' phase by using the '*Third Mission CEMO Discovery method*', to enable recognition of the need for change. By encouraging transparency with individuals, that they are on a change journey, can help aid acceptance, build trust, and feel their voice is valued.

Desire and commitment to change towards a new Third Mission starts with acceptance of the need to change. Desire to change is further developed and secured during the '*Where are we going*' phase of the *Third Mission Framework*, by ensuring SOGI involvement. Active participation enables overcoming barriers. The

dataset suggests this stage has not been formalised in literature. If people cannot see how the change benefits themselves personally, then resistance will result. Therefore, a '*formalised*' change approach is considered an essential 'how' to achieve the Third Mission (RQ4).

Building '*knowledge*' is next in ADKAR. Underpinning knowledge builds a shared vocabulary and shared understanding. For example, a behaviour outcome could include acceptance that both applied research and traditional research are equally valuable and respected within a university.

As well as knowledge, '*ability*' needs to be focussed on. By targeting *critical behaviours*, aligned to job roles, everyone can play a part in creating new routines and norms.

Finally, there is a need to '*reinforce*' the change over time. Are the critical behaviours achieving the impact planned for? A review against the Third Mission Expectations, using the measures built via the '*Third Mission SOGI Measurement Matrix*' will give indicators towards Third Mission activity. A university can then measure the '*extent to which*' Third Mission has been adopted and the '*extent to which*' Third Mission Expectations have been met (RQ4).

10.4 Limitations of Systematic Literature Review

Limitations of a Systematic Literature Review was first introduced in Section 5.2.1 (p.55) and limitations of a Modified Qualitative Systematic Literature Review was introduced in Section 5.4.3 (p.61) – these were also highlighted by previous Systematic Literature Review researchers and led to mitigations in the planning of the Modified Qualitative Systematic Literature Review (Section 5.4.3, p.61).

Having completed the creation of the new Third Mission Framework (Section 10.3, p.297), I can identify further limitations of using a systematic literature review approach. This mainly relates to the Modified Qualitative Systematic Literature Review being both *context* and *personal positioning* dependent. The output of the thesis can only be contextualised within the context of the Corpus of Data used and is based upon my own perceptions (See Personal Positioning - Section 1.5, p.6).

Another limitation is that although the Modified Qualitative Systematic Literature Review framework provides clear steps to follow, in practice there was much iteration between data analysis, synthesis, discussion and conclusion. On a positive note, this challenge has helped me develop my *analytical sensibility* (Section 6.2.1, p.70, Section 6.3.2, p.74). For example, I used my analytical sensibility of coding data that was *relevant* to the Research Questions regardless of frequency (Section 6.2.1, p.70). This was a personal decision to select data based on my interpretation of what data could answer the research questions. Also, during coding, I needed to shift between descriptive and interpretive analysis and synthesis constantly in order to develop themes. This was most evident in step 1 (Section 6.3.2, p.74) of Thematic Analysis where I emphasised that analysis is not a passive process, rather: “*it is about starting to read data as data [...] reading words actively, analytically and critically, starting to think about what the data mean*” (Braun & Clarke, 2013, p.205). I adopted Braun and Clark’s definition of *analytical sensibility* which “*is essential for moving beyond the surface, summative reading of the data*” (2013, p.205).

As there are strengths and weaknesses to a Systematic Literature Review approach, I opted to be transparent in the use of Thematic Analysis so that the process could be repeatable, and I showed how I mitigated the weaknesses (Section 6.3.2.2, p.80). Chapter 11 concludes all the limitations of this study (Section 11.4).

10.5 Professional Reflection

In Section 1.5 (p.6) I stated my personal positioning within the thesis, having worked in various contexts within the university/college and business sectors over the last 30 years. Linking back to my personal positioning in Section 1.5 (p.6), the DBA has enabled me to grow in terms of approaching highly complex and large-scale change problems by developing my analytical sensibility (Section 6.2.1, p.70). I have transitioned from working in the university sector to private sector, leading strategic change management initiatives in the Aerospace, Defence, Security and Technology sectors.

My development through the DBA was most significant when trying to overcome the risk of being overwhelmed by the volume of data. After investigating how other

researchers tackled similar issues, I was influenced by Tranfield, Denyer and Smart's Qualitative Systematic Literature Review (Tranfield, Denyer and Smart, 2003). I modified their approach to include mitigations, for example:

- Created a Network of Interest instead of a Review Panel (see reflections in Section 10.5.1, p.319)
- Embedded Thematic Analysis to aid transparency and repeatability.
- Incorporated the Roller and Lavrakas (2015) Total Quality Framework to emphasise applicability, transferability and usefulness.

These methods (along with NVIVO) helped me to navigate the wealth of data by acting as 'navigation tools' through what felt like a sea of data.

10.5.1 Value of my Network of Interest

Many DBA students reach out to others to gain insight in their learning journey. I chose to formalise this into a Network of Interest. I was inspired to do so by the Tranfield, Denyer and Smart (2003) Qualitative Systematic Literature Review approach that advises establishing a Review Panel. A Review Panel would have been too heavy handed for a one-person research thesis, however having a Network of Interest helped in my personal development at key points in the DBA. The following sub-sections detail how the Network of Interest aided my learning and decision-making:

10.5.1.1 Start of DBA

I utilised the Network of interest to support development of a proposal and an answerable research questions. For example, I was advised to avoid a case study on a specific university due to the political climate surrounding Third Mission at the time. I therefore chose to explore existing data that had already been published.

10.5.1.2 During DBA

The Network of Interest supported the construction of a reproducible search strategy. For example, as per Section 5.5 (p.64), in 2017, I added an NVIVO expert to my Network of Interest after attending an NVIVO training week. This led to the inclusion

of a chapter dedicated to data analysis and synthesis (chapter 6) and 'quality' (Chapter 7). These chapters were time consuming but ultimately helped me build strong methodological foundations to conduct the Modified Qualitative Systematic Literature Review.

As I approached the writing of Chapter 6 I was reminded by my Network of Interest (Section 5.5, p.64), that data synthesis is a *key phase* of the Modified qualitative Systematic Literature Review and should be thoughtfully planned prior to conducting the study. This led to a period of 'paralysis by analysis' in my learning journey, and a year of deferral during Covid. I overcame this through regular discussion with my Network of Interest to build an approach that would be replicable and answer my Research Questions. A key part of moving forward was in 2021. I was introduced to a specialist Librarian and database search expert who helped to support and challenge the development of my '*Data Synthesis and Analysis Strategy*' (See Section 5.5, p.64).

Another example of the value of the Network of Interest is it helped challenge borderline sources as part of inclusion and exclusion criteria (Section 5.5, p.64). All borderline sources were discussed with my Network of Interest and all decisions were fully documented in the Data Eligibility Form. This mainly involved studies that did not solely focus on UK.

Section 8.2.3 (p.106) highlighted the Network of Interest led to collection of supplementary grey material, which was collected using searching websites. However, due to the large volume of data collected from peer-reviewed research (and taking the quality parameters into account) the grey literature was not used in data extraction. It was highlighted in Section 8.2.3 that it could be used in future research.

10.5.1.3 End of DBA

The development of the *Third Mission Continuum* was discussed with the Network of Interest. A *continuum* was chosen as it enabled each university and their business school to map their own unique Third Mission.

Also, the Network of Interest challenged how much emphasis to include for the Third Mission Transition Plan section (Section 10.3.3.3). They warned against giving too much detail on a particular change approach. Duly warned this section was minimised.

Overall, the contribution of the Network of Interest has been valuable in helping shape the DBA in terms of scope, depth and breadth of focus. I managed the Network of Interest by reaching out at key points during the DBA to challenge and discuss my thoughts. On reflection, I learned from each of the exchanges, which acted as decision points in the direction of my thesis. Each exchange therefore unblocked a barrier to my progression of the thesis, thus creating my own personalised learning journey.

10.6 Reflections on New Framework

To answer RQ3 and RQ4, a new theoretical and practical framework towards achieving the Third Mission has been developed (Section 10.3, p.299). The framework includes theoretical insight for universities (and their Business Schools) and can be used in conjunction with the practical methods incorporated. To the best of my knowledge, no theoretical and practical framework for a UK university (and their Business School) to achieve the Third Mission (via CEMO and SOGI) existed before this study.

With the development of the theoretical and practical framework (Section 10.3, p.297), RQ3 and RQ4 have been achieved and are concluded in Section 11.2.2 and Section 11.2.3 (p332). RQ5 is answered and concluded in Section 11.2.4 (p332).

10.7 Next Steps

The final chapter answers RQ5 to offer a new definition of the Third Mission. It concludes the study, stating the work's contribution to theory and practice, and its limitations and recommendations for future research.

CHAPTER 11 - CONCLUSION

11.1 Introduction

This chapter links back to the thesis goals (Section 1.6, p.7) which has been to build a new practical and theoretical framework (Section 10.3, p.299) which can be used by any university and their Business School – to catalyse change in their own Third Mission.

A university can use the framework consists of a number of tools to:

- Review/baseline their current Third Mission status.
- Decide which future Third Mission direction to take (based on their own heterogenous heritage).
- Build a Third Mission Plan to make it happen.

Overarchingly the new Third Mission Framework will catalyse change in a university and in particular recognise that a Business School can play a key part in this.

The challenge has been to develop a theoretical and practical framework, which recognises the uniqueness of universities (*heterogeneity*) – the CEMO framework (Context-Exposure-Mechanisms-Outcomes) has been incorporated to help articulate this (Section 2.7.1, p28). Also, the Third Mission is a multi-level phenomenon - the SOGI (Society-Organisation-Department-Individual) framework has helped articulate this (Section 2.7.2, p.29).

This chapter starts with conclusions about the Research Questions and Research Objectives and is followed by the contribution to research (theory and practice). The chapter then concludes with the limitations of the study, implications for future research and personal reflections.

11.2 Conclusions about Research Questions and Objectives

This study set out to answer the Research Questions and Research Objectives in Table 11-1, in order to answer the overarching question *How may a university achieve the Third Mission?*

By answering the five Research Questions the overarching question of ‘*How may a university achieve the Third Mission?*’ is answered. Chapter 10 provided the new theoretical and practical framework for a university to achieve their own Third Mission. This could only be formed as a result of answering the research questions (Table 11-1).

Research Questions (RQ)	Research Objectives (RO)
RQ1: What characteristics of Third Mission activity emerge from historical and contemporary documents about achieving the Third Mission in universities (in particular, Business Schools) in the UK?	RO1: To identify characteristics of Third Mission activity of UK universities (in particular, Business Schools) and businesses (Industry) in the context of the Third Mission in the UK.
RQ2: From the identified characteristics – what themes of Third Mission activity can be drawn together to contribute to the achievement of the Third Mission?	RO2: From the identified characteristics, to create themes of Third Mission activity for universities (in particular, Business Schools) and businesses (Industry) in the context of the Third Mission.
RQ3: From the themes of Third Mission activity, how may a university (in particular, a Business School) create the appropriate conditions to achieve the Third Mission?	RO3: From the themes of Third Mission activity, to develop a theoretical and practical framework for a university (in particular, a Business School) to help create the appropriate conditions to achieve the Third Mission.
RQ4: How may a university (in particular, a Business School) effectively conduct Third Mission activities with business (industry) to achieve the Third Mission?	RO4: Highlight considerations to inform decision-making/ discussion by practitioners to enhance Third Mission activity in achieving the Third Mission.
RQ5: What definitions of Third Mission and Third Mission activity will evolve in the context of the DBA to inform a theoretical framework?	RO5: Create new definitions of the Third Mission and Third Mission activity within the context of the study to inform a theoretical framework.

Table 11-1 Research Questions and Research Objectives

As per my constructivist underlying belief system (Section 3.3, p.30), I ‘*constructed*’ knowledge and new meaning from interacting with the corpus of data I synthesised

(Section 3.3.1, p.33). This construction involved the use of the CEMO framework (adapted from CIMO – Section 2.7.1, p.28) as part of the MQSLR. I explored the Third Mission Context-Exposure-Mechanisms-Outcomes (Chapter 9) from within the dataset and created a rich description of Third Mission in the UK. This has illuminated a diversity of *propositions* and *considerations* (Section 9.1, p.138) towards achieving the Third Mission.

Figure 11-1 (p.325) is used to illustrate the *complexity* (Section 2.7.1, p.28) of the *context* that Third Mission operates within. The organisation of the data via CEMO has enabled the Research Questions to be answered.

CEMO Considerations toward TM

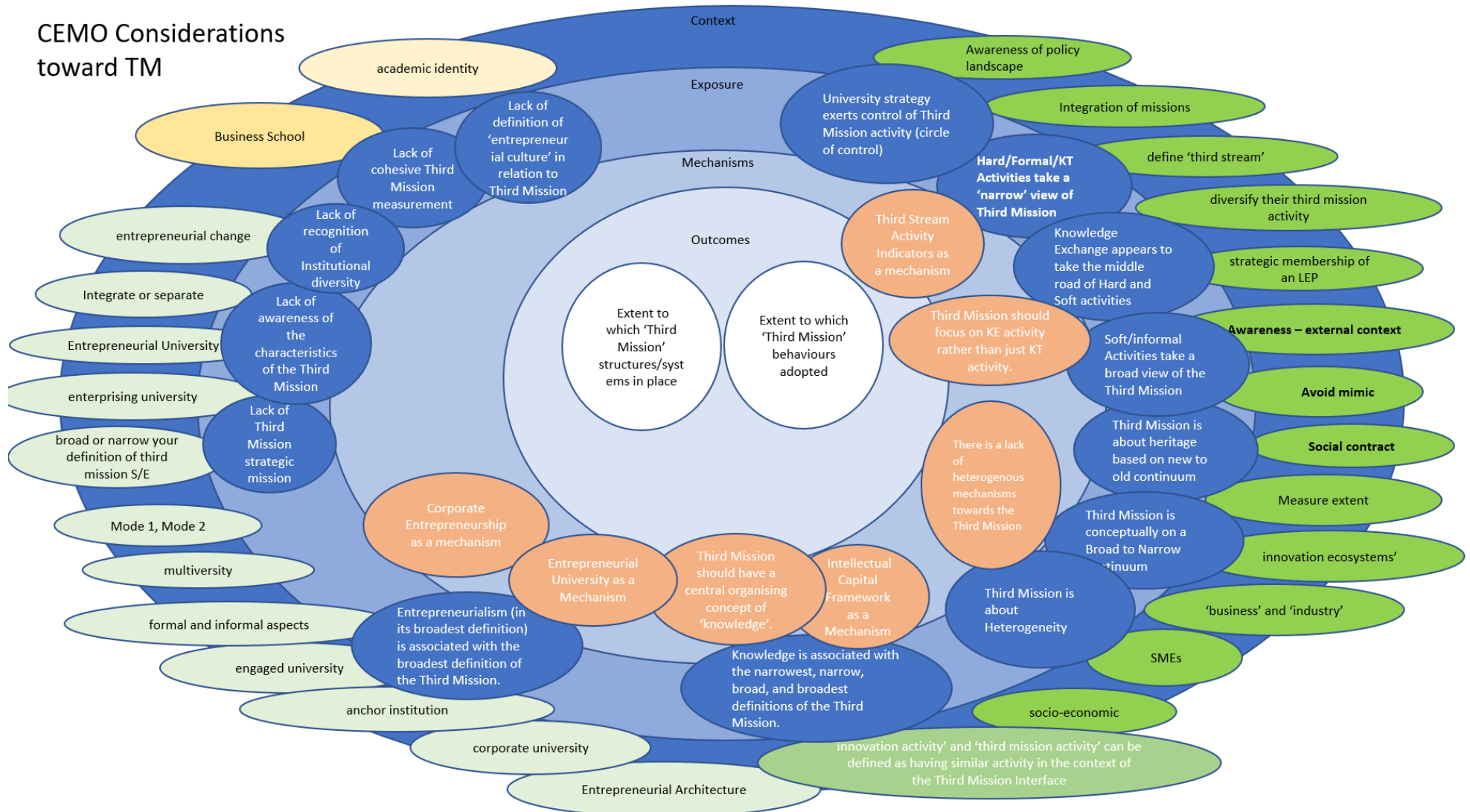


Figure 11-1 CEMO Considerations Towards Achieving the Third Mission. Source: Authors Own

11.2.1 Conclusions about RO1 and RO2

- RO1: To identify characteristics of Third Mission activity of UK universities (in particular, Business Schools) and businesses (Industry) in the context of the Third Mission in the UK.
- RO2: From the identified characteristics, to create themes of Third Mission activity for universities (in particular, Business Schools) and businesses (Industry) in the context of the Third Mission.

To meet RO1 and RO2, the *characteristics* and *themes* of Third Mission activity towards achieving the Third Mission was generated, following a MQSLR approach. A corpus of twenty-one articles was selected, based on eligibility criteria (Section 8.2.2, p.103). Using the CEMO framework (Section 2.7.1, p.28) four *Overarching Themes* contain the *Contextual* characteristics, *Exposure* characteristics, *Mechanistic* characteristics, and the *Outcome* characteristics and themes, thus achieving R01 and RO2. Each of the four themes was concluded in Section 8.8.4 (p.134) and are summarised below by theme.

11.2.1.1 Third Mission Context Characteristics and Themes

Three Third Mission *Context* themes were generated from the identified characteristics: *external*, *internal* and *interface ecosystem* contexts (Section 8.8.4.1 p.132). Table 11-2 concludes the '*external*' (to a university) Third Mission characteristics identified from the dataset. Table 11-3 concludes the '*internal*' (to a university) Third Mission characteristics identified. Table 11-4 concludes the '*interface ecosystem*' (between a university and businesses) Third Mission characteristics identified.

External Third Mission Context Themes	Third Mission Characteristics
Government drives isomorphic approach (via policies and funding) for UK universities to adopt the Third Mission	<ol style="list-style-type: none"> 1. Policy is a key external driver towards Third Mission in UK universities. 2. Third-stream funding is a key external driver towards Third Mission in UK universities. 3. Local Enterprise Partnerships have been a government tool towards the Third Mission.
Geographical diversity has shaped the Third Mission context in UK	<ol style="list-style-type: none"> 4. Global drivers shape UK Third Mission activity. 5. National driver towards a 'knowledge-intensive economy'. 6. Historical regional focus towards 'entrepreneurial' and 'engagement' activities to achieve the Third Mission. 7. Third Mission focus has shifted from regional to local since 2010.
Business Third Mission context is lacking.	<ol style="list-style-type: none"> 8. There is an absence of business drivers articulated in the data. 9. Appears to be 'Hierarchy' not a 'Helix' between government-university-business.
Socio-economic development is an agreed but underdefined external driver of Third Mission activity	<ol style="list-style-type: none"> 10. Socio-economic development is a common factor in contextualising the Third Mission.

Table 11-2 External Context Theme - External/Society Drivers Exert Control Towards UK University Third Mission

The External Context theme has shown that although Governments and the policy landscape has changed over the last decade, there continues to be a need for a university to focus on identifying their unique approach to the Third Mission.

Referring back to the Government and Policy timeline in Chapter 2 (Figure 2.2, p.20) the last 7-8 years has seen a policy shift away from the term *Third Mission* toward *Knowledge Exchange* (p.215). The Knowledge Exchange Framework (KEF) is the Governments current measurement tool for 'impact' of knowledge exchange activity. This study has clarified that *knowledge exchange activity* and *Third Mission activity*

involve the same activities and that there has been a shift in *terminology* rather than *activity*.

Having clarified that both Knowledge Exchange and Third Mission *activity* are the same activities, the study has revealed that whilst *Knowledge Exchange* is not unique to a university the Third Mission is uniquely associated to a university. The new insights offered through this thesis are valuable despite recent changes in policy contexts and government structures as they focus on what a university has *control* over. For example, whilst there continues to be ambiguity on defining ‘socio-economic’ and ‘entrepreneurial university’ in policy and literature (from a Third mission context), and a continued drive towards isomorphic measurement systems (e.g., KEF), the new Third Mission Framework enables a university to take control of their own Third Mission despite the constantly changing external context. This Third Mission Framework will contribute towards a university be ‘fit for future’ regardless of which government is elected next.

This thesis also highlights the opportunity for a university to formalise how they work with their own Business School to drive the Third Mission within their university.

Internal/University Third Mission Context Themes	Third Mission Characteristics
Organisational level – University Third Mission Type /Mode is heterogenous	1. University strategic decisions about ‘university Third Mission type’ are heterogenically defined at a strategic level, which then drives Third Mission activity at Group /Department/ School level, and Individual/Academic level.
Business School Third Mission context is lacking	2. There was very little data extracts on Business School and the Third Mission. 3. There is little evidence that Business Schools drive the university Third Mission.
Academic identity is shifting towards being commercialisable knowledge holders	4. There is no evidence, from the extracted data, that academics drive the university Third Mission activity.

Table 11-3 Internal Context – Universities React to an Underdefined Third Mission

Interface Third Mission Context Themes	Third Mission Characteristics
The Interface Ecosystem (to enable the creation of the 'appropriate conditions') to achieve the Third Mission for a university is underdefined.	<ol style="list-style-type: none"> 1. Ambiguity and fragmentation. 2. Spectrum of innovation definitions. 3. Links to Triple Helix.
There are gaps in understanding as to whether mimicking the Triple Helix approach is the answer for heterogenous Third Mission activity.	<ol style="list-style-type: none"> 4. Triple Helix definition broadening over time - Quadruple and quintuple helix?

Table 11-4 Interface Context – Interface-Ecosystem is Confusing for a University

11.2.1.2 Third Mission Exposure Characteristics and Themes

Three *Exposure* themes were generated from the identified characteristics based on ‘*university strategy*,’ ‘*Third Mission definition*,’ and ‘*lack of understanding*’ (Section 8.8.4.2, p.134). Table 11-5 concludes the Third Mission Exposure characteristics and themes, generated from dataset.

Third Mission Exposure Themes	Third Mission Characteristics
Third Mission ‘activity’ is dependent on university strategy decisions	<ol style="list-style-type: none"> 1. Hard/Formal/knowledge transfer activities take a ‘narrow’ view of Third Mission. 2. Soft/informal activities take a broad view of the Third Mission. 3. Knowledge Exchange appears to take the middle road of Hard and Soft activities. 4. University strategy exerts control of Third Mission activity (circle of control).
UK Third Mission ‘definition’ is not agreed and has broadened over time	<ol style="list-style-type: none"> 5. Third Mission is conceptually on a Broad to Narrow continuum. 6. Third Mission is about university heritage based on new to old continuum. 7. Third Mission is about Entrepreneurialism. 8. Third Mission is about Knowledge. 9. Third Mission is about Heterogeneity.
There is a lack of understanding of the factors that make up the Third Mission	<ol style="list-style-type: none"> 10. Lack of recognition of Institutional diversity. 11. Lack of awareness of the characteristics of the Third Mission. 12. Lack of Third Mission strategic mission. 13. Lack of definition of ‘entrepreneurial culture’ in relation to Third Mission. 14. Lack of cohesive Third Mission measurement.

Table 11-5 Third Mission *Exposure* Characteristics and Themes

11.2.1.3 Third Mission Mechanisms Characteristics and Themes

Three *Mechanism* themes were generated from the identified characteristics based on ‘*entrepreneurialism*,’ ‘*knowledge exploitation*,’ and ‘*lack of heterogeneity*’ (Section 8.8.4.3, p.135). Table 11-6 concludes the Third Mission mechanism characteristics and themes, generated from dataset.

Third Mission Mechanism Themes	Third Mission Characteristics
Adopt 'Entrepreneurialism' as a mechanism towards the Third Mission	<ol style="list-style-type: none"> 1. <i>Entrepreneurial University</i> as a mechanism. 2. Corporate Entrepreneurship as a mechanism.
Exploit knowledge as a mechanism towards the Third Mission	<ol style="list-style-type: none"> 3. Third Stream Activity Indicators as a mechanism. 4. Intellectual Capital Framework as a mechanism.
There is a lack of heterogenous mechanisms towards the Third Mission	<ol style="list-style-type: none"> 5. There is currently a one-size-fits-all government-led measurement mechanism (KEF).

Table 11-6 Third Mission *Mechanism* Characteristics and Themes

11.2.1.4 Third Mission Outcomes Characteristics and Themes

Two *Outcome* themes were generated from the identified characteristics based on 'structures/systems' and 'behaviours' (Section 8.8.4.3, p.135). Table 11-7 concludes the Third Mission outcome characteristics and themes, generated from dataset.

Third Mission Outcome Themes	Third Mission Characteristics
Extent to which 'Third Mission' structures/systems in place	<ol style="list-style-type: none"> 1. Systems/structures outcomes, and corresponding mechanisms to measure relate to Organisational/University level and Society/External levels. 2. No systems/structures outcomes were indicated at Individual or Group level.
Extent to which 'Third Mission' behaviours adopted	<ol style="list-style-type: none"> 3. Behaviours outcomes, and corresponding mechanisms to measure relate to Individual/academic, Organisational/university level and Society/external level (SOGI). 4. One outcome referred to Group level in conjunction with Individual level 'Faculty members conduct Third Mission activities.

Table 11-7 Third Mission *Outcome* Characteristics and Themes

11.2.2 Conclusions about RO3

RO3: From the themes of Third Mission activity, to develop a theoretical and practical framework for a university (in particular, a Business School) to help create the appropriate conditions to achieve the Third Mission.

To meet RO3 it was required that a theoretical and practical framework was developed (Chapter 10). This framework should specifically focus on Third Mission as the conceptual anchor. This framework conceptualises the Third Mission phenomenon, based on the themes generated via MQSLR, and the conclusions interpreted. Chapter 10 illustrates the new theoretical and practical framework toward the Third Mission. The '*Where are we now?*' and '*Where are we going?*' sections of the framework help towards creating the 'appropriate' conditions to achieve the Third Mission, thus achieving RO3.

11.2.3 Conclusions about RO4

RO4: Highlighted considerations to inform decision-making/ discussion by practitioners to enhance Third Mission activity in achieving the Third Mission.

To meet RO4 it was required that the theoretical and practical framework developed included considerations of '*how*' to conduct Third Mission activity. Chapter 10 illustrates how the new theoretical and practical framework can be used by a university towards achieving the Third Mission. The '*Where are we going?*' section offers a university three methods: firstly, a '*Third Mission Catalyst Conversation – Third Mission Measure's*;' secondly, '*Third Mission SOGI Measurement Matrix*' and thirdly, a '*Third Mission Transition Plan*'. (13.3.3), thus achieving RO4.

11.2.4 Conclusions about RO5

RO5: Create new definitions of the Third Mission and Third Mission activity within the context of the study to inform a theoretical framework.

11.2.4.1 Third Mission Definition

Following exploration throughout all stages of the MQSLR and capturing conclusions through each CEMO overarching theme, a new definition is proposed within the context of this study:

“The Third Mission is a university’s ‘unique’ goal to generate and use knowledge, via entrepreneurial mechanisms, to achieve socio-economic benefits”.

Given that the Third Mission relates to a ‘*university unique goal*,’ there are ‘*internal*’ context, thus ‘*heterogenous*’ caveats within the context of any given university. A university could opt to add:

- The Third Mission is integrated with teaching and research missions.
- The definition of Third Mission could be on a narrow to broad continuum.
- Third Mission should have a central organising concept of ‘*knowledge*’.
- Third Mission should focus on Knowledge Exchange activity rather than just KT activity.
- The Third Mission needs to embrace both ‘*structure/system and behaviour*’ outcomes and measures at all SOGI levels.

This definition of the Third Mission is limited to the context of this study and a note that there are many ‘*external*’ context caveats that:

- The Third Mission its whatever policy says it is, and it is constantly re-invented over time and the following terms are not fixed and evolve over time:
- Entrepreneurialism (in its broadest definition) is associated with the broadest definition of the Third Mission.
- An ‘*entrepreneurial*’ organisational culture is required to achieve the Third Mission.
 - A lack of definition of ‘*entrepreneurial culture*’ in relation to the Third Mission in the UK contributes to a continuing state of ambiguity in defining the Third Mission.
- There is an absence of shared definition of socio-economic in the context of the Third Mission in the UK.

- Knowledge Exchange appears to be an umbrella term used to describe Third Mission activity towards the Third Mission.
- Knowledge Exchange has broadened from '*technology transfer*' roots to encompass both '*hard*' and '*soft*' activities, emphasising two-way '*exchange*' rather than one-way '*transfer*' of knowledge between a university and business.

11.2.4.2 Third Mission Activity Definition

As a result of defining the Third Mission within the context of this study, Third Mission activity is also defined:

“Third Mission activity is defined as innovation activity, knowledge exchange activity, university entrepreneurship activity and third-stream activity, and includes formal/hard/knowledge transfer activities as well as informal/soft/tacit activities towards socio-economic benefits”.

As with the Third Mission definition, there are '*external*' context caveats that:

- '*Soft/informal*' characteristics comes under the '*broader definition*' of Third Mission.
- '*Hard*' activities are defined under the '*Narrow and limited view*' of the Third Mission, driven by easy to quantify metrics, through tangible activity.
- '*Knowledge transfer,*' '*hard*' and '*formal*' activities are associated firstly within a '*commercialisation of science and technology*' focus and secondly, with '*tangible/explicit/quantitative*' measurement.
- '*Informal*' and '*soft*' activities are associated with a '*business and management*' focus and with '*tacit/intangible/qualitative*' measurement.
- Third Mission activity is about economic performance through '*formal*' mechanisms however it is also about '*informal*' mechanisms to commercialise research/knowledge.

The above definitions of Third Mission and Third Mission activity achieves RO5.

11.3 Contribution to Research

The value of the contribution to research is split between contribution to theory and contribution to practice. I have built a Third Mission Framework to help any university in the UK consider their own unique Third Mission, rather than adopt a one-size fits all approach and give them the tools to do it. In doing so I hope that a university will formalise how they work with their Business School to drive a new culture that integrates their Third Mission with their First Mission (teach) and Second Mission (research). Section 11.3.1 highlights the value of the contribution to theory. Section 11.3.2 highlights the value of the contribution to practice.

This study provides new knowledge towards the phenomenon called the Third Mission. The main knowledge contributions of this research are:

- The development of a new theoretical and practical framework towards achieving the Third Mission.
- New definitions for Third Mission and Third Mission activity within the study context.

11.3.1 Contribution to Theory

Theoretical and Practical Framework towards achieving the Third Mission

A key deliverable of this study has been a framework that provides a *heterogenous* and *multi-level* approach to achieving the Third Mission.

This framework has been informed by using a *hybrid* of CIMO (CEMO) and SOGI to provide a systematic approach. A Qualitative Systematic Literature Review enabled purposive sampling (Section 7.3.1, p.91), however, the consideration of CEMO (Section 2.7.1, p.28) and SOGI (Section 2.7.2, p.29) led me to a Modified Qualitative Systematic Literature Review approach. The resultant framework is therefore considered as new knowledge.

Business School structuring and operation of commercial activity

A key gap identified in the scoping search and dataset was a lack of reference specifically to Business Schools. This framework provides a theoretical and practical

approach for a Business School to build ‘awareness’ of the Third Mission context, build definitions of Third Mission and Third Mission activity, decide on mechanisms, define goals, and build both metrics systems and transition plans. Therefore, the knowledge on how a Business School can conduct Third Mission activity is considered an extension of knowledge.

Transferring Tacit Knowledge

Very limited research existed in the dataset on tacit knowledge. This framework provides a theoretical and practical approach for tacit knowledge exchange by introducing the concept of measuring a ‘return on expectations’ with the Third Mission context. Therefore, the return on expectations for measuring tacit knowledge within a Third Mission context is considered an extension of knowledge.

This study also provided methodological knowledge contributions with regards to the use of the MQLR (Section 5.4, p.55) with Total Quality Framework (Section 7, p.83), CEMO (Chapter 9, p,133) and SOGI (Section 9,5, 268 and Section 10.2, p278) in the context of the Third Mission. Table 11-8 summarises the methodological contributions from this study.

Contribution	Example
MSQLR	No literature review existed in which the literature was reviewed following a bespoke ‘modified qualitative systematic literature review’ (MQLR). Therefore, the MQLR approach is considered as new knowledge. This methodology incorporated Braun and Clark (Thematic Analysis) and Roller and Lavrakas (Total Quality Framework). This is considered as an extension to knowledge.
CEMO	CEMO has not been used as a ‘hybrid’ framework (advanced from CIMO) as part of an MQLR, in research within the context of achieving the Third Mission before. Therefore, knowledge on CEMO in this context is considered an extension of knowledge.
SOGI	SOGI has not been used to articulate the Third Mission as a multi-level phenomenon, as part of an MQLR, in research within the context of achieving the Third Mission before. Therefore, knowledge on SOGI in this context is considered an extension of knowledge.
Total Quality Framework	A mitigation to boost perceptions of ‘quality’ in an MQLR was the inclusion of the Roller and Lavrakas Total Quality Framework (2015). It was used to help towards ‘methodological accuracy’ and enabled an ‘audit trail’ of decisions made. The Total Quality Framework has not been used in the context of a Third Mission MQLR before and is considered as an extension of knowledge.

Analysis and Synthesis	The data synthesis methodology had a dedicated chapter (Chapter 6). I adopted both a 'thematic analysis' and 'meta-synthesis' approach and used 'triangulation' (Section 7.4, p.94) of data extracts as 'indicators' towards findings. This was purposeful, to boost the likelihood (not guarantee) of 'completeness and accuracy' of the analysis and interpretation. This enabled the adoption of Tranfield, Denyer and Smart approach on data synthesis (2003), to align synthesis and analysis as an integrated and iterative (Section 5.4.1, p.56) phase of the research methodology. Using both Thematic Analysis and Data Synthesis in the MQSLR is considered an extension of knowledge.
Re-interpret current knowledge to create new contextualised meaning	This study aimed to combine disparate concepts in new ways to create a new understanding of the 'Third Mission' in a specific context, that can provide new insight to other practitioners researching or practising in this context. The re-interpretation is considered as new knowledge.

Table 11-8 Methodological Contribution

With this study, the identified gaps in the literature, which led to the Research Questions and ROs were closed.

11.3.2 Contribution to Practice

This professional doctorate contributes knowledge to practice, by aiming to increase the '*likelihood of doing something of value with the outcomes*' (Section 7.6, p.97) of the study in practice. This study has contributed to practice by offering a new practical framework for a university (for use with their Business School) to:

- Assess/Check where they are now in terms of their Third Mission practice.
- Define the Third Mission within their own unique context.
- Set goals for their own bespoke Third Mission.
- Build a plan of how to put this into practice so that the Third Mission is embedded within the habits of a University and their Business School.

This links back to Chapter 7, to the Total Quality Framework, where '*usefulness*' tactics were considered and incorporated into the study approach. Usefulness tactics for this study focussed on '*advancing the state of knowledge via new insights*' by re-interpreting current knowledge (from a corpus of twenty-one articles) to create new contextualised meaning of the Third Mission. The study has highlighted the

emergence of new '*propositions*' which in turn can inform new research questions (Chapter 9).

There has been a focus on meaning not numbers (Section 7.6, p.97), and there is no assumption that the same interpretation would be generated by another researcher. The framework is designed to be tailorable, thus offering flexibility for any university. A reader can assess their own perception of this study's re-interpretation (and resultant framework) and use this to challenge or support the findings in relation to their own context. This in itself would be a contribution to practice as the trial of the new framework, in practice, would lead to '*lessons learned*', which would then further contribute to practice.

Also, to contribute to practice, this study has aimed to be '*transferable*' – "*the extent to which the documentation discloses its strengths and limitations*" (Section 7.5, p.96) therefore limitations are concluded in Section 11.4 (p.314).

Also, to contribute to practice this study has aimed to provide '*applicability*' – "*application of outcomes in other contexts*" (Section 7.5, p.96). The study has identified knowledge gaps and proposed a new practical framework (Chapter 10). Recommendations for action that are worthy of further investigation are concluded in Section 11.5 (p.315).

The benefits of this framework firstly, can help universities react to the recent policy shift towards the introduction of the Knowledge Exchange Framework (KEF). This is a policy-led framework that is emergent in the dataset, and thus not well represented in the data extracts.

Secondly, the data suggested the *outcomes* may vary for each university in the UK, dependent on their heterogenous approach. For example:

- A '*do nothing approach*' is to continue to operate with no change.
- A '*do minimum approach*' for a university would be to adopt symbolic implementation towards the Third Mission. This was introduced by Molas-Gallart and Castrino-Martinez (2007) who suggested where '*words are written*'

(in strategies) but not connected to '*action*' then there will be no change in behaviour within universities.

- A '*do something approach*' is to mimic implementation. This suggested a university is committed to Third Mission but opt for imitating an existing approach e.g., the Triple Helix framework.
- A '*do everything approach*' is still being defined in the dataset. For example, integration of missions is immature in the literature as is the consideration of social aspects. This leads into the limitations of the study:

11.4 Limitations of Study

Limitations were highlighted throughout each chapter of the study. The top four are summarised below.

Modified Qualitative Systematic Literature Review Limitations

Limitations and the mitigations of the Modified Qualitative Systematic Literature Review were addressed in Section 5.4.3 (p.61) prior to using the approach and in Section 10.4 (p.317) afterwards. The fit of data (Being secondary data), limited the availability of data specifically towards this study Research Questions. I did not do a double extraction process due to time constraints and independent assessor availability (Section 8.7.3, p.20). Due to the limited dataset no claims of generalisability can be made. Specific limitations of using meta-synthesis and thematic analysis methods as part of the Modified Qualitative Systematic Literature Review were addressed in Section 5.4.3 (p.61) and Section 6.3.2.2 (p.80).

Network of Interest Limitations

The network of Interest (Section 5.5, p.64) was a hybrid approach of Review Panel and Community of Practice. The network had the limitations of only a few people staying in the network for the whole DBA journey. During Covid lockdown I had less access to some members of the network.

Measurement limitations

Secundo et al. (2017) pointed out the limitations and complexity of trying to measure 'informal' Third Mission activities. The study indicates that existing mechanisms to measure Third Mission activity are skewed towards quantitative. Overall, there remains a lack of tacit measurement mechanisms.

Broader European Context

Broader challenges from the dataset are still to be answered, e.g., European:

“More research to better define indicators and measure them across time is still needed for a strategic management of Third Mission activities and to place universities at the core of regional development. Future research lines would also need to implement exercises to categorize, map and benchmark Third Mission activities of universities across Europe.” (Secundo et al., 2017, p.238)

11.5 Implications for Future Research

The final step of the Modified Qualitative Systematic Literature Review is to make recommendations for future study as actionable next steps. The top three recommendations are stated below, and other recommendations are in Appendix O.

11.5.1 Explore Grey Material

Discussion with the Network of Interest (Section 5.5, p.64) led to the collection of supplementary grey material through search of websites that could be used in future research (Section 8.2.3, p.106). This would add new perspectives to the rich picture formed in this thesis, which has focussed on peer-reviewed articles.

11.5.2 Explore defining the Third Mission on a Continuum

From the analysis of the data extracts, 'technology transfer' is associated with the narrowest definition of the Third Mission. Narrow definitions are associated with 'knowledge transfer' (Section Exposure Theme 1a, p.207) and 'triple helix'. The broadest definition is associated with 'anything that is not teaching and research' and 'social engagement.'

Broad definitions include *Knowledge Exchange* (Section Exposure Theme 1c, p.215), *knowledge commercialisation* and *economic development*.

A larger study of mapping definitions of the Third Mission onto a continuum of 'broadest, broad, narrow, narrowest' could aid in further clarification of defining the Third Mission. This is a recommendation for future study (Section Exposure Theme 2a, p.220).

15.5.3 Explore the relationship between the Knowledge Exchange Framework and Third Mission

There is a lack of data in the corpus of articles with regards to the Knowledge Exchange Framework. Further study from a broader set of sources is required to understand this further in relation to Third Mission activity (Section Exposure Theme 1c, p.215).

11.6 Reflections – Methodological Approach

The research questions were able to be answered through the methodology adopted, enabling me to navigate a large volume of secondary data in selected peer-reviewed articles, that were created for another purpose than answering my research questions. This was enabled through the systematic approach adopted with key decisions being made at each step of the process, some examples are offered in the sections below.

11.6.1 Research Philosophy

My paradigm involved consideration of ontology, epistemology, and methodology in a tripartite linkage (Table 3-1, p.29) where my underlying belief system is constructivist (Section 3.1, p.33). I believe knowledge is constructed socially (Section 3.3.1, p.33).

11.6.2 Research Strategy

The purpose of this study has been exploratory (Section 4.2. p.43) leading to a rich description of Third Mission (Chapter 9). The research strategy has been qualitative, which aligns with an inductive research approach and a constructivist philosophy. Selecting the right type of qualitative research strategy has been challenging as none completely aligned to the research questions.

11.6.3 Research Methodology

The Modified Qualitative Systematic Literature Review approach supported a retrospective literature review-based approach of published academic papers. I was able to build a replicable structure into my research methodology and explore the existing theory on topic in a systematic way. A Network of Interest (Section 5.5, p.64) was utilised instead of a Review Panel. The Time horizon was cross-sectional Section 5.6 (p.66).

11.6.4 Data Synthesis Methodology

The Modified Qualitative Systematic Literature Review *Data Synthesis Phase* used a mix of analysis (to break apart) and synthesis (to build a new interpretation) of data, based on requirements of the Research Questions.

The Thematic Analysis six-step framework (Braun & Clarke, 2013) provided clear process to the analyse the data. Meta-synthesis provided an interpretive approach to synthesising the data. The systematic process was transparent. The flexibility of the process enabled inductive exploration of the data. NVIVO accelerated the speed of data processing.

11.6.5 Total Quality Framework

Research '*Credibility*' (Section 7.3, p.89), was enhanced by adopting scoping and data gathering tactics to boost the completeness and accuracy of the data whilst conducting the Modified Qualitative Systematic Literature Review. Research '*Analysability*' (Section 7.4, p.94), was enhanced by adopting process and verification tactics to boost the completeness and accuracy of the analysis and interpretations. Research '*Transparency*' (Section 7.5, p.96) was enhanced by adopting applicability and transferability tactics to boost the completeness and disclosure in reporting. Research – '*Usefulness*' (Section 7.6, p.97) was enhanced by adopting actionable insights tactics to join the concepts together to translate into something that has '*value*' for advancing the state of knowledge, within this context.

11.6.6 Conducting the Modified Qualitative Systematic Literature Review

The Braun and Clark Thematic Analysis 6-steps approach has enhanced the Modified Qualitative Systematic Literature Review by incorporating a systematic and

repeatable approach firstly, into the *Data Extraction and Monitoring Phase* and secondly, into the *Data Synthesis Phase*. The use of the CEMO framework has been successful in aiding the management of the scale, complexity, and diversity of the data. NVIVO has been an essential tool to explore the corpus of data and generate themes. It is noted that although the Modified Qualitative Systematic Literature Review framework provides clear stages, in practice there is iteration between data synthesis and reporting.

In summary the new Third Mission theoretical and practical framework has been achieved as a result of exploring peer-reviewed literature to generate a new perspective on how a university may achieve their Third mission.

References

- Adonis Review. (2014). *Mending the fractured economy: Smarter state, better jobs. The Adonis Review*. London: Policy Network. Retrieved from <https://policynetwork.progressivebritain.org/publications/papers/mending-the-fractured-economy-adonis-review>
- Ankrah, S., & Al-Tabbaa, O. (2015). Universities-industry collaboration: a systematic review. *Scandinavian Journal of Management*, 31(3), 387-408. <https://doi.org/sci-hub.se/10.1016/j.scaman.2015.02.003>
- Augar Report. (2019). *Post-18 review of education and funding: independent panel report*. Department for Education. Retrieved from <https://www.gov.uk/government/publications/post-18-review-of-education-and-funding-independent-panel-report>
- Bazely, P. (2021). *Qualitative data analysis - practical strategies*. London: Sage.
- BEIS. (2017). *Green paper: building our industrial strategy*. Department for Business, Energy & Industrial Strategy. Retrieved from www.gov.uk/government/consultations/building-our-industrial-strategy
- BEIS. (2021). *UK innovation strategy: leading the future by creating it*. Department for Business, Energy and Industrial Strategy. Retrieved from <https://www.gov.uk/government/publications/uk-innovation-strategy-leading-the-future-by-creating-it>
- BEIS. (2022). *About us*. Department for Business, Energy & Industrial Strategy. Retrieved from www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy/about
- BIS. (2010). *Local growth: realising every place's potential*. Department for Business, Innovation and Skills. Retrieved from <https://www.gov.uk/government/publications/local-growth-realising-every-places-potential-hc-7961>
- BIS. (2012). *Following up the Wilson review of business-university collaboration*. Department for Business, Innovation & Skills. Retrieved from www.gov.uk/government/publications/business-university-collaboration-government-response-to-the-wilson-review
- BIS. (2015a). *Business university collaboration: government response to BIS select committee. Government response to the BIS Committee seventh report on business-university collaboration in science and innovation*. Department for Business, Innovation & Skills. Retrieved from www.gov.uk/government/publications/business-university-collaboration-government-response-to-bis-select-committee

- BISC. (2014). *Business, Innovation and Skills Committee - seventh report. Business-university collaboration*. Business, Innovation and Skills Committee. Retrieved from publications.parliament.uk/pa/cm201415/cmselect/cmbis/249/249.pdf
- Booth, A., Sutton, A., & Papaioannou, D. (2016). *Systematic approaches to a successful literature review* (2nd ed.). London: Sage.
- Braun, V., & Clarke, V. (2013). *Successful qualitative research*. London: Sage.
- Briner, R. B., & Denyer, D. (2012). Systematic review and evidence synthesis as a practice and scholarship tool. In: Rousseau, D.M., Ed., *Handbook of evidence-based management: Companies, classrooms and research*, Oxford University Press, Oxford, 112-129.
<https://doi.org/10.1093/oxfordhb/9780199763986.013.0007>
- Browne Report. (2010). *The Browne report: higher education funding and student finance*. Department for Business, innovation and Skills. Retrieved from <https://www.gov.uk/government/publications/the-browne-report-higher-education-funding-and-student-finance>
- Bryman, A., & Bell, E. (2011). *Business research methods*. (3rd ed.). Oxford: Oxford University Press.
- Bryman, A., & Bell, E. (2015). *Business research methods* (4th ed.): Oxford University Press.
- Buetow, S. (2010). Thematic analysis and its reconceptualization as “saliency analysis”. *Journal of Health Services Research & Policy*, 15, 123-125.
<https://doi.org/10.1258/jhsrp.2009.009081>
- Cabinet Office. (1993). *Realising our potential: a strategy for science, engineering and technology*. Retrieved from <https://www.gov.uk/government/publications/realising-our-potential-a-strategy-for-science-engineering-and-technology>
- CABS. (2015). *The Impact of Business School Research: Economic and Social Benefits*. Chartered Association of Business Schools. Retrieved from cabs-199e2.kxcdn.com/wp-content/uploads/2015/03/Chartered-ABS-Impact-Case-Studies-Publication-2015.pdf
- CABS. (2022). *About us*. Chartered Association of Business Schools. Retrieved from charteredabs.org/about-us/
- Carrion García, A., Carot, J., Soeiro, A., Hämmäläinen, K., Boffo, S., Pausits, A., & Padfield, C. (2012). *Fostering and measuring 'third mission' in higher education institutions*. Retrieved from www.researchgate.net/publication/308745768_Green_Paper_Fostering_and_Measuring_Third_Mission_in_Higher_Education_Institutions
- Compagnucci, L., & Spigarelli, F. (2020). The third mission of the university: a systematic literature review on potentials and constraints. *Technological*

Forecasting & Social Change, 161, 120284.
<https://doi.org/sciencegate.app/document/10.1016/j.techfore.2020.120284>

- Charles, D., Kitagawa, F., & Uyarra, E. (2014). Universities in crisis?: new challenges and strategies in two English city-regions. *Cambridge Journal of Regions, Economy, and Society*, 7(2), 327-348. ISSN 1752-1378.
<http://dx.doi.org/10.1093/cjres/rst029>
- Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: techniques and procedures for developing Grounded Theory* (4th ed.): Sage.
- Creswell, J. (2007). *Educational research: planning, conducting, and evaluating quantitative and qualitative research: International Edition* (3rd ed.): Pearson International.
- Creswell, J. W. (2009). *Research design: qualitative, quantitative, and mixed methods approaches*: Sage.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design - qualitative, quantitative, and mixed methods approaches* (5th ed.). Los Angeles: Sage.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design* (4th ed.). London: Sage.
- Crotty, M. (1998). *The foundations of social research: meaning and perspective in the research process*. Thousand Oaks, CA: Sage.
- Dearing Review. (1997). *Higher education in the learning society*. The National Committee of Enquiry into Higher Education. Retrieved from www.educationengland.org.uk/documents/dearing1997/dearing1997.html
- Degl'Innocenti, M., Matousek, R., & Tzeremes, N. G. (2019). The interconnections of academic research and universities "third mission": evidence from the UK. *Research Policy*, 48(9). <https://doi.org/10.1016/j.respol.2019.05.002>
- Denyer, D., Tranfield, D., & Van Aken, J. (2008). Developing design propositions through research synthesis. *Organisational Studies*, 29, 393–413.
<http://dx.doi.org/10.1177/0170840607088020>
- DfEE. (1999). *Learning To Succeed: A New Framework for Post-16 Learning. Presented to Parliament by the Secretary of State of Education and Employment by Command of Her Majesty*. Department for Education and Employment. London (England). Retrieved from http://www.dfee.gov.uk/post16/pu_white_index.shtml.
- DfE. (2021). *Skills for jobs: lifelong learning for opportunity and growth*. Department for Education. Retrieved from <https://www.gov.uk/government/publications/skills-for-jobs-lifelong-learning-for-opportunity-and-growth>
- DfE. (2022a). *About us*. Department for Education. Retrieved from www.gov.uk/government/organisations/department-for-education/about

- DfE. (2022b). *Higher education policy statement and reform*. Department for Education. Retrieved from <https://www.gov.uk/government/consultations/higher-education-policy-statement-and-reform>
- Dowling Review (2015). *Linking business needs with research capability - terms of reference*. Retrieved from assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/440927/bis_15_352_The_dowling_review_of_business-university_research_collaborations_2.pdf
- DIUS. (2008). *Innovation Nation*. Department for Innovation, Universities & Skills. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/238751/7345.pdf
- Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review*, 32(4), 1155–1179. <https://doi.org/10.5465/amr.2007.26586086>
- Go-Science. (2021) *Rebuilding a resilient Britain: Evidence gaps and knowledge exchange*. Government Office for Science. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/964763/Evidence_gaps_and_next_steps_Rebuilding_a_Resilient_Britain.pdf
- Guba, E., & Lincoln, Y. (1994). *Competing paradigms in qualitative research*. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*: Sage.
- Freel, M., Persaud, A., & Chamberlin, T. (2019). Faculty ideals and universities' third mission. *Technological Forecasting and Social Change*, 147, 10-21. <https://doi.org/10.1016/j.techfore.2019.06.019>
- Hammersley, M. (2020). *Reflections on the Methodological Approach of Systematic Reviews*. In: Zawacki-Richter, O., Kerres, M., Bedenlier, S., Bond, M., Buntins, K. (eds) *Systematic Reviews in Educational Research*. Springer VS, Wiesbaden. https://doi.org/10.1007/978-3-658-27602-7_2
- Hart, C. (2013). *Doing a literature review - releasing the social science research imagination*. London: Sage.
- Hatch, J. A. (2002). *Doing qualitative research in education settings*. Albany: State University of New York Press.
- HM Treasury. (2021). *Build back better: our plan for growth*. HM Treasury. Retrieved from <https://www.gov.uk/government/publications/build-back-better-our-plan-for-growth/build-back-better-our-plan-for-growth-html>
- Howell, K. E. (2013). *An introduction to the philosophy of methodology*: Sage.

- IPO. (2016a). *University and business collaboration agreements: Lambert Toolkit*: Intellectual Property Office. Retrieved from www.gov.uk/guidance/university-and-business-collaboration-agreements-lambert-toolkit
- IPO. (2016b). *University and business collaboration agreements: model agreement guidance*: Intellectual Property Office. Retrieved from www.gov.uk/government/publications/university-and-business-collaboration-agreements-model-agreement-guidance
- IPO. (2016c). *University and business collaboration agreements: model research collaboration agreements*. Intellectual Property Office. Retrieved from www.gov.uk/government/publications/university-and-business-collaboration-agreements-model-research-collaboration-agreements
- IPO. (2016d). *University and business collaboration agreements: decision guide*. Intellectual Property Office. Retrieved from www.gov.uk/government/publications/university-and-business-collaboration-agreements-decision-guide
- IPO. (2016e). *University and business collaboration agreements: model consortium agreements*. Intellectual Property Office. Retrieved from www.gov.uk/government/publications/university-and-business-collaboration-agreements-model-consortium-agreements
- IPO. (2016f). *University and business collaboration agreements: model heads of terms agreements*. Intellectual Property Office. Retrieved from www.gov.uk/government/publications/university-and-business-collaboration-agreements-model-heads-of-terms-agreements
- Jackson, K., & Bazely, P. (2019). *Qualitative data analysis with NVIVO* (3rd ed.): Sage.
- Kitagawa, F., Sánchez-Barrioluengo, M., & Uyarra, E. (2016). Third mission as institutional strategies: between isomorphic forces and heterogeneous pathways. *Science and Public Policy*, 43 (6), 736-750
<https://doi.org/10.1093/scipol/scw015>
- KMO. (2022). *Knowledge Networks*. Knowledge Management Online. Retrieved from www.knowledge-management-online.com/KnowledgeNetworks.html
- Kochenkova, A., Grimaldi, R., & Munari, F. (2016). Public policy measures in support of knowledge transfer activities: a review of academic literature. *The Journal of Technology Transfer*, 41(3), 407-429. <https://doi.org/10.1007/s10961-015-9416-9>
- Kuhn, T. S. (1962). *The structure of scientific revolutions*: University of Chicago press.

- Lambert Review. (2003). *Lambert review of business-university collaboration: final report*. Retrieved from www.ncub.co.uk/wp-content/uploads/2003/12/Lambert-Review.pdf
- Lave, J., & Wenger, E. (1991). *Situated learning: legitimate peripheral participation*. New York: Cambridge University Press.
- LeCompte, M. D., & Goetz, J. P. (1982). Problems of reliability and validity in ethnographic research. *Review of Educational Research*, 52, 31-60. <https://doi.org/10.3102/00346543052001031>
- Le Compte, M. D., & Schensul, J. (1999). *Analyzing and interpreting ethnographic data*. Walnut Creek, CA: Altamira Press.
- Lee, N., Langthorn, H., & Huang, C. (2019). *The case for iteration in qualitative research design*. Retrieved from medium.com/idinsight-blog/the-case-for-iteration-in-qualitative-research-design-e07ed1314756
- LEP. (2013). *Local Enterprise Partnership Map*. Local Enterprise Partnership. Retrieved from www.gov.uk/government/publications/local-enterprise-partnerships-map#full-publication-update-history
- Leitch Review. (2006). *Leitch review of skills - Prosperity for all in the global economy - world class skills: final report*. Retrieved from <https://www.gov.uk/government/publications/prosperity-for-all-in-the-global-economy-world-class-skills-final-report>
- Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.
- Lincoln, Y., & Guba, E. (2000). *Paradigmatic controversies, contradictions, and emerging confluences*. In N. K. Denzin, & Y. S. Lincoln (Eds.), (2nd ed.): Thousand Oaks, CA: Sage.
- Marshall, C., & Rossman, G. (2006). *Designing qualitative research* (4th ed.). Thousand Oaks, CA: Sage.
- Marshall, C., & Rossman, G. (2021). *Designing qualitative research* (7th ed.): Sage.
- Martin, B.R. (2012). Are universities and university research under threat? Towards an evolutionary model of university speciation. *Cambridge Journal of Economics*, 36(3), 543-565. <http://dx.doi.org/10.1093/cje/bes006>
- Martin, L., & Turner, P. (2010). Entrepreneurial universities - the key ingredient in the recipe for UK innovation? Realities of working in business engagement roles in academia. *International Journal of Entrepreneurship and Innovation*, 11(4), 273. <https://doi.org/10.5367/ijei.2010.0004>
- Martin, L., Warren-Smith, I., & Lord, G. (2019). Entrepreneurial architecture in UK universities: still a work in progress? *International Journal of Entrepreneurial Behaviour & Research*, 25(2), 281-297. <https://doi.org/10.1108/IJEER-01-2017-0047>

- Maxwell, J. (2012). *Qualitative research design: an interactive approach (Applied Social Research Methods)* (3rd ed.). London: Sage.
- McKenzie, J., & Brennan, S. (2019). Chapter 12 - Synthesising and presenting findings using other methods. In *Cochrane Handbook for Systematic Reviews of Interventions*. Retrieved from <https://training.cochrane.org/handbook/current/chapter-12>
- Molas-Gallart, J., & Castro-Martínez, E. (2007). *Ambiguity and conflict in the development of 'Third Mission' indicators*. *Research Evaluation*, 16(4), 321–330. <https://doi.org/10.3152/095820207x263592>
- Morgan, D.L. (2007). Paradigms lost and pragmatism regained. Implications of Combining Qualitative and Quantitative Methods. *Journal of Mixed Methods Research*, 1(1), 48–76. <https://doi.org/10.1177/2345678906292462>
- Morse, J.M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*. 1(2), 13-22. <https://doi.org/10.1177/160940690200100202>
- NCUB. (2014). *NCUB state of the relationship report 2014*. National Centre for Universities and Business. Retrieved from www.ncub.co.uk/wp-content/uploads/2014/04/NCUB-State-of-the-Relationship-2014.pdf
- NCUB. (2015). *NCUB state of the relationship report 2015*. National Centre for Universities and Business. Retrieved from www.ncub.co.uk/wp-content/uploads/2015/05/state-of-the-relationship-report-2015-WEB-v2-reduced194.pdf
- NCUB. (2016). *NCUB The Changing state of Knowledge Exchange in the UK*. National Centre for Universities and Business. Retrieved from www.ncub.co.uk/insight/national-survey-of-academics/ncub-the-changing-state-of-knowledge-exchange-feb16-web/
- NCUB. (2017). *NCUB state of the relationship report 2017*. National Centre for Universities and Business. Retrieved from www.ncub.co.uk/wp-content/uploads/2017/05/State-of-the-Relationship-2017-1186.pdf
- NCUB. (2018). *NCUB state of the relationship report 2018*. National Centre for Universities and Business. Retrieved from www.ncub.co.uk/insight/state-of-the-relationship-report-2018/
- NCUB. (2019). *NCUB state of the relationship report 2019*. National Centre for Universities and Business. Retrieved from www.ncub.co.uk/wp-content/uploads/2019/06/State-of-the-Relationship-Report-2019.pdf

- NCUB. (2020). *NCUB state of the relationship report 2020*. National Centre for Universities and Business. Retrieved from www.ncub.co.uk/wp-content/uploads/2020/12/NCUB-State-of-the-Relationship-Report-2020-DIGITAL.pdf
- Nelles, J., & Vorley, T. (2010a). Constructing an entrepreneurial architecture: an emergent framework for studying the contemporary university beyond the entrepreneurial turn. *Innovative Higher Education*, 35(3), 161-176. <https://doi.org/10.1007/s10755-009-9130-3>
- Nelles, J., & Vorley, T. (2010b). From policy to practice: engaging and embedding the third mission in contemporary universities. *The International Journal of Sociology and Social Policy*, 30(7/8), 341-353. <https://doi.org/10.1108/01443331011060706>
- OED. (2022). *Oxford English Dictionary*. Retrieved from languages.oup.com/dictionaries/
- Onwuegbuzie, A.J., Johnson, R.B., & Collins, K.M. (2009). A call for mixed analysis: A philosophical framework for combining qualitative and quantitative approaches. *International Journal of Multiple Research Methods*, 3, 114–139. <https://doi.org/10.5172/mra.3.2.114>
- Open Learn. (2022). *Understanding the environment: thinking styles and models*. Retrieved from www.open.edu/openlearn/nature-environment/environmental-studies/understanding-the-environment-thinking-styles-and-models/content-section-0/?printable=1
- OU. (2022). *Postgraduate study skills*. Open University. Retrieved from www.help.open.ac.uk
- Patton, M. (2015). *Qualitative research and evaluation methods*: Sage.
- Perkmann, M., Salandra, R., Tartari, V., McKelvey, M., & Hughes, A. (2021). Academic engagement: a review of the literature 2011-2019. *Research Policy*, 50(1). <https://doi.org/10.1016/j.respol.2020.104114>
- Perkmann, M., Tartari, V., McKelvey, M., Autio, E., Broström, A., D'Este, P., & Sobrero, M. (2013). Academic engagement and commercialisation: a review of the literature on university-industry relations. *Research Policy*, 42(2), 423-442. <https://doi.org/10.1016/j.respol.2012.09.007>
- Pittaway, L., & Cope, J. (2007). Entrepreneurship education—a systematic review of the evidence. *International Small Business Journal*, 25, 477-506. <https://doi.org/10.1177/0266242607080656>
- Prince, C., & Beaver, G. (2004). Commercial and corporate activities of new university business schools: a critical review. *Industry and Higher Education*, 18(4), 217-225. <https://doi.org/10.5367/0000000041667547>

- Pugh, R. (2017). Universities and economic development in lagging regions: 'triple helix' policy in Wales. *Regional Studies*, 51(7), 982-993.
<https://doi.org/10.1080/00343404.2016.1171306>
- Pugh, R., Hamilton, E., Jack, S.L., & Gibbons, A. (2016). A step into the unknown: universities and the governance of regional economic development. *European Planning Studies*, 24(7) 1357 - 1373.
<https://doi.org/10.1080/09654313.2016.1173201>
- Pugh, R., Lamine, W., Jack, S., & Hamilton, E. (2018). The entrepreneurial university and the region: what role for entrepreneurship departments? *European Planning Studies*, 26(9), 1835-1855.
<https://doi.org/10.1080/09654313.2018.1447551>
- Purssell, E., & McCrae, N. (2020). *How to perform a systematic literature review: a guide for healthcare researchers, practitioners, and students*. London: Springer.
- Ridley, D. (2012). *The literature review: a step-by-step guide for students*: Sage.
- Robson, C. (2011). *Real world research: a resource for users of social research methods in applied settings* (3rd ed.). Chichester, West Sussex, UK: John Wiley and Sons Ltd.
- Roller, M. R., & Lavrakas, P. J. (2015). *Applied qualitative research design - a total quality framework approach*. New York: The Guildford Press.
- Sainsbury Review. (2008). *Implementing "The Race to the Top" Lord Sainsbury's Review of Government's Science and Innovation Policies*. Department for Innovation, Universities and Skills. Retrieved from
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/243607/9780108507175.pdf
- Sánchez-Barrioluengo, M., & Benneworth, P. (2019). Is the entrepreneurial university also regionally engaged? Analysing the influence of university's structural configuration on third mission performance. *Technological Forecasting and Social Change*, 141, 206. <https://doi.org/10.1016/j.techfore.2018.10.017>
- Sánchez-Barrioluengo, M., Uyarra, E., & Kitagawa, F. (2019). Understanding the evolution of the entrepreneurial university. The case of English higher education institutions. *Higher Education Quarterly*, 73(4), 469-495.
<https://doi.org/10.1111/hequ.12230>
- Sandelowski, M., Docherty, S., & Emden, C. (1997). Qualitative Metasynthesis: issues and techniques. *Research in Nursing and Health*, 20, 65-371.
[https://doi.org/10.1002/\(SICI\)1098-240X\(199708\)20:4<365::AID-NUR9>3.0.CO;2-E](https://doi.org/10.1002/(SICI)1098-240X(199708)20:4<365::AID-NUR9>3.0.CO;2-E)
- Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research methods for business students*. (4th ed.). Edinburgh Gate, Harlow: Prentice Hall.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. (5th ed.). New York: Pearson.

- SBC. (2022). *The Small Business Charter*. Retrieved from [chartereddabs.org/small-business-charter/](https://www.chartereddabs.org/small-business-charter/)
- Schmuecker, K., & Cook, W. (2012). *Beyond bricks and mortar boards*. Retrieved from www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2012/beyond-bricks-and-mortar-boards.pdf
- Secundo, G., Perez, S.E., Martinaitis, Ž., & Leitner, K. (2017). An intellectual capital framework to measure universities' third mission activities. *Technological Forecasting and Social Change*, 123, 229-239. <https://doi.org/10.1016/J.TECHFORE.2016.12.013>
- Stern Review. (2016). *Building on success and learning from experience, An independent review of the Research Excellence Framework*. Department for Business, Energy, Industrial Strategy. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/541338/ind-16-9-ref-stern-review.pdf
- Stewart, H., Gapp, R., & Harwood, I. (2017). Exploring the alchemy of qualitative management research: seeking trustworthiness, credibility and rigor through crystallization. *The Qualitative Report*. 22(1), 1-19. <https://doi.org/10.46743/2160-3715/2017.2604>
- Stolze, A. (2021). A meta-ethnography on HEIs' transformation into more entrepreneurial institutions: towards an action-framework proposition. *Industry and Higher Education*, 35(1), 14-27. <https://doi.org/10.1177/0950422220922677>
- Tang, M.Y., Rhodes, S., Powell, R., McGowan, L.J., Howarth, E., Brown, B., & Cotterill, S. (2021). How effective are social norms interventions in changing the clinical behaviours of healthcare workers? A systematic review and meta-analysis. *Implementation Science*, 16, 1-19. <https://doi.org/10.1186/s13012-020-01072-1>
- Taris, T. (2000). *A primer in longitudinal data analysis*. London: Sage
- Thomas, L. (2020). *Longitudinal study - definition, approaches & examples*. Retrieved from www.scribbr.com/methodology/longitudinal-study/
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence: informed management knowledge by means of systematic review. *British Journal of Management*, 14, 207-222. <https://doi.org/10.1111/1467-8551.00375>
- UUK. (2011a). *Big ideas for the future: UK research that will have a profound effect on our future*. Universities UK. Retrieved from www.universitiesuk.ac.uk/Publications/Documents/BigIdeasForTheFuture20110616.pdf
- UUK. (2011b). *Driving economic growth: higher education - a core strategic asset to the UK*. Higher Education in Focus: Driving Economic Growth (978-1-8403-6264-0). Universities UK. Retrieved from

www.universitiesuk.ac.uk/Publications/Documents/DrivingEconomicGrowth.pdf

- UUK. (2021). *Delivering on the UK's plan for growth - how research and innovation at universities helps support the UK's ambitions*. Universities UK. Retrieved from www.universitiesuk.ac.uk/sites/default/files/field/downloads/2021-10/research-innovation-csr-briefing_0.pdf
- UUK. (2022a). *Our universities: generating growth and opportunity*. Universities UK. Retrieved from www.universitiesuk.ac.uk/what-we-do/policy-and-research/publications/our-universities-generating-growth
- UUK. (2022b). *Universities UK - About Us*. Universities UK. Retrieved from www.universitiesuk.ac.uk/about-us
- Vorley, T., & Nelles, J. (2009). Building entrepreneurial architectures: a conceptual interpretation of the third mission. *Policy Futures in Education*, 7(3), 284-296. <https://doi.org/10.2304/pfie.2009.7.3.284>
- Warry Report. (2006). *Increasing the economic impact of research councils: Research Council Economic Impact Group*. Retrieved from https://www.bayes.city.ac.uk/data/assets/pdf_file/0006/73671/Warry20report.pdf
- Watson, D., Hall, L., & Tazzyman, S. (2016). Trick or treat: academic buy-in to third stream activities. *Industry and Higher Education*, 30(2), 155-167. <https://doi.org/10.2304/pfie.2009.7.3.284>
- Webber, E. (2016). *Building successful communities of practice - discover how connecting people makes better organisations*. London: Drew London Ltd.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*: Cambridge University Press.
- Wenger, E., McDermott, R. A., & Snyder, W. (2002). *Cultivating communities of practice: a guide to managing knowledge*. Boston, MA: Harvard Business School Press.
- Wenger-Trayner, B., & Wenger-Trayner E. (2015). *Introductions to communities of practice*. Retrieved from www.wenger-trayner.com
- Wilson Review. (2012). *A review of business-university collaboration*. Retrieved from www.gov.uk/government/uploads/system/uploads/attachment_data/file/32383/12-610-wilson-review-business-university-collaboration.pdf
- Wisker, G. (2008). *The postgraduate research handbook* (2nd ed.): Palgrave Macmillan.
- Witty Review. (2013). *Encouraging a British Invention Revolution: Sir Andrew Witty's Review of Universities and Growth*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/249720/bis-13-1241-encouraging-a-british-invention-revolution-andrew-witty-review-R1.pdf

- Woollard, D. (2010). Towards a theory of university entrepreneurship: developing a theoretical model. *Industry and Higher Education*, 24(6), 413-427.
<https://doi.org/10.5367/ihe.2010.0017>
- Woollard, D., Zhang, M., & Jones, O. (2007). Academic enterprise and regional economic growth: towards an enterprising university. *Industry and Higher Education*, 21(6), 387-403. <https://doi.org/10.5367/ihe.2010.0017>
- Yardley, L. (2000). Dilemmas in qualitative health research. *Psychology and Health*, 15, 215-228. <http://dx.doi.org/10.1080/08870440008400302>
- Yazdani, B. (2012). Defining the Role of Business Schools. *Global Focus*, 6, 34-37.
https://doi.org/10.5848/EFMD.978-1-909201-18-7_19
- Young Report. (2013). *Growing your business: a report on growing micro businesses*. Department for Business, Innovation and Skills. Retrieved from www.gov.uk/government/uploads/system/uploads/attachment_data/file/198165/growing-your-business-lord-young.pdf
- Zawdie, G. (2010). Knowledge exchange and the third mission of universities: introduction: the triple helix and the third mission - Schumpeter revisited. *Industry and Higher Education*, 24(3), 151-155.
<https://doi.org/10.5367/000000010791657437>

Appendices

Appendix A – Scoping Search

Scoping Search Objectives (SSO)

• SSO1	Help identify a conceptual anchor for the DBA Research Questions (RQs).
• SSO2	Identify terms and synonyms to be used in the DBA.
• SSO3	Inform a Provisional Conceptual Diagram.

Search Method

The scoping search of literature began with keywords and search terms (Tranfield et al., 2003) as listed in Table A1.

Keyword 1	Keyword 2	Keyword 3	Keyword 4
University	Business	Collaboration	UK
Higher Education	Industry	Collaboration	Great Britain
	Company	Partnership	
		Alliance	
		Relationship	
		Cooperation	
		Association	
		Liaison	
		Link	
		Correlation	
		Enterprise	
		Joint venture	
		Connection	
		Initiative	
		Scheme	
		Programme	
		Project	

Table A1: Keywords for Scoping Search

The resources that were searched included six databases:

- Business Source Complete

- Discovery Service
- Ethos – index of theses
- ERIC
- EBSCO
- Education Resource Complete

In addition to databases other websites were explored for relevant data as detailed in Table A2 below:

Website	Search
Association of Business Schools (ABS) – https://associationofbusinessschools.org	University and Business Collaboration
Association of MBA (AMBA) - http://www.mbaworld.com	General
Association for Business Simulation and Experiential Learning (ABSEL) - http://absel.org/	General
British Academy of Management (BAM) - http://www.bam.ac.uk	General
Department for Business, innovation, and skills (BIS) - https://www.gov.uk/government/organisations/department-for-business-innovation-skills	University and Business Collaboration
Confederation of British Industry (CBI) - http://news.cbi.org.uk/	University and Business Collaboration
Council for Industry and Higher Education (CIHE) - http://www.cihe.co.uk Now National Centre for Universities and Business http://www.ncub.co.uk/ from 2013.	General
Higher Education Funding Council for England (HEFCE) - http://www.hefce.ac.uk/	University and Business Collaboration
Higher Education Statistics Agency (HESA) - https://www.hesa.ac.uk/	University and Business Collaboration
Organisation for Economic Co-operation and Development (OECD) - http://www.oecd.org	University and Business Collaboration
Quality Assurance Agency (QAA) - http://www.qaa.ac.uk/en	University and Business Collaboration
Research Councils UK - http://www.rcuk.ac.uk/	University and Business Collaboration
Technology Strategy Board (TSB) now innovate UK - www.gov.uk/government/organisations/innovate-uk	University and Business Collaboration
Universities UK - http://www.universitiesuk.ac.uk/Pages/default.aspx	University and Business Collaboration

Russell Group - http://russellgroup.ac.uk	general
Enterprise Research UK - www.enterpriseresearch.ac.uk	University and Business Collaboration

Table A2: Websites in Scoping Search

Output

The initial database search yielded 3,539,916 references. With the use of keyword search strings this was reduced to 38,887. Through extensive online screening of titles (and in some cases abstracts) this was reduced to 951. Any references that were conducted before 1960, not written in English and did not address the research topic title were removed. Where the database allowed pre-1960 references and non-English references were removed at the outset of the search. The results from the different databases were merged to create a single file in Endnote where the references were further reduced to 636 through removal of duplications.

Screening

Due to the large volume of documents, a screening process was adopted which included eligibility criteria for exclusion and inclusion. The exclusion criteria identified characteristics that would exclude a reference from the scoping search and inclusion criteria identified the characteristics for a reference that was suitable for further analysis in the study. Table A3 and Table A4 show the inclusion and exclusion criteria.

Criteria	Reason for inclusion
Publications written in English	Language understood by author
Post 1960 publication	Started search from the date of the Robbins report.
Draw on published and/or unpublished research	Limit bias
UK or Great Britain	Study is primarily about development in UK
All industries/businesses	Study includes an UK business
Business and Management Subject area	Study is focused on subject area of business and management
Barriers and constraints	To identify factors that inhibit success
Enablers and opportunities for success	To identify factors that contribute to success
Frameworks for evaluation	To identify frameworks for evaluation
Quantitative and qualitative	To capture all relevant evidence

Table A3: Scoping Search Inclusion Criteria

Criteria	Reason for exclusion
Publications written in any language other than English	Language not understood by author
Study conducted before 1960	Before Robbins Report
Studies about traditional full-time student learning	Doesn't focus is on third mission activity, commercialisation activity and collaboration activity directly with businesses.
Studies based in non-UK countries	Beyond the scope of this study
Employer-employer relationships	They do not highlight university collaboration.
University to school relationships	They do not focus on university-business collaboration.
University to FE relationships	They do not focus on university-business collaboration.
Non-business and management subject area, except IT including Science, Manufacturing, Engineering, Health, Tourism, and creative arts.	They do not focus on business and management discipline and are not aligned with Business School activity.

Table A4: Scoping Search Exclusion Criteria

Having removed all the duplicates, the remaining literature was screened by title and abstract and in some cases, full text, using the inclusion and exclusion criteria hierarchically to remove all references based on the first criterion met. This ensured all references met both the inclusion and exclusion criteria. All references that met one of more of the exclusion criteria were removed. The exclusion criteria were applied hierarchically, and articles were removed on the basis of first criterion met. This reduced the available literature to fifty-four references. Documents that were unavailable were obtained from the British Library, if possible, within the time available.

The website search included one or two search terms using the Boolean process adopted for the database search which identified 2240 potential references. These were screened by title and abstract and reduced to twenty-one references being selected. The references were manually inserted into Endnote. A total of seventy-five references in were selected.

Synthesis and Analysis

A full paper review of the seventy-five documents was conducted to identify terms and synonyms to be used in the DBA (SSO1) and help inform the DBA Research Questions (SSO2). Identified characteristics were grouped into themes, where a 'theme' is defined as 'wider than a factor' and each theme could be made up of a number of factors. The main themes from the scoping search are shown in Table A5:

Themes	Factors/Characteristics	Sub Factors
Types of collaboration	Academic-business factors	contract research
		collaborative research
		consultancy
		professional development
		training
		research and development
	innovation and IP	
	Academic-student-business factors	placements
		internships
		work-based learning
		KTP
	University-business factors	facilities
equipment		
Levels of Collaboration	academic level factors	academic collaboration
		blended professional
		multi-professional
	business level factors	Sector level
		Business level
		practitioner level
Collaboration Drivers	need	business, university, and government need
	global drivers	especially economic, funding and LEP drivers
	individual motivation drivers	
Third mission activities	Individual characteristics/ Descriptors	gender
		age
		seniority
		experience of collaboration
		successful business productivity
		social capital
		personal network
		Ability to mobilise resources
		Government grant
		Funds
	Faculty/Department characteristics/ Descriptors	quality (especially research quality)
		culture (especially group-level norms and peer culture)

		connection to research centre
		connection mechanisms.
	University/Institutional characteristics. Descriptors	discipline affiliation
		transfer channel
	locality	

Table A5 – Scoping Search Characteristics and Themes

Limitations of the Scoping Search

- Some texts were excluded due to their lack of availability in the timeframe.
- There was little consensus on keywords used to classify articles on university-business-collaboration.
- Quality assessment was a major challenge for management research and the exclusion criteria have been subjective.

Conclusion Scoping Search

The preliminary scoping search conducted suggested that there was a large volume and diversity of data on university-business-collaboration. SSO1 was achieved, as the scoping search enabled refining the scope of the DBA Research Questions away from *university-business-collaboration* and towards the *Third Mission* as the conceptual anchor.

SSO2 was achieved by identifying keywords and synonyms to use in the DBA. The literature covered a wide variety of theories however certain themes emerged repeatedly throughout the scoping search including reference to the '*Third Mission*', '*internal and external factors of collaboration*', '*types of collaboration*', the concept of the '*interface environment*' and '*individual values*', such as trust.

SSO3 was achieved as the scoping search enabled the formulation of a Provisional Conceptual Framework.

Appendix B - Corpus of Articles (Dataset)

- Charles, D., Kitagawa, F., & Uyarra, E. (2014). Universities in crisis?: new challenges and strategies in two English city-regions. *Cambridge Journal of Regions, Economy, and Society*, 7(2), 327-348. ISSN 1752-1378. <http://dx.doi.org/10.1093/cjres/rst029>
- Degl'Innocenti, M., Matousek, R., & Tzeremes, N. G. (2019). The interconnections of academic research and universities "third mission": evidence from the UK. *Research Policy*, 48(9). <https://doi.org/10.1016/j.respol.2019.05.002>
- Freel, M., Persaud, A., & Chamberlin, T. (2019). Faculty ideals and universities' third mission. *Technological Forecasting and Social Change*, 147, 10-21. <https://doi.org/10.1016/j.techfore.2019.06.019>
- Kitagawa, F., Sánchez-Barrioluengo, M., & Uyarra, E. (2016). Third mission as institutional strategies: between isomorphic forces and heterogeneous pathways. *Science and Public Policy*. 43 (6), 736-750 <https://doi.org/10.1093/scipol/scw015>
- Martin, B.R. (2012). Are universities and university research under threat? Towards an evolutionary model of university speciation. *Cambridge Journal of Economics*, 36(3), 543-565. <http://dx.doi.org/10.1093/cje/bes006>
- Martin, L., & Turner, P. (2010). Entrepreneurial universities - the key ingredient in the recipe for UK innovation? Realities of working in business engagement roles in academia. *International Journal of Entrepreneurship and Innovation*, 11(4), 273. <https://doi.org/10.5367/ijei.2010.0004>
- Martin, L., Warren-Smith, I., & Lord, G. (2019). Entrepreneurial architecture in UK universities: still a work in progress? *International Journal of Entrepreneurial Behaviour & Research*, 25(2), 281-297. <https://doi.org/10.1108/IJEER-01-2017-0047>
- Molas-Gallart, J., & Castro-Martínez, E. (2007). *Ambiguity and conflict in the development of 'Third Mission' indicators*. *Research Evaluation*, 16(4), 321-330. <https://doi.org/10.3152/095820207x263592>
- Nelles, J., & Vorley, T. (2010a). Constructing an entrepreneurial architecture: an emergent framework for studying the contemporary university beyond the entrepreneurial turn. *Innovative Higher Education*, 35(3), 161-176. <https://doi.org/10.1007/s10755-009-9130-3>
- Nelles, J., & Vorley, T. (2010b). From policy to practice: engaging and embedding the third mission in contemporary universities. *The International Journal of Sociology and Social Policy*, 30(7/8), 341-353. <https://doi.org/10.1108/01443331011060706>

- Pugh, R. (2017). Universities and economic development in lagging regions: 'triple helix' policy in Wales. *Regional Studies*, 51(7), 982-993. <https://doi.org/10.1080/00343404.2016.1171306>
- Pugh, R., Hamilton, E., Jack, S.L., & Gibbons, A. (2016). A step into the unknown: universities and the governance of regional economic development. *European Planning Studies*, 24(7) 1357 - 1373. <https://doi.org/10.1080/09654313.2016.1173201>
- Pugh, R., Lamine, W., Jack, S., & Hamilton, E. (2018). The entrepreneurial university and the region: what role for entrepreneurship departments? *European Planning Studies*, 26(9), 1835-1855. <https://doi.org/10.1080/09654313.2018.1447551>
- Sánchez-Barrioluengo, M., & Benneworth, P. (2019). Is the entrepreneurial university also regionally engaged? Analysing the influence of university's structural configuration on third mission performance. *Technological Forecasting and Social Change*, 141, 206. <https://doi.org/10.1016/j.techfore.2018.10.017>
- Sánchez-Barrioluengo, M., Uyarra, E., & Kitagawa, F. (2019). Understanding the evolution of the entrepreneurial university. The case of English higher education institutions. *Higher Education Quarterly*, 73(4), 469-495. <https://doi.org/10.1111/hequ.12230>
- Secundo, G., Perez, S.E., Martinaitis, Ž., & Leitner, K. (2017). An intellectual capital framework to measure universities' third mission activities. *Technological Forecasting and Social Change*, 123, 229-239. <https://doi.org/10.1016/J.TECHFORE.2016.12.013>
- Vorley, T., & Nelles, J. (2009). Building entrepreneurial architectures: a conceptual interpretation of the third mission. *Policy Futures in Education*, 7(3), 284-296. <https://doi.org/10.2304/pfie.2009.7.3.284>
- Watson, D., Hall, L., & Tazzyman, S. (2016). Trick or treat: academic buy-in to third stream activities. *Industry and Higher Education*, 30(2), 155-167. <https://doi.org/10.2304/pfie.2009.7.3.284>
- Woollard, D. (2010). Towards a theory of university entrepreneurship: developing a theoretical model. *Industry and Higher Education*, 24(6), 413-427. <https://doi.org/10.5367/ihe.2010.0017>
- Woollard, D., Zhang, M., & Jones, O. (2007). Academic enterprise and regional economic growth: towards an enterprising university. *Industry and Higher Education*, 21(6), 387-403. <https://doi.org/10.5367/ihe.2010.0017>
- Zawdie, G. (2010). Knowledge exchange and the third mission of universities: introduction: the triple helix and the third mission - Schumpeter revisited. *Industry and Higher Education*, 24(3), 151-155. <https://doi.org/10.5367/000000010791657437>

Appendix C - Data Eligibility Form – Example of Identification of Research Phase

Bibliographic Database Search - Peer Reviewed Articles				Title and Abstract Screen															
				Identification of Research Phase															
			Peer reviewed	Exclude/include	Exclude/include	Context	Exclude/include	Context	Exclude/include	Context	Exclude/include	Context	Exclude/include	Context	Exclude/include	Context	Exclude/include	No Access to Full article	Exclude/include
Date	search string	Reference	Are the articles from Peer Reviewed Journals?	Language not understood by author.	Outside timeframe for contemporary cross-sectional study frame.	Beyond the scope of this study with regards to Context.	Exclude/include	Context	Exclude/include	Context	Exclude/include	Context	Exclude/include	Context	Exclude/include	Context	Exclude/include	No Access to Full article	Exclude/include
				Publications written in any language other than English	Study conducted before 2007	Studies based in non-UK countries		Publications do not refer to one or more of the following: 'Third Mission', 'university-business collaboration', 'Business School'.		Non-business and management subject area, including Science, Manufacturing, Engineering, Health, Tourism and creative arts.		Beyond the scope of the Context. Focus is on third mission activity, commercialisation and traditional full-time university student learning/placements/ internships or entrepreneurship		Beyond the scope of the Context. They do not highlight university-employer relationships		Beyond the scope of the Context. They do not focus on business and technology transfer			
12/11/2021	"Third Mission" AND ("UK" or "United Kingdom")	Building Entrepreneurial Architectures: A Conceptual Interpretation of the Third Mission Authors: Tim Vorley, Jen Nelles Article 2009 in Policy Futures in Education 7 n3 p284-296 2009	Peer reviewed																

12/11/2021	"Third Mission" AND "University" AND "UK"	AuthorsDavid WoollardMichael ZhangOswald Jones Article2007 in Industry and Higher Educationv21 n6 p387-403 Dec 2007	Peer reviewed	ERIC	English		2007	UK	Third Mission, university-business links, Business School	Academic Enterprise, regional economic growth, enterprising univeristy	I	N		I	N		I	N		I	N		I	N		I	Access	I	
12/11/2021	"Third Mission" AND "University" AND "UK"	New Terms of Research and Knowledge Production in Scotland: The Discourse of Knowledge Transfer AuthorsRobert Jones Article2007 inDiscourse: Studies in the Cultural Politics of Educationv28 n1 p101-120 Mar 2007	Peer reviewed	ERIC	English		2007	UK	Third mission	Scottish policy for knoweldge transfer	E																		E
12/11/2021	"Third Mission" AND "University" AND "UK"	University Enterprise: The Growth and Impact of University-Related Companies in London AuthorsDave ChapmanHelen Lawton SmithPeter WoodTimothy BarnesSaverio Romeo Article2011 in Industry and Higher Educationv25 n6 p483-492 Dec 2011	Peer reviewed	ERIC	English		2011	UK	Third mission.	Science/Tech knoweldge transfer	E																		E
16/11/2021	"Third Mission" AND "University" AND "UK"	The interconnections of academic research and universities' "third mission": Evidence from the UK. AuthorsMarta Degl'InnocentiRoman MatousekNickolaos G Tzeremes Article2019 in Research PolicyNov2019, Vol. 48 Issue 9, pN.PAG	Peer reviewed	Business Source Complete	English		2019	UK	Third mission	I N	I	N		I	N		I	N		I	N		I	N		I	Access	D	
13/11/2021	"Third Mission" AND "University" AND "UK"	From policy to practice: engaging and embedding the third mission in contemporary universities AuthorsJen NellesTim Vorley Article in The International Journal of Sociology and Social Policyv30 n7/8 (2010) 341-353	Peer reviewed	ABI/Inform Global	English		2010	UK	Third mission	contemporary university, engaging, embedding	I	N		I	N		I	N		I	N		I	N		I	Access	I	

19/11/2021	"Third Mission" AND "University" AND "UK"	Ambiguity and conflict in the development of 'Third Mission' indicators AuthorsJordi Molas-GallartElena Castro-Martínez Article2007 in Research Evaluationv16 n4 (12 2007): 321-330	Peer reviewed	Oxford Journals	English	2007	UK and Spain	Third mission	third mission indicators, policy implementation, conflict and local stakeholder coalition	N	N	N	N	Access
19/11/2021	"Third Mission" AND "University" AND "UK"	Universities in crisis?—new challenges and strategies in two English city-regions AuthorsDavid CharlesFumi KitagawaElvira Uyarra Article2014 in Cambridge Journal Of Regions, Economy And Societyv7 n2 (201407): 327-348	Peer reviewed	Oxford Journals	English	2014	UK and Spain	univeristy-business collaboration	global financial crisis	N	N	N	N	Access
19/11/2021	"Third Mission" AND "University" AND "UK"	Understanding societal impact through productive interactions: ICT research as a case AuthorsStefan de JongKatharine BarkerDeborah CoxThordis SveinsdottirPeter Van den Besselaar Article 2014 in Research Evaluationv23 n2 (04 2014): 89-102	Peer reviewed	Oxford Journals	English	2014	UK and Spain	Third mission	fragmented adhocracies, short term knowledge transfer and long-term societal impact	N	N	N	N	No access
19/11/2021	"Third Mission" AND "University" AND "UK"	From policy to practice: engaging and embedding the third mission in contemporary universities AuthorsJen NellesTim Vorley Article 2010 in International Journal of Sociology and Social Policyv30 n7-8 (20100727): 341-353	Peer reviewed	Emerald Group Publishing Ltd										D
19/11/2021	"Third Mission" AND "University" AND "UK"	An exploration of the role and contribution of entrepreneurship centres in UK higher education institutions AuthorsPaul JonesGideon MaasSascha KrausLester Lloyd Reason Article2021 in Journal of Small Business and Enterprise Developmentv28 n2 (20210317): 205-228	Peer reviewed	Emerald Group Publishing Ltd	English	2021	UK	Third mission	Entrepreneurship action plan/centres, EC identity	N	N	N	N	Access
19/11/2021	"Third Mission" AND "University" AND "UK"	Entrepreneurial institutions in the university system	Peer reviewed	Emerald Group Publishing Ltd	English	2021	UK	Third mission		N	N	N	N	Access

Appendix C1 – Data Eligibility Form - Example of Selection of Studies Phase

Full reference	Journal	Intervention/ Exposure	Exclude/Include	Selection of Studies Phase			Exclude/Include	Outcome
				Society	Organisation	Group		
		Beyond the scope of the exposure to third mission.						
		Aims - No reference to 'third mission collaboration' (or synonyms from key words column 3) at any SOGI level (Society, Organisation, Group or individual).	Focus on national, political, social, environmental and economic contexts. E.g. UK/ecosystem	Workplace/university is the principal unit of analysis - Organisation/ University	Focus on certain types of groupings e.g. HR department/Board of Directors/ Business School	Focus on specific kinds of individuals e.g. managers/ academic practitioner	No mechanisms/characteristics for the relationship between interventions/exposure (third mission collaboration) and outcomes (characteristics - RQs) explained. E.g. Barriers and constraints, enablers and opportunities for success, frameworks for	Does the study state, as an outcome: characteristics-attitudes, beliefs, perceptions concerning one or more of the key search criteria? fit between research methodology and the research questions
				SOGI			CEMO	
pfie.2009.7.3.2	Policy Futures in Education	engagement, entrepreneurial architecture	contextual links -	university - governance, entrepreneurial university. engines of the	n	n	lack of institutional strategy - organic. increase in quantitative over qualitative papers. Most work in this area attempts to discover	characteristics - entrepreneurial architecture. Indeed, the Third Mission, university entrepreneurship and/or the

7783099836	INDUSTRY & HIGHER EDUCATION	NEWUNI Casestudy - Mission: (1) to be a research-enterprise-informed university; (2) to be a national professional university, and (3) to be an original modern university.	contextual links	NEWUNI? MMU?	Business/Enterprise included	analyse the details of academic activities, especially those related to business sectors and the welfare of local	university-wide academic enterprise activities are not systematically organized or coordinated. Etzkowitz (2003) regards UK universities	needs to be a reduction in the reliance on income from the Higher Education Funding Council for England (HEFCE) in response to the progressive	
From policy to practice: engaging and embedding the third mission in contemporary universities	International Journal of Sociology and Social Policy (Emerald Publishing)	The purpose of this paper is to consider how the third mission relates to, and has the capacity to reinforce the core missions of teaching and research. The aim of this paper has been to emphasise the importance of the third mission to the contemporary university and its capacity	emergence of the third mission and contemporary university. growing scope of third stream activities and considers the potential for	embedding the third mission to ensure its own sustained success, as well as positively reinforce the missions of teaching and research and	n	n	third mission can and should reinforce the missions of teaching and research. universities need to maintain an inner connection between their goals, motives and actions to remain functional institutions	triangulating teaching, research, and third stream activities reinforces the respective dynamics of each component through their recursive and reciprocal development. embedding the third mission and viewing the three missions as mutually	
1-s2.0-S0040162	Technological Forecasting & Social Change	all focus on 3D rather than multi-level engagement framework	E						E
1-s2.0-S0040162	Technological Forecasting & Social Change	due to the institutional heterogeneity it is necessary to understand the process by which universities create regional benefits, specifically through their third mission outputs. To cover this gap, this paper investigates the extent to which internal institutional configurations affect the production of these benefits on the UK Higher Education sector. It focuses on four elements	context only	University structures matter - central steering core, administrative apparatus, degree of internal coupling between core and peripheral structures and	functional groups organise in very different ways within one HEI because of context specific conditions for their knowledge activities,	The efforts by, and commitment of, key individuals across the academic heartland, while recognizing new external opportunities and directly engaging	Effective external engagement depends of having mechanisms within the university that couple these external activities to 'core' activities in ways that legitimise them and prevent them remaining peripheral to the central academic enterpri	we hypothesize that the four organizational structures (steering core, administrative apparatus, academic heartland and internal coupling) affect positively third mission outputs, although the particular emphasis on one or another will differ between the entrepreneurial university and	

Appendix C2 Data Eligibility Form – Example Quality of Source Phase

Quality of Source (Quality Assessment Phase)					Exclude/Include	Export to NVIVO
Credibility	Analysability	Transparency	Usefulness			
Purposive sampling to explore a range of articles/ peer reviewed or published in a journal	Processing and verification procedures not documented	Provides details of the findings, including excerpts.	Tackles a topic not widely found in the literature and identifies opportunities to enhance knowledge			
Did the article address a clearly focused question?	Are different sources of knowledge/understanding about the issues being explored or compared?	Are the results clearly expressed?	If claims are made to generalizability do these follow logically and/or theoretically from the data?			
Study Design from a TQF perspective						
n	y	y	y	I	Y	

n - NEWUNI's potential contribution to the city-region (see Appendix) so that academic enterprise activities could be mapped and analysed	y	y	y	I	Y
n	y	y	y	I	Y
				n/a	N
y	y	y	y	I	Y
n	y	y	y	I	Y

Appendix D - Data Extraction Form – Example of Descriptive Mapping of Corpus of Data

Descriptive Mapping																	
NVIVO TM Ref	Author	Title	Year Published	Journal	Abstract	Research Questions	Methodology	Sub	Results	Geographical area	Analysis period	Notes relating to RQs	TAG	Coding References	Codes Coding	School of Thought	
569	David Woollard,	Academic enterprise and regional economic	2007	Industry and Higher	This paper examines	The question of We are	Qualitative	case study	Their data and Using the	UK	up to 2007	NEWU NI - forward We will	NEWU NI	272	94	Enterprising Univer	
89	Jordi M	Ambiguity and confli	2007	Research	This pa	confro	Qualita	case stu	cases charac	UK and	2006-20	analys Burns -		68	29	Third M	
91	Tim Vorley and Jen	Building Entrepreneurial Architectures: A From policy to	2009	Policy Futures in The	Summ aryUni versiti Over	How univer sities Over	Qualita	ground Discurs	s - The	UK UK	up to 20	Entrep By		171	45	EA to a IM	

44	Mabel Sánchez-Barriolue	Is the entrepreneurial university also	2019	Technological Forecasting International Journal	There is an increase in higher education	how do universities increase higher education? (1) Which universities?	Quantitative	factor analysis	we conclude	UK	up to 2019	It focuses on 15 universities.	steering core	216	65	Entrepreneurial
30	Lynn M. Martin, Izzy	Entrepreneurial architecture in UK universities: still a	2019	Journal	Purpose UK higher education	These institutional	Qualitative	Phenomenological	The study adds first	UK	2016-2018	119	EA	350	71	EA to achieve TM
54	Marta Degl'Innocenti	The interconnections of academic research and Faculty ideals and	2019	Research Policy	SummaryA consideration	(1) Which universities?	Quantitative	technique	that study	UK	2007 - 2014	UK HEIs, Our	efficient	215	73	Research and TM
98	Mark Freel, Ajax	Faculty ideals and universities' third mission	2019	Technological Forecasting International Journal	There is a consideration	Pro third	Quantitative	via email	extent that	UK	2012-2015	analysis	Hypotheses	172	69	Academic attitude
59	Mabel Sánchez-Barriolue	Understanding the evolution of the entrepreneurial	2019	Higher Education Quarterly	There has been	In what ways	Quantitative	Factor Analysis	Universities are	England	2003-2012	Part B of the HEBCI	EU	346	91	Entrepreneurial
7	Rhiannon Pugh, Wadid	The entrepreneurial university and the region: what role for	2018	European Planning Studies	This paper investi	What is evident	qualitative	comparative	A dual model of	NW England	Up to 2018	2 units - Lancast	ED	321	76	Entrepreneurial

Appendix E – NVIVO Familiarisation with Corpus of Data - Noticings Memo’s Example

The screenshot displays the NVivo 12 Pro interface. The top menu bar includes 'File', 'Home', 'Import', 'Create', 'Explore', 'Share', and 'Memo Tools'. The left sidebar shows a navigation tree with categories: Quick Access (Files, Memos, Nodes), Data (Files, File Classification, Externals), Codes (Nodes, Relationships, Relationship Types), Cases (Cases, Case Classification), and Notes (Memos, Framework Maps, Annotations, See Also Links). A search section is also present at the bottom of the sidebar.

The main window is titled 'Memos' and contains a table with the following data:

Name	Codes	Referen
important quotes	78	377
TM definition quotes	42	152
Definitions	30	59
Noticings - Ambiguity and conflict in t	0	0
Noticings - Building Entrepreneurial Ar	0	0
Noticings - From policy to practice - e	0	0
Noticings - knowledge exchange and t	0	0
Noticings - An Intellectual Capital fram	0	0
Noticings - Is the entrepreneurial unive	0	0
Noticings - Third mission as institution	0	0
Noticings - Faculty ideals and universiti	0	0
Noticings - Entrepreneurial architectur	0	0
Noticings - Understanding the evolutio	0	0
Noticings - Constructing an Entrepren	0	0
Noticings - Are universities and unvers	0	0
Noticings - Universities and economic	0	0
Noticings - The entrepreneurial unvers	0	0
Noticings - The interconnections of ac	0	0
Noticings - Academic enterprise and re	0	0
Noticings - Entrepreneurial universities	0	0
Noticings - Towards a theory of univer	0	0
Noticings - A step into the unknow-un	0	0

The right pane shows the content of the selected memo, 'Noticings - Building Entrepreneur...'. It contains a list of key concepts:

- **PRESCRIPTIVE** - successive programme funding has in fact become more prescriptive – leading to prescriptive response
- **CONFORMITY** - there has been a fairly high degree of conformity in the approach of institutions towards third stream activities. This appears almost paradoxical in light of the increasing diversity of academic institutions, which has arguably intensified as universities become quasi-markets (Glennster, 1991; Agasistia & Catalano, 2006)
- **SILO THINKING** - few attempt to bring together these diverse literatures into a coherent theory of organisational transformation and adaptation
- Top down only gets you so far! **emulation or mimetic practices**, culminating in **standardisation**, can impede third stream activities and the development of the Third Mission. Need bottom up to and meet in middle!
 - **HETEROGENOUS NOT HOMOGENOUS** - does not assume specific organisational starting points
- **DIVERSITY** - challenge has been, and continues to remain, promoting diversity in the appropriation and implementation of third stream activities. Rather than presenting (yet) another prescription of best practice or otherwise, entrepreneurial architecture is intended as a flexible framework for third stream activities.
- **SENSITIVITY** - sensitivity to organisational contexts and strengths
 - **SPECIFICITY** - Not about best practice - needs to be both **institutionally led and institutionally specific**
 - **FORMALISED NOT INFORMAL** - ALWAYS BEEN A THIRD MISSION BUT ONLY FORMALISED SINCE 1990S

Appendix E1 – NVIVO Familiarisation with Corpus of Data – Example Annotations

2010 - Towards a theory of univ 2007 - Academic enterprise and

esses and by improving university–business links.

Keywords: academic entrepreneurship; academic enterprise; regional development; university–business links

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Universities and economic development

In this paper we investigate the attempt by a large, 1992 UK university to influence regional economic development by becoming a more enterprising institution. The pivotal role that universities play in the edge economy results from the changing economic and political environment (O’Shea *et al*, Slaughter and Leslie, 1997). Increasing globalization and the emergence of a knowledge-based economy have led to a renewed interest in the role of universities in economic development (e.g. Jones *et al*, 2001). Policy makers now see universities as key players in delivering economic growth: this is evident from the range of government initiatives that have been proposed and/or subsequently introduced (DIES, 2003; DTI, 1998, 2000; HMT *et al*, 2004; Lambert, 2003; Leitch, 2006). Similar developments are apparent in both developed and developing countries (Ahola, 2005; Gomes *et al*, 2005; Jacob *et al*, 2003; Van Vught, 1999; Zhao, 2004). Governments around the world now see universities as key players in developing

Item	Content
10	Triple Helix model described as an evolution of tripartite relationships between university, industry and government - no mention of where control is exerted and 'between' suggests the balance of control is equal - which the research disputes.
11	Suggests consensus about triple helix encourages an entrepreneurial culture in universities.

**Appendix F - Exemplar Data Extracts - Knowledge Exchange Linked to HEIF
(Context Theme1a.2 Indicator 2)**

Exemplar Extract	Interpretation
<p><i>HEIF is “funding for knowledge exchange [...] to support and develop a broad range of knowledge-based interactions between universities and colleges and the wider world, which result in economic and social benefit to the UK.” (HEFCE, 2017, coverage, (Martin et al., 2019, p.289)</i></p>	<p>Connects knowledge exchange (KE) to socio-economic benefits</p>
<p><i>The main vehicle for Knowledge Exchange policy in England has been a series of funding allocated to individual Higher Education institutions (HEIs) including the Higher Education Innovation Fund (HEIF). These policy efforts, and the more recent emphasis on generating research impact, has led universities to increase their focus on delivering benefits from research and brought about a considerable expansion of Knowledge Exchange infrastructure and capabilities in HEIs (Sánchez-Barrioluengo et al., 2019, p.474)</i></p>	<p>Connects Knowledge Exchange via policy to HEIF</p>
<p><i>“...while the UK government (e.g., Sainsbury, 2007) recognises the diversity of the sector and the importance of HEIs to make their own strategic choices to invest in and develop Knowledge Exchange activities, the formula-based third mission funding system in England... is highly skewed in favour of a few elite and large research-intensive universities. (Sánchez-Barrioluengo et al., 2019, p.487)</i></p>	<p>Connects Knowledge Exchange activities and Third Mission funding system</p>

**Appendix G - Exemplar Data Extracts - Engaged University Data Extracts
(Context Theme2a.1.4 Indicator 4 – Link Engaged University to core activity)**

Data Extract	Interpretation
<p><i>“The engaged approach (Cooke, 1992; Cooke et al., 2004) acknowledges university roles in knowledge production but regards the primary contribution coming via structural improvements to the knowledge exchange environment, organization, governance, and policy frameworks. Regular interactions between knowledge producers, users, intermediaries, and policy makers create networks with systemic regional properties (Cooke, 2005).” (Sánchez-Barrioluengo & Benneworth, 2019, p.208)</i></p>	<p>Knowledge Production</p> <p>Knowledge Producer</p>
<p><i>“In the case of Engaged University model (Model 2), results suggest that collaboration research, contracts, consultancy, and facilities do not fit harmoniously with traditional commercialization activities as part of the Third Mission outputs. This result highlighted those difficulties that Universities are experiencing in accommodating entrepreneurial outcomes alongside other kinds of engaged activities.” (Sánchez-Barrioluengo & Benneworth, 2019, p.213)</i></p>	<p>Doesn't fit well with traditional commercialisation activities</p>
<p><i>“We are witnessing an increasing trend towards the ‘engaged’ university, which partakes in governance activities and acts as a regional anchor (cf. Goddard et al., 2014). Our understanding of what the Engaged University is, how it functions, and how activities in the governance domain compliment or compete with the other missions of the university is still an emerging area of study over the last decade.” (Pugh et al., 2016, p.1359)</i></p>	<p>Regional anchor and emergent</p>

**Appendix H - Exemplar Data Extracts - about Business Schools in dataset
(Context Theme2b.1)**

Data Extracts	Noticings
<p><i>“In order to revitalize the UK’s town centres, the Retail Enterprise Network (REN) at NEWUNI’s Business School initiated an EU-funded project called AGORA. In partnership with national retailers and Spanish retail networks, REN aims to help small, independent shops to become drivers of revitalization in the traditional high street. The Centre for Enterprise has obtained external funding to refurbish part of the Business School as a student incubator to provide support for student businesses with real potential for growth”. (Woollard et al., 2007, p.393)</i></p>	<ul style="list-style-type: none"> • REN sits in the Business School • European Union funded project • Aimed at Small & Medium sized Enterprises (SMEs) • Centre for Enterprise (CfE) has funding to help the Business School (BS). • Therefore, CfE is not the same as a BS.
<p><i>“The Centre for Enterprise (CfE) in the Business School has run a number of EU-funded programmes aimed at the improving the competitiveness of regional SMEs and promoting an enterprise culture. In total, the CfE has helped more than 1,000 businesses, managers, and entrepreneurs. The Business Development Unit at the Business School has also been active in accessing KTP funding, with 11 projects successfully completed since 2002.” (Woollard et al., 2007, p.394)</i></p>	<ul style="list-style-type: none"> • CfE sits in Business School. • Aimed at SME competitiveness. • Business Development Unit in Business School - KTPs
<p><i>“By using ‘non-traditional’ sources of funding to address declining research budgets, the Centre for Enterprise at the Business School has demonstrated that engaging with the academic enterprise agenda can bring multiple benefits to the institution. The work of the Centre has directly influenced regional economic development, developed high-quality staff with good practitioner understanding, had a direct impact on ‘mainstream’ curriculum development, increased research funding well beyond the level that would otherwise have been available, and produced high-quality research output.” (Woollard et al., 2007, p.396)</i></p>	<ul style="list-style-type: none"> • Academic Enterprise activity/agenda • Non-traditional sources of funding • CfE of the Business School
<p><i>“Manchester Metropolitan University opened a new Business School with a £200 million capital investment and is going to open the £139 million new community campus at the Birley Fields site in inner city Manchester in the summer of 2014.” (Charles et al., 2014, p.25)</i></p>	<ul style="list-style-type: none"> • MMU new Business School
<p><i>“At the Business School, there is a diversity of entrepreneurship teachers’ profiles. There are teachers who are oriented research, and others who are oriented practice and consulting. So, we must also see the entrepreneurship Department in this richness and diversity”. (Pugh et al., 2018, p.1846)</i></p>	<ul style="list-style-type: none"> • Entrepreneurship teachers • Research-oriented teachers and practice-oriented teachers – supports Mode 1 and Mode 2 idea.

Appendix I - Exemplar Data Extracts - Reduction in Funding Driving Universities Towards Diversifying Their Income (Context Theme1a.2 Indicator 3, p.)

Data Extract	Interpretation
<p><i>“The institution has a long-standing objective to decrease its reliance on income from HEFCE in response to the progressive reductions in unit funding that have taken place over a number of years; this objective has been retained in the new strategy. However, academic enterprise activities generated just 5% of total income in the financial year 2005/06 (Tables 2 and 3). It is not surprising, in these circumstances, that the revised strategic plan seeks to increase the scale of enterprise activities significantly by setting annual income growth targets for each faculty. Other economic trends, including the market for higher education, have an increasing bearing on NEWUNI. Operating effectively in this new environment demands a more responsive and proactive organization.”</i> Woollard et al., (2007, p.395).</p>	<p>Decrease from HEFCE driving scale of enterprise activity</p>
<p><i>“The university, as reflected in terms of its ability to determine its own direct increase as it once again becomes less dependent on Government funding the second half of the twentieth century.”</i> Martin (2012, p.559).</p>	<p>Less dependent</p>
<p><i>“The diversification of the Third Mission means it is no longer the exclusive domain of the sciences in research intensive universities, and while engagement continues to be highly varied by university, department, and faculty, it has become unequivocally more inclusive. Not only has the range of third-stream activities increased, but it has also extended to include the arts, humanities and social sciences encouraged to realise their competitive advantage (Mould et al., 2009; Bebbington, 2006). However, while the adoption of third-stream agendas will likely vary by institution, and even by faculty, there is scope to explore the general trends in their evolution.”</i> Vorley & Nelles (2009, p.345).</p>	<p>Diversification of Third Mission</p>
<p><i>“Arguments regarding the trade-offs between missions have been well documented and debated, although remain vaguely supported and lack consensus (see Behrens and Gray, 2001; Martin and Etzkowitz, 2000). However, the evolution of the Third Mission, and diversification of third-stream activities, as outlined by Goktepe’s (2002) typology of UITT, serves to highlighted that the Third Mission is inextricably linked to the core teaching and research functions of the university. It is therefore puzzling that the third stream has often been perceived, discussed, and even implemented separately. As noted above, and drawn out in the empirical study, there is tremendous variation across the higher education sector, and no two institutions are the same.”</i> Vorley & Nelles (2009, p.345).</p>	<p>Diversification linked to university heterogeneity</p>

<p><i>“Governments have come to recognise the importance of universities to the knowledge economy, becoming the object of renewed interest (Godin & Gingras, 2000), which has subsequently invoked the mass emergence of the Third Mission in contemporary universities. However, the challenge has been, and continues to remain, promoting diversity in the appropriation and implementation of third-stream activities. Rather than presenting (yet) another prescription of best practice or otherwise, Entrepreneurial Architecture is intended as a flexible framework for third stream activities.” Vorley and Nelles (2009, p.293).</i></p>	<p>Diversification of Third-stream activities linked to Third Mission</p>
<p><i>“For over a decade, governments at regional, national, and European levels have been concerned with the role of universities in innovation (Mowery and Sampat, 2005), economic development and knowledge commercialisation (Geuna and Muscio, 2008), and wider engagement with knowledge users (Hughes, 2011). This development of a ‘third’ mission reflecting multiple forms of engagement (economic, social, and cultural) (Trippi et al., 2012) has sat alongside a transformation from an elite model to a mass system of higher education (Scott, 2010), and a greater marketization as universities were expected to find new sources of funding. In the UK, universities have experienced an intensification of these changes since the onset of the global financial and economic crisis in 2008-2009, partly due to the immediate effects of the crisis, but more importantly arising from the change in national Government in 2010, and subsequent upheavals in higher education policy in England, as a result of public austerity measures and the introduction of substantially higher tuition fees.” Charles et al., (2014, p.2).</i></p>	<p>Greater Marketisation and innovation</p>

Appendix J – Example Extracts - Global Financial Crisis of 2007 (Context Theme1b.1 Indicator 1)

Example Data Extracts	Noticings
<p><i>“The financial crisis that hit the global economy in the autumn of 2007 strongly affected the UK economy and the higher education sector.” (Charles et al., 2014, p.10).</i></p>	<p>The Financial Crisis of 2007 shaped the UK HE sectors.</p>
<p><i>“For over a decade, governments at regional, national, and European levels have been concerned with the role of universities in innovation (Mowery and Sampat, 2005), economic development and knowledge commercialisation (Geuna and Muscio, 2008), and wider engagement with knowledge users (Hughes, 2011). This development of a ‘third’ mission reflecting multiple forms of engagement (economic, social, and cultural) (Trippel et al., 2012) has sat alongside a transformation from an elite model to a mass system of higher education (Scott, 2010), and a greater marketization as universities were expected to find new sources of funding. In the UK, universities have experienced an intensification of “these changes since the onset of the global financial and economic crisis in 2008-2009, partly due to the immediate effects of the crisis, but more importantly arising from the change in national government in 2010, and subsequent upheavals in higher education policy in England, as a result of public austerity measures and the introduction of substantially higher tuition fees.” (Charles et al., 2014, p.2).</i></p>	<p>Third Mission (economic, social, and cultural) has led to mass marketisation of universities since global financial crisis and resulting UK austerity measures.</p>
<p><i>“A third important driver relates to constraints on public expenditure, a problem experienced in most developed countries at some point over the last 20 or more years, and one that is likely to intensify in the next few years as governments wrestle with the huge costs of sorting out the problems associated with the financial crisis of 2008.” (Martin, 2012, p.554).</i></p>	<p>Impact of financial crisis to public expenditure</p>
<p><i>“Universities in the UK have experienced dramatic changes since the onset of the global financial crisis, partly due to the immediate effects of the crisis, but also to the change in national government, upheavals in higher education (HE) policy and austerity measures. Increased pressure for local engagement with business has been combined with a rescaling of local economic development governance, and a shift from regional collaboration to a more localist agenda.” (Charles et al., 2014, p.1).</i></p>	<p>Driven by global financial crisis towards more local agenda.</p>
<p><i>“The financial crisis that hit the global economy in the autumn of 2007 strongly affected the UK economy and the higher education sector. The subsequent changes in the English higher education sector also brought into sharp relief the internal divisions in the UK, with England following a different path from Scotland on tuition fees, with Wales and Northern Ireland somewhere in between. Thus, whilst a recognition of the importance of universities to</i></p>	<p>HE sectors changed because of the global financial crisis.</p>

<p><i>economic development and knowledge commercialisation persists across the whole of the UK, the effects of specific policy changes are playing out differently across the country with the devolution processes (see Universities UK, 2008), which had preceded the economic crisis. Since the crisis, economic as well as social engagement activities have made universities, in principle, a more integrated part of the institutional fabric of the city-region (see Kitson et al., 2009).” (Charles et al., 2014, p.10).</i></p>	
<p><i>“The onset of the economic crisis came at a time when regional connections were already starting to break down in the two regions, accelerated through the gradual rise of localism under New Labour. With the defeat of Labour and the formation of a coalition government between Conservatives and Liberal Democrats in May 2010, the environment for universities in the two regions shifted further from regionalism. The abolition of the RDAs and replacement with LEPs, accentuated the tensions between universities and the regional governance structures. The financial crisis and the economic downturn, followed by the major changes in the higher education funding schemes, especially the new tuition fees in England introduced in the autumn of 2012, seem to have further conditioned the ways universities engage with their city-regions. In order to illustrate these on-going changes and responses to the crisis, in the rest of this section, we focus on institutional changes within the two city-regions.” (Charles et al., 2014, p.20).</i></p>	<p>The timeline of the crisis coincided with the new Labour Government abolishment of RDAs and introduction of LEPs.</p>
<p><i>“The political and institutional vacuum and fragmentation created by the change in spatial governance structure has created practical issues such as management of Entrepreneurial University funds. This scalar shift coincided with the financial crisis and subsequent austerity measures, cuts in public funding and the changes in the higher education funding mechanisms. The drastic reduction of funding and supporting structures devoted to HEIs regional engagement and additional pressures placed upon universities have further brought institutional differences into sharp focus.” (Charles et al., 2014, p.29).</i></p>	<p>Financial crisis linked to austerity measures in HE is funding for regional engagement.</p>
<p><i>“Whilst it is difficult to determine how the higher education sector has been affected by the financial crisis that hit the global economy in 2007 and the subsequent austerity measures introduced by the government, this climate has influenced university third mission activities by (directly or indirectly) constraining the availability of funding for external engagement of universities (Charles et al., 2014).” (Kitagawa et al., 2016, p.9).</i></p>	<p>Links financial crisis to austerity measures with regards to third mission activity in UK.</p>

Appendix K – Example Extracts - University Type – New or Old? (Context Theme2a.1.9)

Data Extract	Key points of interest
<p><i>“Other Old’ universities, which tend to be relatively smaller in size, and often have origins in technology and applied research demonstrate more targeted and focused strategies in relation to their knowledge Exchange activities, partners, and geographical scope.” (Kitagawa et al., 2016, p.16).</i></p>	Aston University
<p><i>“Top 5’ universities also recognize to have strategies beyond the regional dimension. For example, in the University of Manchester (‘Top 5’) the geographical focus of engagement mentioned in the strategy is all encompassing, (city-region) covering the international, national, regional, and sub-national levels.” (Kitagawa et al., 2016, p.18).</i></p>	University of Manchester
<p><i>“Imperial College in London (‘Top5’) also mentions geographic diversity in their institutional strategy. Their emphasis is on the international corporate partnerships, especially aiming to increase research income from non-EU industrial sources, initially targeting North American ones. 18 “Given the economic environment, it is now more important for the College to develop geographic diversity within its portfolio of industrial partnerships.” (Kitagawa et al., 2016, p.18).</i></p>	Imperial College in London
<p><i>“New universities” tend to be locally oriented, given their traditional focus on vocational education and training, and their relatively low engagement in basic research (Charles et al., 2014; Goddard et al., 2014). They are more involved in consultancy activities, especially with SMEs and local communities, while “old universities” are active in various Third Mission activities such as contracts of research with SMEs and large companies, consultancy contracts, and IP (including patents, copyright, design, registration, and trademarks) (Sánchez Barrioluengo et al., 2016).” (Degl’Innocenti et al., 2019, p.2)</i></p>	New universities vs old universities
<p><i>“New universities tend to be more teaching focused, and their Third Mission activities are assumed to be locally oriented given their traditional focus on vocational education and training, and their relatively low engagement in basic research [...] Boliver (2015) indeed found large differences between the old pre-1992 universities and the new post-1992 universities in terms of research activity, economic resources, academic selectivity and social mix.” (Sánchez-Barrioluengo et al., 2019, p.475),</i></p>	New universities
<p><i>“Whilst some of the differences are getting blurred in recent years through further expansion of the sector, there has been a general assumption that the newer HEIs are more ‘locally oriented’ given their focus on vocational education and training, combined with lower levels of research activity and funding in basic research (Charles et al., 2014; Goddard et al., 2014).” (Kitagawa, et al., 2016, p.10).</i></p>	Newer are more locally oriented

Appendix L - Example Extracts – Academic Identity and the Third Mission (Context Theme2c.1)

Term associated with academic identity and Third Mission	Term coined by/key Author	Example Data Extracts	Noticings
Academic capitalism	(Slaughter & Leslie, 1997)	<p><i>“Academic Capitalism (Slaughter & Leslie, 1997) Slaughter & Leslie (1997) coined the term ‘Academic Capitalism’ to refer to the ‘market and market-like’ behaviour of universities; these activities included an array of supra-teaching and research activities including consulting, patenting, and licensing, and the creation of spin-off ventures. While technology transfer is a central facet of Slaughter & Leslie’s model, they also recognise the inherent inequality and contradictions associated with university engagement in market and market-like behaviour.” (Vorley and Nelles, 2009, p.286).</i></p> <p><i>“Leys (2000) presents the juxtaposition between Kerr’s vision of the multi-versity, which is based around an organisational pathway towards autonomy, and more recent conceptualisations which are based upon a reciprocity between universities and the economy (and society). This focus on university engagement with the economy is embodied in the shift from science policy to innovation and technology policy, which are reflective of the neo-liberal turn in public policy (Weingart, 1997; Shinn, 2002). Here the focus is on three of the most prominent ‘models’ which address this transformation of universities, namely Academic Capitalism (Slaughter & Leslie, 1997), the Enterprise University (Marginson & Considine, 2000) and the Entrepreneurial University (Etzkowitz, 1983, 2004). All three of these models serve to reflect the economic bias in scholarship and public policy pertaining to contemporary universities and the Third Mission.” (Vorley and Nelles, 2009, p.286).</i></p> <p><i>At the broad end of the spectrum the literature on Academic Capitalism, the Enterprise University and the Entrepreneurial University provides a dialogue about shifting roles and the evolution of higher education policy in the context of broader</i></p>	<p>(Mainly referred to in Nelles and Vorley work)</p> <p>Technology transfer focus (This focus on university engagement with the economy is embodied in the shift from science policy to innovation and technology policy,)</p> <p>Market behaviour</p> <p>Entrepreneurial Architecture used to ‘bridge gap</p>

		<p><i>political change. By contrast, scholarship on university entrepreneurship tends to analyse the impact of specific institutional variables on the third stream in a search for best practices. While empirical cases contribute to an understanding of third-stream dynamics, these studies rarely engage in theory building. The gulf between these two streams of literature provides an opportunity to present a more holistic theory of the process of institutional adaptation to the Third Mission as well as provide a practical framework within which to conceptualise university entrepreneurship. Entrepreneurial Architecture represents an attempt to bridge these two literatures.” (Vorley and Nelles, 2009, p.290).</i></p> <p><i>“There is a growing pressure for academic curricula and research activities to respond to the needs of business and industry – the process that Slaughter and Leslie (1997) called ‘academic capitalism’. Besides the traditional missions of scientific enquiry (research) and human capital development (teaching), the so-called ‘third mission’ has become a major policy concern for universities in recent years (Laredo, 2007).” (Kitagawa et al., 2016, p.2).</i></p>	<p>between gulfs.’</p> <p>Similarities with corporate university</p> <p>Pressure</p>
Academic capacity	May and Perry (2003, 2006)	<p><i>“May and Perry (2003, 2006) argue that identifying both potential and actual academic capacities provides a sound basis for ‘measuring’ an HEI’s contribution to regional development.” (Woollard et al., 2007, p.391).</i></p>	No other references
Academic commercialisation “commercialization”	Perkmann's et al. (2013)	<p><i>“Similarly, Perkmann's et al. (2013) systematic literature review categorizes these different channels into two distinct groups: academic commercialization and academic engagement. This corresponds with Wright et al. (2008) argument that while licensing and patenting represent the transfer of codified knowledge, the development of collaborative contract research and consultancy may be mechanisms jointly to build tacit knowledge.” (Sánchez-Barrioluengo & Benneworth, 2019, p.207).</i></p>	<p>Only one reference</p> <p>Tacit knowledge links</p>
Academic engagement	Perkmann's et al. (2013)	<p><i>“An evaluation of the HEIF suggested an estimated return of between £2.9 and £4.2 billion in value, together with ‘significant progress in culture change in HE to embrace third stream working, although there was still further to go, particularly in terms of academic engagement’ (Galsworthy and Knee, 2007, p 31).” (Martin & Turner, 2010, p.274).</i></p>	Link formal to hard activities and informal to soft activities

		<p><i>“We divide activities into ‘formal’ and ‘informal’ activities, which also can be referred to as ‘commercialization’ and ‘academic engagement’ (Perkmann et al., 2013) or ‘hard’ and ‘soft’ activities (Klofsten & Jones-Evans, 2000). Because of the variation in universities and Higher Education Institutions, the ways they are structured and the roles they play, not all activities of the ‘Entrepreneurial University’ are necessarily carried out by a particular department or institution; they could be shared out between different parts of the university for instance, with entrepreneurship departments taking care of the entrepreneurship education elements and technology transfer offices handling the intellectual property.” (Pugh, et al., 2018, p.1838).</i></p> <p><i>“Similarly, Perkmann's et al. (2013) systematic literature review categorizes these different channels into two distinct groups: academic commercialization and academic engagement. This corresponds with Wright et al. (2008) argument that while licensing and patenting represent the transfer of codified knowledge, the development of collaborative contract research and consultancy may be mechanisms jointly to build tacit knowledge”. (Sánchez-Barrioluengo & Benneworth, 2019, p.207).</i></p> <p><i>“Lastly, our results also suggest that increasing numbers of re-searchers (‘academic heartland’) involved in academic engagement does not necessarily correspond to increments in raising regional performance under either the entrepreneurial or the (regional) engaged models. This appears counterintuitive as more people active in an area should lead to more outputs, but this assumption would on this occasion not be borne out by the empirical results. Our interpretation here is that engagement activities have become a policy category, and so numbers increase then more people recognise what they do as engagement, and see it as a less dangerous category to be active in. But if there is no change in engagement behaviour and only a change in reporting behaviours then this would not correspond to an increasing importance of engagement to the core university knowledge processes.” (Sánchez-Barrioluengo & Benneworth, 2019, p.214).</i></p>	<p>Links term ‘formal’ to ‘commercialisation’ and ‘informal’ to ‘academic engagement’</p> <p>Links to ‘tacit’ knowledge</p> <p>Change in reporting behaviour but no change in engagement behaviour.</p>
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		<p><i>“Public opinion and practitioners largely acknowledge the importance of universities as a vehicle for the creation and diffusion of knowledge. Policy makers have put forward several initiatives to support the so-called third mission, especially by facilitating the commercialisation of academic knowledge, such as patenting and licensing of inventions (D’Este and Perkmann, 2011; Geuna and Nesta, 2006). Concomitantly, scholars as well as practitioners have stressed the importance of academic engagement with non-academic organisations to create direct benefits for the economy and society. However, recent studies (Sánchez-Barrioluengo, 2014; Sánchez Barrioluengo et al., 2016) have raised concerns on the compatibility of the third mission with the research and teaching missions.” (Degl’Innocenti et al., 2019, p.8).</i></p> <p><i>“The types of third mission activities within individual institutional contexts are wide ranging [...] These interactions have been variously referred to as entrepreneurial activities, academic entrepreneurship, knowledge transfer, academic engagement and Knowledge Exchange activities. In the remainder of this paper, we use the term knowledge exchange (KE) as it better captures the broad-encompassing and diverse nature of the third mission activities (Hayter, Rasmussen, & Rooksby, 2018; Perkmann & Walsh, 2007), reducing the linear conceptualisation of the highly used technology transfer denomination (Bradley, Hyter, & Link, 2013) and highlighting a bi-directional exchange of knowledge between academic and non-academic actors (Roper & Hirth, 2005). Unlike the narrower term of academic entrepreneurship, it acknowledges interactions that go beyond commercial benefit, including engagement with the public sector and non-governmental organisations. Scholars have demonstrated that Knowledge Exchange mainly occurs through softer or open channels such as publications and consultancy activities (Cohen, Nelson, & Walsh, 2002; Perkmann & Walsh, 2007), student placements and generally the production of graduates as human capital development (Faggian & McCann, 2009; Iammarino & Marinelli, 2011) rather than ‘hard’ commercial activities such as patenting, licensing and spin-off activities (Philpott et al., 2011).” (Sánchez-Barrioluengo et al., 2019, p.473).</i></p>	<p>Is Third Mission compatible with research and teaching missions?</p> <p>Shift from Third Mission activity to Knowledge Exchange activity.</p>
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Academic enterprise	Woollard Zhang Jones 2007	<p><i>“Academic enterprise and regional economic growth models focus on ‘knock-on’ multiplier effects with quantifiable results in the growth of income and employment. In contrast, forward linkage approaches emphasize universities’ contribution through business-engaging activities. However, Universities UK (2006) points out that the economic activity generated by institutional expenditure is most readily quantifiable, whereas the economic impact of third-stream activity is difficult to estimate due largely to the lack of commonly agreed metrics.” (Woollard et al., 2007, p.391).</i></p> <p><i>“Our data also show that university-wide academic enterprise activities are not systematically organized or coordinated. The very concept of ‘academic enterprise’ has not been well received by the majority of staff.” (Woollard et al., 2007, p.395).</i></p> <p><i>“NEWUNI is not a homogeneous organization. Academic enterprise activity is concentrated in three of seven faculties. The knowledge base, the range of potential academic enterprise services and the market for each faculty is very different. Creating centralized, uniform structures and procedures along with general growth targets for all faculties seems at odds with the inherent variety of the institution. The ability to tailor strategy to faculty needs will be an important factor in determining the success of NEWUNI’s future academic enterprise efforts”.</i> (Woollard et al., 2007, p.396).</p>	<p>Lack of organisation</p> <p>Supports a ‘heterogenous’ argument.</p>
Academic entrepreneurship		<p><i>“In Academic Entrepreneurship in Europe, Wright et al (2007, p vii) focus entirely on ‘spin-off creation and development’. Recent policy initiatives strongly reinforce the links between academic enterprise and the commercialization of science (Mechanisms Theme et al, 2004; Shattock, 2000).” (Woollard et al., 2007, p.389).</i></p> <p><i>“University entrepreneurship as the commercialization of science, a similar scenario unfolds. O’Shea et al (2004, p 26), in their review of academic entrepreneurship literature, argue that a theoretical void exists in the research on university entrepreneurship: ‘The literature on this subject is primarily subjective in that most</i></p>	<p>Links to science</p> <p>Link to science and ‘theoretical void’</p>

		<p>writers develop conceptual models that are not empirically tested.’ A further difficulty in attempting to enhance our understanding of the phenomenon of university entrepreneurship results from the ‘loose’ use of the terms employed in the literature. As stated above, many authors equate university entrepreneurship with the commercialization of science.” (Woollard, 2010, p.414).</p> <p>“For ‘third mission’ activities see Etzkowitz, Webster, Gebhardt, and Terra (2000) conceptualization of universities taking on activities to ‘improve regional or national economic performance as well as the university’s financial advantage and that of its faculty’, differentiated from what Baldini, Fini, Grimaldi, and Sobrero (2014) define as ‘academic entrepreneurship’ through both formal and informal mechanisms to commercialize research. Indeed, as Trippel, Sinozic, and Lawton Smith (2012) explain, the ‘third mission’ term reflects multiple forms of engagement – economic, social and cultural.” (Pugh et al., 2016, p.1359).</p> <p>“The terms “Entrepreneurial University” (Clark, 1998; Etzkowitz et al., 2000; Gibb and Hannon, 2006) has been adopted to describe universities that effectively transcend their traditional mission by advance innovation and transfer technologies. A growing body of literature related to entrepreneurial universities and academic entrepreneurship equates these developments to the commercialization of science.” (Secundo et al.,2017, p.229).</p> <p>“What is evident from previous work is how little we know about individuals from such universities, especially how those from academic entrepreneurship departments connect with their regional context and the mechanisms they might use to assist a university in its goal of becoming engaged and ‘entrepreneurial’; nor is much known about measuring these activities to determine the economic impact.” (Pugh et al., 2018, p.1835).</p> <p>“A broad definition of the Entrepreneurial University by Etzkowitz, Webster, Gebhardt, and Terra (2000) is any university taking on activities to ‘improve regional or national economic performance as well as the university’s financial</p>	<p>Academic entrepreneurialism link to commercialisation of research</p> <p>Science focus</p> <p>Lack of measurement</p> <p>Entrepreneurial University – institution level</p>
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		<p><i>advantage and that of its faculty’, differentiated from what Baldini, Fini, Grimaldi, and Sobrero (2014) define as ‘academic entrepreneurship’, encompassing formal and informal mechanisms to commercialize research. The Entrepreneurial University as a concept differs slightly from academic entrepreneurship, and regional entrepreneurship, though all are arguably strongly interrelated. The Entrepreneurial University concept can be understood at the institutional level, whereas academic entrepreneurship refers to the activities and roles undertaken by individuals (Baldini et al., 2014).” (Pugh et al., 2018, p.1837).</i></p> <p><i>“Reassuringly, empirical work on academic entrepreneurship, specifically, and universities’ third missions, more generally, has increasingly adopted a micro focus; taking the individual university scientist as the unit of analysis. This work has shed light on, inter alia, the role of prior experience, seniority, age, gender, research focus and academic discipline on engagement in third mission activities (e.g., Abreu and Grinevich, 2012; Clarysse et al., 2011; D’Este and Perkmann, 2011; Haeussler and Colyvas, 2011).” (Freel et al., 2019, p.10).</i></p> <p><i>“Given continued ambivalence towards the third mission and its basis in the mindsets of the variety of academics on campus (Jain et al., 2009), we begin by constructing hypotheses that seek to understand the sources of antipathetic dispositions. In doing this, we borrow from the extensive empirical literature that has examined the micro-foundations of academic entrepreneurship. Our contention is that this work has elided an important step. The work we draw on has largely considered only the direct effects of human capital and economic variables in stimulating engagement (Goethner et al., 2012). That is, it has been concerned with how various antecedent characteristics are manifest in third mission behaviours. However, it is likely that these antecedents first shape attitudes and social norms that, subject to perceived control, shape intentions and actions in turn.” (Freel et al., 2019, p.11).</i></p> <p><i>“This persistent heterogeneity ought, in turn, to convince stakeholders that conversations that conflate science commercialization with</i></p>	<p>and AE at individual level</p> <p>Science focus</p> <p>Science focus</p>
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		<p><i>academic entrepreneurship and situate this as at the heart of universities' third mission, almost certainly neglect the larger part of entrepreneurial activities undertaken within the higher education system. This narrative leads to the privileging of star scientists and a narrow range of activities. Of greater concern, it concentrates resources and opportunities – both within the higher education system, towards particular 'types' of institutions, and within individual universities, towards particular individuals and activities. And it is not clear that such concentration inevitably results in the greatest social or economic gains.” (Freel et al., 2019, p.18).</i></p> <p><i>In many ways, we believe that academic entrepreneurship is analogous to corporate entrepreneurship. To this end, Wolcott and Lippitz (2007) usefully elaborate two dimensions that distinguish varieties of approaches to corporate entrepreneurship: resource ownership and entrepreneurial responsibility. (Freel et al., 2019, p.18).</i></p>	<p>Links to science</p> <p>Links AE with CE</p>
Academic identity	Mark Freel, Ajax Persaud, Tyler Chamberlin 2019	<p><i>some observers have inferred that the rules for academic assessment and career progression, which revolve around publications, research funding and teaching, are the primary impediments to greater engagement and entrepreneurship (Koryakina et al., 2015). However, this, in turn, underestimates the strength of a traditional academic identity, associated with a commitment to the norms of open science, publication and broad-based dissemination. (Freel et al., 2019, p.11).</i></p>	Links to shifting identity.

Appendix M – Example Data Extracts and Noticings – Innovation (Context Theme3 Indicator 2)

Data Extracts	Noticings
<p><i>“Governments around the world now see universities as key players in developing innovation systems and, thereby, contributing to economic growth (Bercovitz and Feldman, 2006; Etzkowitz et al, 2000).” (Woollard et al., 2007, p.387).</i></p>	<p>Innovation systems - broad</p>
<p><i>“Etzkowitz (2003) regards UK university involvement as a much more recent phenomenon, primarily government-driven, and a response to the innovation gap created by US universities. (Woollard, Zhang et al. 2007)</i></p>	<p>Broad</p>
<p><i>Funding for ‘third stream’ activities come from various sources aimed at different targets. The Higher Education Funding Council for England (HEFCE), through the Higher Education Innovation Fund (HEIF), supports universities’ general approaches to innovative outreach activities. The Department of Trade and Industry (DTI) promotes commercialization of universities’ research through knowledge transfer programmes (KTPs).” (Woollard et al., 2007, p.388).</i></p>	<p>HEIF - Innovative outreach activities DTI – commercialisation via KTPs</p>
<p><i>“This study of 15 UK universities explores the reality of university–industry liaison and service delivery roles. Contextualized within the role of universities in innovation and knowledge transfer, it confirms the views of previous analysts that tensions result from imposing third mission activities on organizations established for other purposes. Policy makers need to address the heterogeneity of the higher education sector if they are to achieve success with regard to UK competitiveness. Such an approach will include the recognition that internal collaboration may be actively discouraged while external links are simultaneously emphasized in institutional mission statements.” (Martin & Turner, 2010, p.273).</i></p>	<p>Broad</p>
<p><i>“While a recipe has a clear and simple purpose, the aims for universities are often more aspirational than practical, with universities expected to deliver national advantage by supporting innovation and economic success, enabling UK competitiveness and greater productivity, while addressing societal issues (DTI, 1998). For the UK to have ‘a competitive edge’ it needed to develop ‘world leadership in the most technologically intensive and science-based industries and services’ (Brown, 2005) and to move into ‘high-value goods, services and industries’ by capitalizing on the research base fundamental to this aim (DTI, 2006, p 3). Universities were required to add to their first and second missions, research and teaching, to address their third mission – their place in the socioeconomic context (HEFCE, 2009).” (Martin & Turner, 2010, p.274).</i></p>	<p>Broad – DTI Tech and science</p>
<p><i>“The emphasis on universities playing a key role in innovation in a knowledge-based society also relates to the rising profile given to ‘innovation’. Innovation is currently seen as the remedy for a range of ills, not only for economic development, but also for societal issues (DTI, 2006a). Seen as ‘the transformation of knowledge into novel, wealth-creating technologies, products and services’ (Porter and Stern, 1999, p 13), innovation requires</i></p>	<p>Broad - DTI</p>

<p>cooperation between ‘government, universities, third sector organisations, entrepreneurs, business and consumers’ (Bakshi et al, 2008, p 4). In this way, university–industry collaboration replaces industrial policy as the ideal way to promote innovation (Jacob, 2006; Jasanoff, 1996).” (Martin & Turner, 2010, p.274).</p>	
<p>“The identified innovation at the heart of upswings in the so-called ‘Kondratiev waves’ that profile socioeconomic development trends over long periods. He saw innovation as a dynamic process of ‘creative destruction’ in which new orders arise with the obliteration of the old. This process he attributed to the entrepreneur – the innovator who, in the Schumpeterian paradigm, would in effect count as a history maker. For all its significance as a landmark in the literature of innovation and economic development, Schumpeter’s contribution falls short of providing a theory of innovation. However, he has left behind a long-standing tradition of innovation studies to grapple with this shortfall. The quest continues in the form of innovation systems and evolutionary theory, in which the Triple Helix features as a strand.” (Zawdie, 2010, p.152).</p>	<p>Links innovation and Triple Helix</p>
<p>“The Third Mission differs from the other two missions of universities insofar as it makes them not merely passive agents of knowledge production, but rather power-houses of innovation, and hence strategic agents of sustainable development.” (Zawdie, 2010, p.152).</p>	<p>Third Mission linked with innovation</p>
<p>“Activities under the banner of the governance of economic development (henceforth referred to as ‘economic governance’) include: designing and running programmes to support entrepreneurship, innovation and business growth; engaging with policy-makers at the local, regional and/or national levels; acting as regional animateurs, engaging with businesses and communities in their localities for economic and wider social benefit. (Pugh, et al., 2016, p.1358).</p>	<p>Broad</p>
<p>Under the ‘strategic targeted areas of third mission activities’ identified in the documents, a variety of activities are illustrated by individual HEIs. For the purpose of analysis, key activities of each of the universities were grouped under the four categories as follows:</p> <ul style="list-style-type: none"> - “Innovation and enterprise” (including collaborative research, translational research, IP exploitation, consultancy). - “Skills and employability” (including student placements/internships, student start-ups, student volunteering). - “Employer engagement” (including CPD, short courses, work-based learning) - “Community and civic engagement” (including student volunteering, social enterprise).” (Kitagawa et al. 2016, p.14). 	<p>Grouped with enterprise - specific.</p>
<p>“The term ‘Entrepreneurial University’ (Clark, 1998; Etzkowitz et al., 2000; Gibb and Hannon, 2006) has been adopted to describe universities that effectively transcend their traditional mission by advance innovation and transfer technologies. A growing body of literature related to entrepreneurial universities and academic entrepreneurship equates these developments to the commercialization of science. Other research on university-industry relationships emphasises the role of</p>	<p>Narrow – tech science transfer Broad – regional system for</p>

<p><i>university in regional systems of innovation as the primary driver of economic development (Bercovitz and Feldman, 2006; Guan and Zhao, 2013).” (Secundo et al. 2017, p.229).</i></p>	<p>economic development</p>
<p><i>“Relying on universities to drive innovation and economic growth in a narrow innovation-push conceptualization, akin to the triple helix, may not best maximize the economic potential of universities in weaker regions. A less prescriptive theorization of regional innovation and the role of universities is required so that policy-makers can adapt best practice from elsewhere, sympathetic to regional specificities, considering the diverse roles universities play beyond the standard third mission activities.” (Pugh 2017, p.983).</i></p>	<p>Links narrow innovation with triple helix</p>
<p><i>“Universities have been described as ‘natural incubators’ (Etzkowitz, 2003, p. 111) at the very heart of innovation, creativity and economic growth. While not all universities are in such positions, the fact that universities need to be entrepreneurial in terms of their actions, orientation, education, structures, practices, culture and research is increasingly recognized (Fayolle & Redford, 2014).” (Pugh et al., 2018, p.1836).</i></p>	<p>Broad</p>
<p><i>“Entrepreneurial universities are drivers of innovation and entrepreneurship. (Guerrero et al., 2016; Philpott et al., 2011) contributing to social development and economic growth (Schulte, 2004) by fulfilling teaching, research and entrepreneurial activities simultaneously (Etzkowitz, 2004). An Entrepreneurial University potentially has different core aims and values (Rinne and Koivula, 2005, p. 110) given that shaping a dynamic and responsive university requires a strategic rethinking of existing structures and processes (Clark, 1998; Etzkowitz, 2003). This redesign to meet third mission aims has been embedded in policies for 20 years in the UK. These policies led to institutional targets and annual funding to promote innovation through better university partnerships with business and society.” (Martin et al., 2019, p.282).</i></p>	<p>Broad</p>

Appendix N - Knowledge Exchange is a Characteristic of the Third Mission (Exposure Theme 1c)

Data Extract about Knowledge Exchange (KE)	Noticing's in relation to Third Mission (TM)
<p><i>“These UK Governmental funds have been varied but all emphasized knowledge exchange and the application and commercialization of research. One example is the “Higher Education Innovation Fund” which was established to support “all forms of knowledge exchange (including enterprise) which led to economic and social impact” (HEFCE, 2011; funds homepage). This also identifies knowledge exchange as an “established mission of higher education, alongside and intertwined with research and teaching” through institutional strategy.” (Martin et al., 2019, p.282).</i></p>	<p>Links Knowledge Exchange to commercialization of research. HEIF links Knowledge Exchange to all forms of Knowledge Exchange towards socio-economic impact in 2011. KE described as a mission but no reference to Third Mission – KM seemed to be used instead of Third Mission</p>
<p><i>“Although these offices or departments had wide ranging titles (some examples – corporate engagement, business engagement, knowledge transfer, knowledge exchange), their aims and targets, structures and funding were very similar.” (Martin et al., 2019, p.288).</i></p>	<p>Structures different but Knowledge Exchange and Third Mission activity the same.</p>
<p><i>“Government funding proved to be a major driver for EA. HEIF is funding for knowledge exchange [...] to support and develop a broad range of knowledge-based interactions between universities and colleges and the wider world, which result in economic and social benefit to the UK” (HEFCE, 2017, coverage).” (Martin et al., 2019, p.289).</i></p>	<p>HEIF describes as funding for Knowledge Exchange rather than Third Mission in 2017.</p>
<p><i>“Despite their heterogeneous backgrounds and institutional differences, universities seem to be under a financial policy pressure to adopt similar practices” (Kitagawa et al., 2016, p.736). In many jurisdictions, universities are subject to “isomorphic forces”, resulting from centralised research evaluation and resource allocation processes. This is certainly true in the UK, where the Research Excellence Framework (REF) looms large. Indeed, evidence suggested that, despite the availability of an extensive set of metrics on knowledge exchange activity, centralised funding continues to privilege a much narrower range, and commercialisation in particular (Rossi and Rosli, 2015). This is remarkable. Empirical studies are consistent in painting a picture of a highly diverse higher education sector [...] With respect to the Third</i></p>	<p>REF linked to isomorphic financial policy pressure.</p> <p>Lots of stats on Knowledge Exchange but REF focusses on narrow range of metrics</p>

<p><i>Mission, universities appear to vary in at least three ways: the blend of activities that they undertake; the types of partners engaged; and the geographic scope of the activities (Kitagawa et al., 2016).” (Freel et al., 2019, p.18).</i></p>	
<p><i>“Scientific literature suggested different (although related) ways to categorize knowledge exchange activities. For example, Gunasekara (2006) distinguishes between: (a) transactional (generational) contributions made by universities where they codify and sell knowledge to users; and (b) developmental contributions, when they work together with their (regional) partners to improve the local absorptive capacity and systematically raise the intensity of knowledge exploitation in their immediate environment.” (Sánchez-Barrioluengo & Benneworth, 2019, p.207).</i></p>	<p>KE 2x definitions from science</p>
<p><i>“The database is structured in two parts. Indicators relating to strategy and infrastructure are collected under Part A of HE-BCI; these tend to be self-assessed responses where HEIs either select from a range of options or benchmark questions which allow respondents to place themselves on a scale of development. This part of the survey provides us information about the internal structure of the university. Part B includes financial and numeric metrics collected related to commercialization and knowledge exchange activities, corresponding to the Third Mission outputs in our theoretical model where we distinguish between the entrepreneurial and the engaged university models.” (Sánchez-Barrioluengo & Benneworth, 2019, p.209).</i></p>	<p>Structure of HE-BCI</p> <p>KE activity and commercialisation as part of Third Mission outputs</p>
<p><i>“Our overarching finding is that university entrepreneurial engagement converges around two distinct models. Universities orient themselves either towards particularly focused knowledge transfer outcomes or towards more general contributions to regional economic development activity. This suggested that there are difficulties in integrating and combining these ‘hard’ activities (supporting firm innovation via knowledge exchange transactions) and ‘soft’ activities (improving the wider regional economy) into a single coherent Third Mission”. (Sánchez-Barrioluengo & Benneworth, 2019, p.214).</i></p>	<p>Suggested either/or approach to Knowledge Transfer (KT) or more ‘general contributions’.</p> <p>KE is grouped under ‘hard activities’ demonstrating its tech/science roots</p>
<p><i>“Universities orient their engagement to their particular strengths in core missions and variants of engagement (e.g., Sánchez-Barrioluengo (2014) identifies three core processes, teaching, research and knowledge exchange that lie behind three engagement missions).” (Sánchez-Barrioluengo & Benneworth, 2019, p.214).</i></p>	<p>Three missions – Knowledge Exchange instead of Third Mission</p>
<p><i>“Given that generating impact seems to be an increasingly urgent. policy pressure, such as the UK Minister for Universities recent announcement of a Knowledge Exchange Framework to measure university knowledge exchange activity (Morgan, 2017), we highlighted three policy implications from our work, methodological, substantive and operational. Firstly, further</i></p>	<p>KEF launched in 2017.</p>

<p><i>development of these models of engagement is dependent on more robust structural indicators in higher education datasets beyond the UK HEBCIS survey. There are a number of international survey instruments, such as the European Tertiary Education Register (Exposure Theme ER) or U-Multirank into which structural and entrepreneurship variables are already partially present and could relatively easily be inserted. The second policy recommendation is to propose that policy need recognise that there are different, equally valid approaches to creating societal contribution, and there is no one size-fits-all model to be proposed. The risk of rewarding knowledge exchange metrics is in incentivising all universities to pursue one of the two orientations, even where the other orientation would better fit with their core activities. By developing knowledge exchange metrics (third recommendation) that better reflect the different missions and the different underlying knowledge processes it is possible to create policy frameworks that steer universities towards the most contextually-suitable orientation.” (Sánchez-Barrioluengo & Benneworth, 2019, p.215).</i></p>	<p>Dev more robust metrics needed than UK HEBCIS measures.</p> <p><i>European Tertiary Education Register (Exposure Theme ER) or U-Multirank suggested as models.</i></p> <p><i>No one-size-fits-all model</i></p>
<p><i>“As pointed out by Guerrero et al. (2015), although all the universities are devoted to research and teaching, the balance of these activities varies and tends to differ in terms of the mix of knowledge exchange activities carried out (Hewitt-Dundas, 2012). For example, “new universities” tend to be locally oriented, given their traditional focus on vocational education and training, and their relatively low engagement in basic research (Charles et al., 2014; Goddard et al., 2014). They are more involved in consultancy activities, especially with SMEs and local communities, while “old universities” are active in various Third Mission activities such as contracts of research with SMEs and large companies, consultancy contracts, and IP (including patents, copyright, design, registration, and trademarks) (Sánchez Barrioluengo et al., 2016).” (Degl’Innocenti et al., 2019, p.2).</i></p>	<p>KE – new – local</p> <p>Third Mission used interchangeably with KE</p>
<p><i>“There has been strong policy interest in universities becoming more entrepreneurial and engaging in knowledge exchange activities as part of an expanding Third Mission agenda. However, our understanding of the evolution and diversity of such activities is limited. Using longitudinal data from the Higher Education Business Community Interaction (HEBCI) Survey, this study examines the evolving configuration of universities’ knowledge exchange activities and stakeholders by analysing distinctive clusters of English universities. We find an increasingly diverse profile of Third Mission activities across different types of universities: within old, more established universities, Russell Group universities increasingly focus on research-oriented activities typically in partnership with large firms and non-commercial organisations, while another group engages in a broad range of knowledge exchange activities with low specialisation over time. Newer, less research intensive, universities increasingly rely on</i></p>	<p>KE is part of Third Mission</p>

<p><i>activities such as consultancy and formation of spin-offs. A decreased engagement with small and medium enterprises and a lower share of knowledge exchange activities at the regional level are observed across the time studied for all universities.” (Sánchez-Barrioluengo et al., 2019, p.469).</i></p>	
<p><i>“The types of Third Mission activities within individual institutional contexts are wide ranging (Guerrero & Urbano, 2012; Huyghe & Knockaert, 2014; Kenney & Goe, 2004; Philpott et al., 2011; Rothaermel et al., 2007). These interactions have been variously referred to as entrepreneurial activities, academic entrepreneurship, knowledge transfer, academic engagement and Knowledge Exchange activities. In the remainder of this paper, we use the term knowledge exchange (KE) as it better captures the broad-encompassing and diverse nature of the Third Mission activities (Hayter, Rasmussen, & Rooksby, 2018; Perkmann & Walsh, 2007), reducing the linear conceptualisation of the highly used technology transfer denomination (Bradley, Hyter, & Link, 2013) and highlighting a bi-directional exchange of knowledge between academic and non-academic actors (Roper & Hirth, 2005).” (Sánchez-Barrioluengo et al., 2019, p.473).</i></p>	<p>Use KM assuming it is a type of Third Mission activity.</p>
<p><i>“More specifically, HEBCI collects information on a range of Third Mission or third-stream activities, defined there as: a set of selected knowledge exchange (KE) activities in which a university/HEI strategically engages as an institution. The key Knowledge Exchange activities used in this paper are: collaborative research (collaborations), consultancy (consultancy), contract research (contracts), facilities and equipment related services (facilities), continuing professional development and continuing education (CPD), IP activities including shares, sales (patents and licences) and spin-offs (spin-offs). These activities are frequently used in the literature to capture the relationship between universities and other actors in the society (see for example Hewitt-Dundas, 2012 or Guerrero et al., 2015). Table 1 presents a detailed description of the selected variables for the analysis as well as descriptive statistics for the whole period. Due to differences in the nature of the variables, our analysis uses normalised variables by year.5.” (Sánchez-Barrioluengo et al., 2019, p.476).</i></p>	<p>KE activities part of Third Mission</p>

Appendix O - Third Mission Conceptual Source – New or Old? (Exposure Theme 2b)

New	Not new
<p><i>“Although the origins of the term ‘Third Mission’ are unclear, there is a consensus in the literature that universities worldwide have and are continuing to develop a new mission in addition to teaching and research.” (Vorley and Nelles, 2009, p.285).</i></p> <p><i>“The Third Mission represents a significant period in the (r)evolution of the academy, although it is a generic label given to heterogeneous institutions and practices. Indeed, Readings (1996) notes how the shape and form the new mission will take may vary; however, there has been a fairly high degree of conformity in the approach of institutions towards third stream activities.” (Vorley and Nelles, 2009, p.292).</i></p> <p><i>“The Third Mission defines a new era for academia. However, while it was first conceived in the 1970s, it was not formalised until the late 1990s and still remains largely underdeveloped. Whereas teaching and research have become largely mutually reinforcing spheres of the modern university, the Third Mission poses new challenges.” (Vorley and Nelles, 2009, p.293).</i></p> <p><i>“Shifting policy imperatives towards externally oriented engagement have served as a catalyst for institutional change that is redefining or perhaps has already redefined the traditional role of universities. In addition to the core missions of teaching and research, the newly emphasized and frequently commercially oriented activities are now framed as what is called a new Third Mission1.” (Nelles and Vorley, 2010a, p.162).</i></p> <p><i>“At the institutional level, outputs from the entrepreneurial process might take the form of new products or services, patents or spin-out companies. Such developments may</i></p>	<p><i>“The E3M (European Indicators and Ranking Methodology for University Third Mission) project suggests that third mission does not refer to a distinctively new mission. Instead, it encompasses further ways for universities to achieve the first two missions (namely research and education). As a result, E3M project distinguishes three dimensions of “third mission”: research, education and social engagement.” (Secundo et al., 2017, p.234).</i></p> <p><i>“As argued by Martin (2012), the promotion of the interaction between university and industry is not new to the university system. In fact, it is based on the idea of a “social contract”, which is closer to the one in place before the second half of the twentieth century. At that time, the so-called “third mission” was pursued by some types of universities, such as “polytechnics” and “grant” universities in the US and Europe1.” (Degl’Innocenti et al., 2019, p.1).</i></p> <p><i>“The role of universities in broader economic</i></p>

also lead to business in new geographical or product/service markets and are likely to extend the institution's competitive advantage, at least in the short term.” (Woollard, 2010 p.210).

“Various attempts have been made to develop a conceptual framework for interpreting and explaining these changes to universities and university research. One of the most widely discussed is the argument by Gibbons et al. (1994) that we are undergoing a fundamental 'shift towards a new mode of knowledge production'.” (Martin, 2012, p.555).

“This development of a ‘third’ mission reflecting multiple forms of engagement (economic, social and cultural) (Trippi et al., 2012) has sat alongside a transformation from an elite model to a mass system of higher education (Scott, 2010), and a greater marketization as universities were expected to find new sources of funding.” (Charles et al., 2014, p.2).

“All universities had new senior roles in third mission work, e.g., external engagement/research and enterprise, with extra staff in this area as part of that person's team. While mission statements and associated documents explained these new structures and roles in terms of innovation and enterprise; however, participants saw them as ways to avoid action by the institution or as a natural part of “empire building” by new senior staff.” (Martin et al., 2019, p.291).

“It is increasingly common to claim that driving regional development represents a new ‘third’ mission for universities alongside the first (teaching) and second (research) missions (Perkmann et al., 2013).” (Sánchez-Barrioluengo & Benneworth, 2019, p.291).

and community development is not new but has been given greater impulse by recent policies and initiatives designed to encourage interactions among universities, government and industry. Governments in most Organisation for Economic Co-operation and Development countries are actively supporting the third mission of universities in addition to teaching and research (Molas-Gallart, Salter, Pastel, Scott, & Duran, 2002; Rasmussen, Moen, & Gulbrandsen, 2006), and encouraging universities to engage in knowledge exchange (KE) activities with societal and economic/industrial partners.” (Sánchez-Barrioluengo et al., 2019, p.470).

Appendix P – Knowledge Factors and the Third Mission

Term	Exemplar Data Extracts	Theoretical Mechanism	Noticings
Intellectual Capital	<p><i>“A new conceptual framework based on Intellectual Capital approaches to measure third mission activities of universities. The framework establishes a generic approach for systematically analysing third stream activities in universities. Moving from the third mission goals, it focuses on three interrelated areas: research, i.e., technology transfer and innovation, teaching, i.e., lifelong learning and continuing education, as well as social engagement in line with regional and national development.”</i> (Secundo et al., 2017, p.229).</p> <p><i>“The measurement of intangible resources (or Intellectual Capital) that ‘you cannot see nor touch nor buy or sell’ (Fried and Orellana, 2006).”</i> (Secundo et al., 2017, p.231).</p> <p><i>“In the specialised literature a number of definitions of Intellectual Capital have been proposed in the last two decades. For the purpose of this paper, the authors define Intellectual Capital as ‘... the sum of everything everybody in a company knows that gives it a competitive edge... Intellectual Capital is intellectual material, knowledge, experience, intellectual property, information... that can be put to use to create [value]’.”</i> (Secundo et al., 2017, p.231).</p> <p><i>“Without doubt, the tripartite classification is the one that has the widest recognition in the specialised literature, resulting in the identification of three main Intellectual Capital components: human capital (HC), structural capital or organisational capital (OC) and relational capital or social capital (SC) (Nahapiet and Ghoshal, 1998; Boedker et al., 2008; Guthrie et al., 2006). The terms Organisational or Structural capital, and Social or Relational capital are often used</i></p>	Intellectual Capital Framework (Secundo, Perez et al. 2017)	Both a framework and activity

	<p><i>interchangeably in the literature. In the context of universities, the tripartite Intellectual Capital classification would be as follows:</i></p> <ul style="list-style-type: none"> • <i>Human Capital (HC) refers to the intangible value that resides in the people competencies; this includes the expertise, knowledge and experiences of researchers, professors, technical staff, students and administrative staff.</i> • <i>Organisational Capital (OC) comprises the intangibles resources that are found in the organisation itself: this includes, among others, the databases, the intellectual property, the research projects, the research infrastructure, the research and education processes and routines, the university culture and the governance processes.</i> • <i>Social capital (SC) refers to the intangible resources and capabilities able of generating value linked to the university's internal and external relations. This includes its relations with public and private partners, position and image in networks, its academic prestigious, its brand, partnerships with the business sector and regional governments, its links with non-profit organisation and civil society in general, collaborations with national and international research centres, networks and alliances, attractiveness as a place to study and to work, etc..” (Secundo et al., 2017, p.231).</i> 		
Intellectual Property	<p><i>“The scope of academic research is often confined to those areas where data is available: mainly on commercialisation activities (i.e., where universities attempt to generate revenues through the exploitation of their Intellectual Property -IP), on which organisations keep accounting records for administrative purposes.” (Molas-Gallart & Castro-Martínez, 2007, p.2).</i></p> <p><i>“Any approach to data collection and analysis that focuses purely on university commercial activities is likely to miss large and important parts of the picture.” (Molas-Gallart & Castro-Martínez, 2007, p.2).</i></p> <p><i>“As the activities seeking the commercial exploitation of university resources and research results, through licensing, research and consultancy activities, and the generation of spin-off companies. It is often assumed that Universities control a broad array of capabilities that are not being adequately exploited for income</i></p>	n/a	IP is a subset of Intellectual Capital framework. More focus on IP as an indicator rather than Intellectual Capital as a framework

	<p><i>generation. Through commercial exploitation these capabilities will be released and benefit, not only the universities themselves, but generate wealth for the regional and national economies.” (Molas-Gallart & Castro-Martínez, 2007, p.3).</i></p> <p><i>“Intellectual Capital is intellectual material, knowledge, experience, intellectual property, information... that can be put to use to create [value].” (Secundo et al., 2017, p.231).</i></p>		
Knowledge Exchange	Defined in Section Exposure Theme 1c (p.215).	Knowledge Exchange Framework	Activity and a framework
Knowledge-based enterprise	<p><i>“The dominant view in the literature is that universities’ key role in economic development is via the commercialization of scientific research either by patent licensing or, more commonly, by spinning out knowledge-based enterprises (O’Shea et al, 2004). For example, in Academic Entrepreneurship in Europe, Wright et al (2007, p vii) focus entirely on ‘spin-off creation and development’. Recent policy initiatives strongly reinforce the links between academic enterprise and the commercialization of science (Mechanisms Theme et al, 2004; Shattock, 2000).” (Woollard et al., 2007, p.389).</i></p>	n/a	
Knowledge capitalisation	<p><i>“It is the institutionalising of universities’ third missions that is a more recent phenomenon (Rolfo and Finardi, 2014); accelerated by increased funding pressures and growing managerialism, and a by a broader attachment to the entrepreneurial zeitgeist. In this, ‘knowledge capitalization’ is placed on par with knowledge production and dissemination (Goldstein, 2010) and universities are positioned as “engines of economic growth” (Tartari et al., 2014).” (Freel et al., 2019, p.11).</i></p>	n/a	Linked to TH Not used elsewhere in dataset
Knowledge commercialisation	<p><i>“For over a decade, governments at regional, national, and European levels have been concerned with the role of universities in innovation (Mowery and Sampat, 2005), economic development and knowledge commercialisation (Geuna and Muscio, 2008), and wider engagement with knowledge users (Hughes, 2011). This development of a ‘third’ mission reflecting multiple forms of engagement (economic, social and cultural) (Trippi et al., 2012) has sat alongside a transformation from an elite model to a mass system of higher education (Scott,</i></p>	Commercialisation vs engagement model Perkmann et al	No KC framework

	<p>2010), and a greater marketization as universities were expected to find new sources of funding.” (Charles et al., 2014, p.2).</p> <p>“Even though the commercialisation of academic research and various forms of engagement with non-academic communities are encouraged from both policy and management perspectives, it is still debated in the literature whether these can be successfully integrated with the traditional areas of teaching and research (among others, D’Este and Patel, 2007; Larsen, 2011; Hewitt-Dundas, 2012; Perkmann et al., 2013; Sánchez Barrioluengo et al., 2016).” (Degl’Innocenti et al., 2019, p.1).</p>		
Knowledge Economy	<p>“Universities are commonly cited as one of the most important engines of the new or knowledge economy (Mawson, 2007) (Vorley and Nelles, 2009)</p> <p>What is apparent from the above discussion is that the ascendancy of the knowledge economy has brought to the fore the entrepreneurial role of the university and its impact on the wider economy and society through the Third Mission exercised within the Triple Helix framework.” (Zawdie, 2010, p.153).</p> <p>“Others, however, subscribe to the optimistic thesis, seeing this as an opportunity for the ‘entrepreneurial university’ to become the ‘engine’ of the knowledge economy (e.g., Clark, 1998, 2004; Etzkowitz, 1998A, 1998B, 2003, 2004; Etzkowitz et al., 2000; Schulte, 2004; Kitagawa, 2005; Shattock, 2005).” (Martin, 2012, p.544).</p> <p>“In the UK, since the late 1990s, universities as ‘sources and repositories of knowledge’ (Lambert 2003) have been given a central role in the delivery of public policies designed to drive economic and social development in the knowledge economy, especially in line with local and regional economic agendas (Trippel et al., 2012), whilst certain types of institutions have stronger roots in their regions than others.” (Charles et al., 2014, p.7).</p>	Umbrella Term	Linked to global and society level

	<i>"The triple helix concept posits that interactions between university, industry and government spheres drive innovation in the knowledge economy (Etzkowitz & Leydesdorff, 1997)." (Pugh, 2017, p.983).</i>		
knowledge society	<i>"Further, policy theory has been changing, with the literature on the "knowledge society" shifting the analytical focus from technology transfer to the broader concept of "knowledge exchange". The product of this situation is a dynamic ongoing policy debate, which translates into disputes about policy objectives and goals." (Molas-Gallart & Castro-Martínez, 2007, p.4).</i>	Umbrella Term	Linked to global and society level
Knowledge factory	<i>"The regional role of the university may be in part a contested issue (Power and Malmberg, 2008), and a variety of conceptual frameworks have been developed to explain and examine the nature of regional interactions involving universities. These alternative models have been reviewed in detail elsewhere (Uyarra, 2010) but have evolved from a narrow focus on universities as simple knowledge factories through entrepreneurial institutions and nodes within innovation systems." (Charles et al., 2014, p.).</i> <i>"As factories of knowledge production, universities have become central to the knowledge-based economy, although Aronowitz (2000) notes them as tied to the bureaucracy of governments." (Secundo et al., 2017, p.293).</i> <i>"The wider economic, social and cultural opportunities have not been appreciated, and in weaker regions these may be more important than purely third-mission and knowledge-factory roles." (Pugh, 2017, p.991).</i>	n/a	No KF Framework
Knowledge Transfer	Defined in section Context Theme1b.3 (p.159)	Knowledge Transfer Partnership	Activity and process no KT Framework
Knowledge Exploitation	<i>"The "Third Mission" refers to all activities concerned with the generation, use, application and exploitation of knowledge and other university capabilities outside academic environments." (Molas-Gallart & Castro-Martínez, 2007, p.7).</i> <i>"Only since the 1990s have policymakers promoted initiatives such as the Knowledge Exploitation Programme to support universities' third mission</i>	Knowledge Exploitation Programme	No framework

	<i>engagement in a more comprehensive way (Rosli and Rossi, 2016)."</i> (Degl'Innocenti et al., 2019, p.3).		
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Appendix O

Topic	Recommendation for Future Research
Gaps identified	The MQSLR identified themes and gaps that could contribute to future reviews (Section 5.4.2, p.57).
Anticipate	Within an external policy landscape that is ever changing, a consideration is that a university needs to be aware of the Third Mission policy drivers, to anticipate future direction of UK higher education context (Section Context Theme 1a1, p.142).
SMEs	Whilst the focus is not specifically on SMEs it is noted that further consideration of SMEs with regards to Third Mission activity is recommended for future study (Section Context Theme 1c, p.163).
Explore and define 'Socio-economic'	The definition of 'socio-economic' could be explored with reference to 'university for the entrepreneurial society' as a future study (Section Context Theme 2a.1.1, p.173).
New or Old	Heritage of infrastructure, location, networks etc, may skew competitive advantage to some universities more than other. It is unknown from the data extracts whether this advantage can be split by new vs old. This could be a topic for future study (Section Context Theme 2a.1.9, p.185).
Interface Ecosystem	This interface-ecosystem therefore acts as ' <i>an environment where internal and external contexts come together to create appropriate conditions for Third Mission activity.</i> ' This ecosystem is complex and underdefined in the corpus of data and is recommended for future study (Section 9.2.3, p.196).
Soft and new linkages	Due to the lack of extracts on the term 'soft,' the link between 'new' or 'teaching-focussed' university being more focussed on softer activities is recommended for future study (Section Exposure Theme 1b, p.211).
Source of Third Mission	In summary there are differences in opinion of defining the Third Mission as a new concept. As mentioned earlier, the source appears to have come from policy (HEFCE, 2009), however there is no explicit link in any of the data to confirm this. Further exploration (outside of the dataset) of grey material is recommended for future study (Section Exposure Theme 2b, p.225).
Emergent framework	Using the <i>Third Mission Catalyst Conversation</i> approach (Section 10.3.1, p.283), each element of the <i>Third Mission Continuum</i> requires involvement from people at all SOGI levels, to ensure the ' <i>expectations</i> ' set are agreed and reflect the CEMO identified. It is noted this framework is emergent and future research is needed to develop it further (Section 10.3.1, p.283).
A change approach	To transition a university (and the community of people within it) from their ' <i>current Third Mission state</i> ' to a ' <i>future Third Mission State</i> ' requires change. This means a change in the 'structures/systems' and the 'behaviours', at all SOGI levels (university, Business School, and

	individual/academic). (Section 10.3.2, p.285). Any change approach can be used by a university and is recommended for future study.
Integration	Many models do not articulate their stance on integration or separation within the data extracts, so further study would be required (Section 10.3.2, p.285).