



# Swansea University Prifysgol Abertawe

**Implementing Innovation, Improvement and Evidence-Based Practice in  
Service Delivery: A Model for the Primary Care Sector in NHS Wales**

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## **Abstract**

The British NHS has continuously innovated since its inception almost 75 years ago. Innovations come in many forms and range from process innovations to advances in technology and digital enablers, which have radically changed professional practice. There are also a large volume and wide range of managerial improvement programmes and significant levels of evidence-based practice as well as clinical research. The challenge lies in determining how best to implement these innovations into existing systems so that their potential can be realised.

Throughout all of these years, the locus of research activity has been on secondary care and specialist innovations. This bias has favoured clinical and professional groups who operate in highly specialised and distinctive areas of health and care provision. The majority of NHS activity, however, occurs in primary care where there is less specialisation and organisations tend to be smaller. With more limited financial resources, general practices face significant challenges in their attempts to embrace the latest innovations for the benefit of patients and local communities. This research addresses the determinants (enablers and inhibitors) that relate to the adoption of innovation by primary care organisations, building theory and redressing the imbalance in research activities.

While some models of implementation already exist, they have been drawn from the field of secondary care. Having exposed a gap, this research responds by developing a framework that specifically focuses on the implementation of innovation, improvement and evidence-based practice (known as 'EBP') in primary care.

The study takes a realist pragmatic approach to understanding the enablers and inhibitors of the implementation of innovation, improvement and EBP into primary care. The research has been conducted by means of several distinct phases. This includes an initial conceptual model, drawn from a review of the existing academic literature, followed by a qualitative phase of expert interviews with purposively selected informants as well as the development of an empirical model. The researcher also created a questionnaire which was sent to experts from various parts of the Welsh NHS innovation ecosystem.

The research study contributes much to our understanding of innovation in primary care and has resulted in a final and tested model of the innovation, improvement and EBP implementation that is in operation in Wales. The research finds many failings in the current system, which are preventing the seamless migration of promising innovations and advances in care into the primary care sector. These inhibitors include a lack of trust between the actors within the system, the imposition of national directives – without any form of support to the general practices – and a lack of competence in the form of variable staff competence in general practitioners’ surgeries.

The research concludes that the determinants identified and the poor levels of trust and joint participation between providers, commissioners and government are preventing a collaborative systems approach. Primary care in the Welsh NHS, therefore, is currently unable – as a system – to create a critical mass of general practices that all use similar and interoperable innovations. Without such sharing of innovation, improvement and EBP, and without addressing the way in which the stakeholders of the Welsh NHS interact, it is unlikely that meaningful progress will be made across all general practices in Wales.

## Declarations and Statements

### DECLARATION

This work has not been previously submitted for any degree and is not currently being submitted in candidature for any degree.

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### STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used, the extent and nature of the correction is clearly marked in footnote(s). Other sources are acknowledged by footnotes giving explicit references. A Bibliography is appended.

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## Abbreviations

Abbreviation	
BMA	British Medical Association
FTE	Full-time Equivalents
EBP	Evidence-Based Practice
GMS	General Medical Services Contract
GP	General Practitioner
LHB	Local Health Board
NHS	National Health Service
OL	Organisational Learning
OM	Operations Management
R and D	Research and Development
SPSS	Statistical Package for the Social Sciences
TQM	Total Quality Management
UK	United Kingdom
US	United States
WG	Welsh Government

## Chapter 1: Introduction

The British NHS is a cherished institution which was the first innovation of its time when it was established in 1948 by Aneurin Bevan MP. Since that time, innovations have entered the service and have changed the way in which care is accessed, delivered and practised, as well as approaches to how conditions are managed. Despite a preponderance of works concerning innovation in manufacturing processes in scholarship to date, health and care processes change worldwide at an ever-increasing rate. This chapter will present the background and an overview of this research journey before presenting a sequential series of chapters that provide greater detail, transparency, justification of the findings and highlight the contributions of the study to the existing body of knowledge.

### 1.1 Research Background

From a professional practice perspective, Professor Muir Gray proposed a systems approach to care provision and a broader perspective on using innovation to enhance and improve practice. He proposed:

*The economic crisis has provided the burning platform from which people need to jump from institutions, such as hospitals, to systems of care. Systems of care will be the dominant paradigm for 21<sup>st</sup> Century healthcare. (J.A. Muir Gray, 2011)*

Seeing health and care as a system of dependent organisations implies that innovation – to combat economic crises and the budget cuts that ensue for publicly funded systems – is an important capability and competence that, potentially, could improve the performance, responsiveness, and efficacy of care among many other benefits. The UK’s NHS, the subject of focus of this thesis, is seen as being one of the best healthcare systems in the world, particularly in terms of being seen as a platform for equity among citizens (Welch 2018). Every citizen in the UK has “free” access to it and benefits from it when they need it. This system is almost unique and, around the world, is often viewed by those without access to such healthcare as being extraordinary (Kingsfund 2019, Ferry and Scarparo, 2015).

The UK NHS is, however, not a healthcare system without its own challenges. The needs of the population continue to evolve (longer life expectancy with greater co-morbidities), causing the variety of services needed to increase while the population itself grows (volume of demand). The challenges facing the UK NHS are vast; broadly speaking, they may be summarised as an increasing demand for care that is almost insatiable. Policymakers, commissioners, managers of care organisations, practitioners and patients have to do something about ‘the system’ – and there have been many interventions, improvements and innovations introduced by way of response (Barnett et al., 2016). The NHS has also become a political issue due to the vast expenditures of taxpayers’ money that it consumes, its high levels of employment, and the scale of future funding needed in order to meet national demand in a way not seen in other countries. This adds another unique, challenging dimension for NHS organisations that operate in the UK and its constituent countries, including Wales.

The NHS has not stood still but has evolved new systems of care provision and new organisational structures as well as reconfigured journeys of patient flows and care provision. These changes have necessitated and been facilitated by new technologies and new medicines as well as new management practices. There is no shortage of developments in innovation, knowledge, science or evidence-based practice (EBP) with the potential to improve care and offer responses to these challenges (Kingsfund 2019).

To realise the potential improvements that these developments offer, they must be successfully implemented into the existing systems of care (existing processes must be adapted rather than relying on a newly-created organisation that would adopt a new way of working). This has become a major academic field of study and source of contemporary debate: one to which this thesis seeks to make a contribution. The objective of this research is to explore the concept of innovation and a systems approach in the specific context of primary care provision in NHS Wales. Primary care is the point in the system where the most activity takes place (and to which the smallest amount of national expenditure is allocated in relative terms to the secondary care provided by specialists). It is also comparatively less well understood in the academic literature on the subject. Modern pressures make the study of primary care innovation timely, relevant and of practical use when seeking to improve system performance.



Academically and professionally, ‘implementation research’ – or ‘implementation science’ as it is also known – has become very popular as a methodology to embrace innovation and improve practice. The approach supports a scientific and ‘evidence-based’ approach to improvement, originating from the “evidence-based practice movement” that became a major force for change in the 1990s (see Nilsen 2019). The ‘evidence-based’ or ‘implementation science’ approach is defined as “the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients” (Nilsen 2019).

In the 2000s, this field has become a source of greater interest to researchers and practitioners alike, as evidenced by the sheer number of papers in this subject area. According to Nilsen (2009), four academic papers were published in the Pubmed database in 2006: a figure which rose exponentially to 897 peer-reviewed papers in 2019, following the wholesale adoption of this approach to innovation and improvement. The number of papers addressing the primary care setting remained comparatively low, however, despite its vital purpose as an immediate service to satisfy patients as well as the key referrer to secondary care activities.

Primary care was noted as a context that would provide a gap for exploration by the researcher and was later confirmed as the focus of this study. Primary care delivery in the NHS is different to hospital-based or secondary care. General practice is effectively subcontracted to small organisations – usually, partnerships of licenced and regulated General Practitioners (GP) for the provision of medical services to local communities. These small organisations hold a standardised contract, agreed between practitioner representatives nationally and the NHS (in the case of this study NHS Wales). They effectively operate as quasi-independent businesses operationally and are autonomous in much of their decision-making. As independent organisations, their autonomy is somewhat curtailed by a single ‘customer’ for GP services (e.g. one funder and one contract with GPs). This creates a different context for implementation and one which has not yet been sufficiently explored; models of innovation and innovation diffusion are not well understood (Robertson et al. 2016).

Implementation research has, therefore, traditionally focused on hospital settings primarily; new knowledge is needed for this specific setting of primary care and general practice. Taking implementation research and the current body of concepts, perspectives, theories, models, frameworks and methods as a theoretical basis provides a solid grounding on which

to build a contribution by theory-building in this context, addressing a major gap in the existing body of knowledge. The literature shows that many models exist for innovation – but few have been applied specifically to primary care settings where there are more, smaller and potentially less formalised organisations with regard to innovation and improvement. In addition, these general practices do not have the comparatively vast resources and access to innovation nor the power to work easily with potential collaborators for innovation. The context of general practice, its importance to innovation and care locally, the high level of activity in the primary sector and the issues of small business engagement in innovation made it an ideal setting to undertake theory-building research with a view to a practical outcome in terms of understanding how such organisations engage with innovation and the wider national eco-system of organisations that promote health and care management innovation.

### 1.3 Theoretical Framing

The high levels of dependency between actors in a health system (the government, NHS Wales, GPs and those promoting innovation) make it an identifiable innovation eco-system. As such, a systems perspective must be undertaken when exploring its practical and theoretical foundations.

Systems theory is a highly powerful and established approach for studies of health and care organisations globally and is an excellent way of framing complex systems and how they operate as supply chains (eg Von Bertalanffy 1928, Weiss 1971).

Innovation also includes technological innovation formats (new ‘hard’ technology) as well as management practices (softer innovations). This makes the study very suitable for a socio-technical systems analysis of organisations and consideration of how they engage with innovation, what enables such engagement and what inhibits it.

### 1.4 Practical Context

In practical terms, in undertaking this study, the researcher intends to generate pragmatic outcomes for the exploitation of the national system of innovation – as well as to identify issues that inhibit the translation of innovation providers into improved performance and practice.

The under-researched nature of primary care would make any implications of this study of high utility for the single NHS contracting organisation, innovators and the practical delivery of care services by general practitioners in the primary setting.

## 1.5 Research Objectives, Aims and Questions

In order to frame the study and to expose the gap in research to date, the following subsections will detail the specific research objectives, aims and questions of this study.

### *1.5.1 Research Objectives*

This thesis has two phases of activity. The first phase was designed in such a way as to develop a model of implementation of innovation, improvement and evidence-based practice (EBP) in primary care. The second phase then takes the conceptual framework (drawn from all authors) and is used as the means to test the model empirically, utilising expert informant opinion and real-world general practice.

The first objective of the research was, therefore, to review the existing literature on the implementation of innovation, improvement and EBP which would be expected of a doctoral thesis. The review of the existing literature, despite it being broad in nature, enabled the researcher to effectively frame the key issues facing an innovation system and its constituent actors. This process started with a broad funnel of all literature that were not wholly specific to health and care provision. The researcher then crafted and refined the remit of their literature review and wider study to published works that specifically relate to primary care.

The process generated a historical account of how the sector has evolved and foregrounded the key contemporary issues that face the sector. A second objective of building the literature-derived conceptual model was to identify and test the key concepts and themes identified that had been revealed in the literature review as being important to innovation, improvement and evidence-based practice development.

The third objective of this study was to use this model to inform the study and data collection phases – qualitative and quantitative phases with analysis. The latter is a methodological

contribution (instruments created) as well as a robust means of testing the framework with professional informants.

A new, refined model (empirically justified) emerged that was specific to innovation, improvement and EBP forms of implementation in primary care, developed in the context of the Welsh NHS. The final objective is to verify the determinants of successful instances of implementation of innovation and improvement in order to inform better practice and identify the areas of potential change in policy that would be needed to ensure that the innovation ecosystem is effective for primary care general practices.

### *1.5.2 Research Aim:*

The following sentence provides a synopsis of the research aim:

**To develop a model to identify the determinants of successful implementation of innovation, improvement and evidence-based practice programmes; to support practitioners in the primary care sector in NHS Wales**

### *1.5.3 Research Questions:*

In order to operationalise the theme of model development and to express the research as a theory-building set of research questions, two key research questions were developed to close the knowledge gap in this subject area and field of study. The first research question is expressed as:

**RQ1: What determinants effect successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?**

**RQ1A: What determinants, featuring internally within primary care provider organisations, influence the implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?**

**RQ1B: How do external determinants influence successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?**

The research question and its two parts were determined so as to detect and explore the influences on organisations to innovate and necessitate a full understanding of the national system of support.

The second research question is expressed as:

**RQ2: What insights can be gained for practitioners and policymakers by applying the developed model to the context of NHS Wales Primary Care delivery?**

The second research question takes the findings and answer to RQ1 and the conceptual framework (drawn from the literature review) and is used to test the validity and utility of the framework when comparing it to the general practice of all members of the innovation ecosystem.

### 1.6 Research Boundaries

The researcher determined that the boundaries of the study would include general practices and supporting organisations, supporting individuals and technical companies that are involved with innovation development, dissemination and implementation.

These informants would directly impact the attitudes and behaviours of organisations in the primary care setting. The study “ruled out” the engagement of staff from the secondary or tertiary care sectors. It also focused on implementors and did not extend to patients as users of that care journey.

It is also noted that this study was operational during the COVID-19 pandemic which restricted the methods available to the researcher.

## 1.7 Research Contributions Sought

This research offers a number of potential contributions in terms of exploring the existing literature to create a new and contemporary theoretical framework in a sector that has not enjoyed great levels of research into the implementation of innovation, improvement and EBP in the past.

The second contribution sought is the creation and presentation of a theoretical framework that is of relevance and utility to primary care organisations in Wales and based on two phases of original research: a theory-building exploratory qualitative phase, resulting in a new model with which one may identify the deficiencies of existing system design, and a quantitative phase – to test and validate the newly-created empirical model of implementation of innovation, improvement and EBP for primary care organisations in Wales.

The third contribution concerns the provision of guidance for practitioners, policymakers, commissioners and managers of primary care. These groups are dislocated from the bulk of NHS research in this subject area yet would benefit from improved knowledge to assist their response to a myriad of challenges facing primary care in Wales. The contributions from this thesis go some way to addressing those gaps and contemporary stakeholder needs.

## 1.8 Structure of the Thesis

In order to assist the reader, this thesis is structured into a logical and incremental series of chapters that commence with a literature review, then introduce the methodological design of the study, present the findings and discuss/conclude what has been found, learned and added by this study.

The thesis is structured systematically over eight chapters and, following this introductory chapter, these comprise a literature review chapter where the conceptual framework will be presented, a research methods chapter which validates the chosen epistemology and methodological approach for this research, the presentation of the research results and findings, a discussion of how the study has answered the guiding research questions and, then, a final conclusion chapter which will declare the implications of the study, its

contributions and next stages in developing the field for the benefits of primary care organisations. The chapters are presented as follows:

- Chapter One is an introductory chapter and gives an overview of the thesis and research. It identifies the research background, theoretical framing, practical context of the research, the objectives, aims and research questions for the study, research boundaries or limits on the scope of the study, the thesis structure and a summary.
- Chapter Two explores the literature from one set of background theoretical literature and four focal fields of study. These are the theoretical literatures of systems theory, followed by the focal literatures of innovation management, operations management, change management and implementation research. This latter field is the main literature on which the research is based, and the one to which it makes theoretical contributions. The first three focal fields are applied far wider than the remit of healthcare and have influenced implementation research.
  - The approach was to use these as a wide funnel and then work to locate healthcare specific literature in implementation science. Looking at the different types of models which have been used to explain implementation was one objective. The researcher found that there were different possible options, ranging from process models to deterministic ones. It was found that deterministic models – that is, those which do not specify a staged process of implementation but make users aware of enablers and inhibitors – would best meet the research aims.
  - A key aim was to identify existing enablers and inhibitors of successful implementation of innovation, improvement and EBP. These may or may not then be found to apply in the context of primary care, may not fully explain implementation, may need to be added to and may need to be remodelled into a new conceptual model that is specific to primary care.

- Chapter Three presents the research methodology, strategy and methods that were adopted by the researcher in undertaking the research. The chapter begins with a discussion of the research philosophical, epistemological and ontological positions. This is followed by a presentation of the Saunders Onion (Saunders 2016) and a discussion of the choices that this model leads the researcher to make in terms of various aspects of research design. These include the nature of research as being theory-building or theory-testing, whether it will be single- or multi-phased, the methods used to collect data, the analysis of that data and the presentation of conclusions.

The researcher decided that, to best answer the research aims and objectives, a multi-phased approach would be best. This included the first phase of theory-building, where the theoretical model developed from the literature could be used as the basis to collect and analyse new data. An updated and original model could be developed from this data collection. A second stage could then be used to verify the new enablers and inhibitors of successful implementation of innovation, improvement and EBP in primary care. The chapter concludes with a discussion of possible limitations of the design, ethics and research quality.

- Chapter Four is a context chapter and outlines the environment to which this study relates. The UK's National Health Service (NHS) is introduced with a brief history, followed by contextual information for the reader about the specific environment of primary care delivery in the Welsh NHS. The researcher included this chapter as much of the existing frameworks of implementation of innovation, improvement and EBP relate to secondary care or service delivery more generally. The framework proposed by this research is specific to the specialist area of primary care delivery, which has many differences from secondary care and service delivery. The main differences arise from care being delivered by a large number of small providers, who deliver care as part of a contract. Issues that are specific to NHS Wales primary care are also detailed in this chapter, which were most contextually relevant at the time of the study being conducted, for example, changes to insurance and indemnity which arose as a point of discussion in many of the participant interviews. The researcher



has included this chapter for the benefit of the reader so that they may assess the resulting framework in context.

- Chapter Five is the first of two results chapters, presenting the findings and analysis of this research. This first results chapter presents findings of the first phase of this research: a qualitative thematic analysis of 13 mini cases of implementation of innovation, improvement and EBP that were accessed through expert interviews with experienced practitioners and implementers. The results are presented in tabular form with each determinant being found from the data being summarised, accompanied by a definition, level descriptors, details of the relationship to the existing literature and a relevant summary of the data collected. The chapter ends with the presentation of an improved framework for the implementation of innovation, improvement and EBP, which confirms relevant determinants from existing frameworks and theory as well as new concepts to explain the conditions needed for successful implementation in primary care.
- Chapter Six presents the results of the second phase of research: a quantitative analysis, testing and applying the improved framework of implementation of innovation, improvement and EBP that has been developed from the determinants of success identified in the literature, confirming or excluding these from relevance to primary care and identifying new concepts which better explain implementation in the specific context of primary care. Data were collected through a questionnaire distributed to implementors and responses were analysed using three quantitative analysis techniques: descriptive statistics, correlation analysis and regression analysis. The results are interpreted in the context of the Welsh NHS with areas of interest presented to the reader. The framework is applied to the Welsh NHS primary care innovation ecosystem using the survey data and its analysis, affording interesting insights for the next discussion chapter.
- Chapter Seven presents a discussion of the research study findings and answers the three research questions that are set out in the introductory chapter. This is done by revisiting the literature search and detailing the contributions to knowledge that are

made by this study in the context of this literature. The main contribution that this research makes to the field of implementation research is the improved framework of implementation of innovation, improvement and EBP for primary care in Wales. The findings of the research are then discussed through the lens of systems theory as a background literature.

- Chapter Eight is the conclusion chapter and brings the thesis to an end. It restates the research questions and summaries the contribution made by this research in answering them. There follows a presentation of the implications of this research to practitioners and policymakers, bringing the research back to a pragmatic application for these stakeholders in the Welsh primary care innovation ecosystem. Reflections on the study are then presented by the researcher and the study draws to an end.

### 1.9 Chapter Summary and ‘Uniting Thread’

This introductory chapter has provided an overview of the research and this thesis. It began by outlining the pressures that the sector is facing and outlined the scope of the study that was planned by the researcher. The theoretical position and framing of the research was also detailed to provide a brief contextual foundation for the reader. The main research aim, objectives and questions were declared before providing an overview of the thesis structure. The main points concern the lack of previous studies of this nature – pertaining to the primary care sector specifically, despite a long history of improvement science in the secondary care sector – and the characteristics of general practice where many more semi-independent organisations operate in local communities.

Unlike previous studies of hospitals, there are more primary care providers with fewer resources and an imperative to improve performance. Primary care organisations lack the power and resources of the hospitals and are harder to access and study in comparative terms. Yet, the performance of the entire NHS Wales system is dependent on the role that is played by GPs and the amount of innovation that can be accommodated by primary care organisations.

Questions of the absorptive capacity of GPs as individual small ‘businesses’, how they access the innovation ecosystem in Wales and what constraints they face, therefore, remain unexplored – creating a scenario in which theory-building should be undertaken.

## Chapter 2: Literature Review

The purpose of this chapter is to present and explore a gap in the existing body of knowledge and published works in the subject area of innovation ecosystems and the diffusion of innovations in healthcare practices in particular.

### 2.1 Chapter Introduction

All research is located within both a focal literature which is specific to the research being conducted and serves to provide an underpinning foundation to the study and it identifies an area of academic undertaking which will improve academic understanding. This chapter will explore the focal (subject specific) literature before creating a conceptual framework and justifying this framework by using background theories to explore its theoretical utility. As such, focal literature is specific to the research agenda and extant knowledge in the field of study and the background literatures form a theoretical lens through which the contribution of the study may be accessed and framed.

This chapter will review three broad areas of focal literature and one specific. These three areas of focal literature are innovation in the delivery of services, operations management and change theory. The specific area of focal literature this thesis will then be framed around is implementation research. Implementation research or implementation science has evolved from these three fields and so the literature interlinks at different levels and from different theoretical perspectives. This thesis sits and contributes to knowledge at the intersection of each of these fields. The structured literature review will then address the subject of implementation of innovation, improvement and evidence-based practice (EBP), from the theoretical perspective which treats the organisation as a system.

The background theory underpinning this study is general systems theory due to the holistic and ecosystem perspective needed to understand the modern phenomena of innovation systems within the healthcare context. This theory views the organisation and its relationships with others as a system and systems theory research programmes focus on how these systems are arranged, how they learn through relationships and how they improve towards some common goal and purpose – such as improving performance for the benefit of patients. This research fits well with systems theory as an underpinning literature as it also views primary care as part of a system and part of a patient journey; focusing on how best to

implement innovations, improvements and evidence-based practice to improve it. The background literature used to inform this study also includes agency theory, to a lesser extent. This looks at the power of the innovator to engage in change processes. More so, the study uses systems theory to form the start point that innovation and change programmes impact on a system to bring about process improvement or fail to embed change. Successful change results in performance improvement or and/or quality improvements.

## 2.2 Focal Literature

This section will review three broad areas of focal literature or schools of thought concerning a systems approach to innovation management. The reviews will detail the current academic debates in bringing about positive change through the adoption of innovation by organisations and their relationships with other actors in an innovation system. The chapter will present existing research, identifying its strengths, its weaknesses and gaps in the existing body of knowledge concerning what is currently known about implementing innovation, improvement and EBP in healthcare and primary care.

Innovation is defined as the process through which new ways of working are established and implemented in an organisation (Trott 2016) and driving positive change in the perception of stakeholders of that organisation. For the ease of the reader, the first area of literature considered defines and reviews the extant knowledge of innovation in organisational processes. This thesis focuses on two distinct forms of innovation – technological and operational forms of innovation – or put simply ‘new ways of doing things’. When innovations are adopted by primary care providers and their service operation successfully, the opportunity that innovation presents are converted to improvement for its stakeholders and patients.

Operations management is the framework through which resources are converted into valuable outputs for an organisation and also how organisations interact to form a supply chain for patients and the diffusion of good practices for patient care, safety, delivery and innovation (Slack et al, 2019; Johnson et al 2014). It is the organisation’s operations, described best as a patient journey, to which innovation, improvement Evidence Based Practice (EBP) must actually be applied to in practice to achieve higher performance. It should be noted that the scope of the term innovations, improvements and EBP employed to

improve system outcomes to stakeholders in that system and this research, are limited to the service sector context (as opposed to hard technologies and physical devices or instruments) (Silvestro et al.1994; Johnson et al 2016). The focus on service processes is because the delivery of primary care is a healthcare service context and technology are employed in delivering that care. In addition, focussing on service processes the researcher could identify how service processes are influenced by the broader innovation system and its actors. The objective of this study is therefore to better understand what enables or inhibits the implementation of innovations, improvements and EBPs which may or may not improve the operational performance of the organisation using and adopting the innovation.

Change management is a body of academic knowledge used to prepare organisations to engage in a process of effective change to raise performance levels. Change is defined as moving from one equilibrium of business-as-usual to a new one (Hayes 2018). Traditional and modern change management theories as well as contemporary studies of applied change interventions, will be presented and reviewed in this chapter to find the relevance of innovation and change management models associated with health and care (as well as industry) in order to reveal the gap in this field of study and the current understanding of innovation-driven change programmes.

Implementation research, or implementation science, is the study of integrating innovation, potential improvements and research outcomes into healthcare delivery systems (Lehman 2017). This field is closely associated with the improvement of health and care processes and provides an intersection of the three core fields of literature used in this study. There are influences of each within implementation research however it exists as a focused field. It provides a robust theoretical understanding of the interventions and process of change management that underpins this study; and offers an opportunity to meaningfully contribute and develop that existing work. Figure 2 depicts the interaction of the different literatures used by this study.

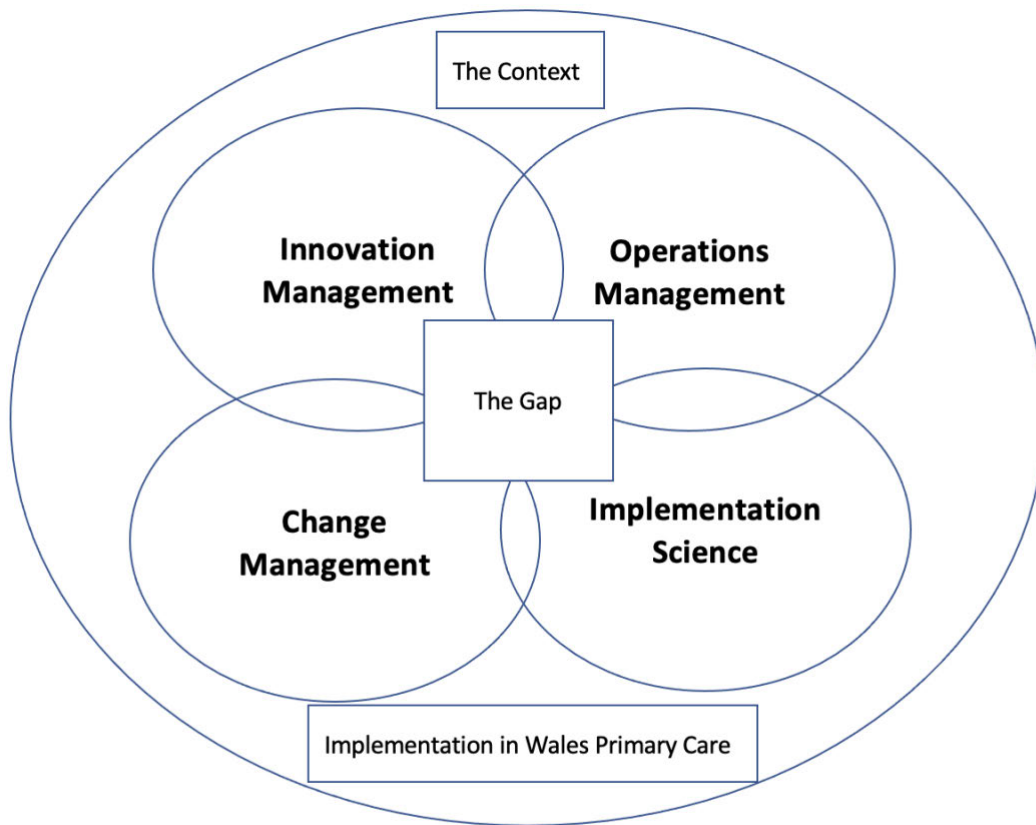


Figure 2.1: Defining the Literature Review

Source: Author's Own

### 2.2.1 Innovation

This section will review the academic literature and debates concerning organisational innovation. The section starts definitions of innovation and the innovation process, before looking at the differences between innovation and the process of innovating, in the context of an organisation. This wide funnel is then narrowed to consider innovation in the context of healthcare organisations and then narrow the focus further to review innovation in healthcare and primary care. The enablers and inhibitors of innovation are then considered as well as a reflect on what these factors mean and apply in the context of public healthcare provision.

### 2.2.1.1 Definition of Innovation

The concept of Innovation concerns the introduction of new products or services or new ways of doing things, such that economic value is created as a result (Trott 2016). Economic value is defined as enhanced value added in an organisation, which results in either greater effectiveness or greater efficiency. The literature has various definitions of innovation; but common themes reinforce the idea of value creation (Baunsgaard and Clegg, 2015). The definitions of innovation do vary between authors, but all authors share this core view. Other authors emphasise different elements of innovation such as the technology employed, process of awareness and readiness for innovation, products, services, structural organisation and teamwork, innovation markets and others (Keupp 2012). Innovation however always includes a ‘newness’ and the creation of economic value as a result of implementation. One definition, that is broad in scope, is the definition that an innovation can be described as a “*new product or service, a new production process technology, a new structure or administrative system, or a new plan or program pertaining to organisation members*” (Keupp 2012, p3). It is the application of new knowledge in a commercial or organisational context to deliver improved value (Trott 2016). For this study, the general practices of a healthcare system are commercial entities, but the remainder of actors will be either publicly owned or private organisation supporting innovation diffusion in a care system.

Innovation therefore concerns the introduction of a new product or service or way of doing things, in such a way as to deliver improved value for the customer and provider of a product or service. It can be classified as per the definition proposed by Trott (2016), who developed a typology of 7 ‘types’ of innovation which he argued covered all forms of innovation and included:

1. Product innovation in the form of the development of new or improved products
2. Process innovation as new manufacturing process introduction and technological transformations
3. Organisational innovation as new organisation wide improvements
4. Management innovation for example introducing quality standards



5. Production innovation as introducing new ways of producing products
6. Commercial or marketing innovations as new approaches to marketing
7. Service innovation as new ways of ‘servicing’ what may have been sold as a one-off transaction but is a new innovation that leads to an ongoing relationship between provider and consumer.

The typology is useful and classifies the broad range of organisational innovations that exist. However, the typology has many overlaps that blur and potentially confuse what is an innovation and especially where two or more of these types are combined to describe an actual system or implementation project. The typology does however show that innovation covers a very broad range of activities, that enable change and performance improvement.

One of the earliest attempts to define organisational innovation was conducted and proposed by Myers & Marquis (1969). They defined innovation as a process comprising of interrelated sub-processes, they presented it as not just one new idea or a new product or a new way of doing things but all these aspects integrating together and bound together by a systemic process. Their definition clearly distinguishes organisational innovation from the concept of invention. The concept of innovation is similar to but not the same as invention. This is uncontested in the literature and the academic consensus is that invention is a technical new idea or design based on knowledge and inspiration whereas innovation is the commercial and practical application of invention. The ‘invention’ process concerns a new idea and new knowledge whereas innovation is the translation of that idea into new practices of an organisation or company such as to deliver value or the application of an invention in a new context as opposed to its original application. Many inventions, particularly technological, have driven innovations-making possible new products, services or ways of doing things (Trott 2016).

The focus of this thesis concerns innovation and the application of knowledge into new contexts in order to achieve higher performance. Such performance could include better safety, quality, delivery, flexibility or responsiveness for service users. The service user and benefactor of innovation for this study is the focal patient of a healthcare process. Thus, there is a distinction to be made between innovation based on a new idea and that which has

previously been used in another context. Moving beyond the definition of what is innovation, many authors contented there is a temporal dimension to innovation and to best understand innovation, it must be seen as a process.

#### 2.2.1.2 The Innovation process

One of the dimensions of innovation that has attracted the most attention in the literature concerns how innovation occurs (Trott 2016). Authors argue that innovation is driven by a system and that innovation does not occur randomly but is a process that is triggered by a need or recognition that a gap exists between the current state performance of an organisation and higher/optimised level of performance in a future state of time. There is another general view that innovation processes have evolved over time and have increased in frequency more recently, from new demands for innovation and new providers. Initial views, from the 1930s (and prior) present a simple, mechanistic model of uncomplicated and a linear sequence to change. Such thinking has evolved to today's models; which are diverse, varied and fit a much more dynamic and complex definition of organisation than the slow moving and bureaucratic models of the 1930s. Each approach has its own benefits and limitations, with models representing the process of innovation and how it occurs better for some industries better than others (Trott 2016). The models (shown in the table below) also focus on product development innovation more than they explain the process of service innovation or indeed innovation in the context of professional services. This is a point which will be revisited later. The evolution of the drivers of innovation are presented in Table 2.1 below:

Date/Generation	Innovation Model and Enabling Factor
1950s/60s 1 <sup>st</sup> Generation	Technology Push
1970s 2 <sup>nd</sup> Generation	Market Pull
1980s 3 <sup>rd</sup> Generation	Dominant design
1980s/90s 3 <sup>rd</sup> Generation	Coupling Model and Chain and Link Model
1980s/90s 4 <sup>th</sup> Generation	Interactive Model
1990 4 <sup>th</sup> Generation	Architectural Innovation
1990s 5 <sup>th</sup> Generation	Network Model
2000s 6 <sup>th</sup> Generation	Open Innovation
2010s 7 <sup>th</sup> Generation	Open Innovation 2.0

Table 2.1: Evolution of Innovation Models

Source: Adapted from du Preez & Louw (2008).

Early stages of innovation resulted from the invention of new products and hard technologies associated typically with industrial products. Organisations would design new innovations and sell them to customers with the power held by the industrial company.

These stages of development represent an evolution in thinking and approach to innovation and its implementation. The traditional 1960's technology push model was quickly identified as having the limitation that demand is not given the significant role it should play in these models. The response models of the 1970's address this by focusing on market pull however still, models are clunky and mechanistic. An inflexible recipe book to be followed, not taking into account human factors or the complex environment innovation takes place within with many variables. Not until the 2000's is the role of human factors really featured and this represented a step change in the thinking. It is these models which are relevant to this study and underpin much of the innovation research literature. Healthcare systems and primary care systems are complex systems and not a closed system. Innovation occurs within a wider

ecosystem of stakeholders and later models reflect the importance and role of the relationships between these stakeholders where innovation takes place.

Having presented the evolution of the innovation field of study, the approaches and literature may be divided into three distinct themes:

- A Technology Push School of Thought
- A Market Pull School of Thought
- Hybrid Models

These watershed points in history will now be reviewed.

#### *2.2.1.2.1 The Technology Push School*

The Technology-Push era was the first of two early generation linear models of innovation that describe the origin and motivation for an innovation to occur. The approach effectively describes the innovation associated with industries up to the 1980s, it is not representative of the majority of innovation which takes place, however. This model of innovation starts with invention or scientific development which then is developed for presentation to the marketplace. Stages are orderly and sequential, with scientific development happening first, then development and then the market buys what is presented (Alekseevna 2014). Rothwell (1994) provides a graphical representation of this linear model:

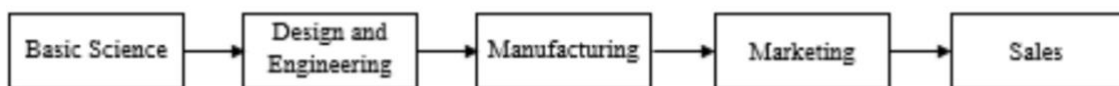


Figure 2.2: Innovation Push Process Model

Source: Rothwell (1994)

The earliest stage of ‘innovation push’ is originated from highly scientific industries such as pharmaceuticals, automotive and other sectors where powerful producers dominate the sector. The model does not represent sectors where there are powerful customers and is less representative of those instances where market demand drives innovation or where markets/competition is dynamic. The model also has been poorly applied and does not

encompass service innovations. Instead, the innovations of a powerful manufacturer are imposed on a market – with the result that the customer base will either take the innovation or have to find an alternative provider.

#### *2.2.1.2.2 Market Pull*

The “technology push” model is one potential view of innovation, but neglects instances where the market demand is the driver for the innovation (market-led). However, the advent of Total Quality Management and greater competition (more powerful customers) in most markets has led to the second generation of “market pull” models which are fundamentally based on placing the customer first (an outside in approach rather than the push of inside out). It is again a linear model where stages occur in sequence, however the source of innovation is the market. This model suggests that market demand motivates organisations to innovate. The customer is the initiator of new ideas (Trott 2016). Rothwell (1994) again provides a graphic of this model:



Figure 2.3: Innovation Pull Process Model

Source: Rothwell (1994)

#### *2.2.1.2.3 Hybrid Models*

The hybrid approach uses a cross functional management approach to unite the manufacturing/ engineering and technical functions of an organisation with the marketing and sales intelligence of a pull approach. This is a bi-directional model with iteration between process stages which allow the technology push and customer market-pull to be united. The approach theoretically enhances the success of an innovation through matching competencies and needs (Slack et al, 2019).

#### *2.2.1.2.4 Innovation Matrix*

The choice of approach to innovation and technology may be described as incremental, radical, architectural or disruptive.

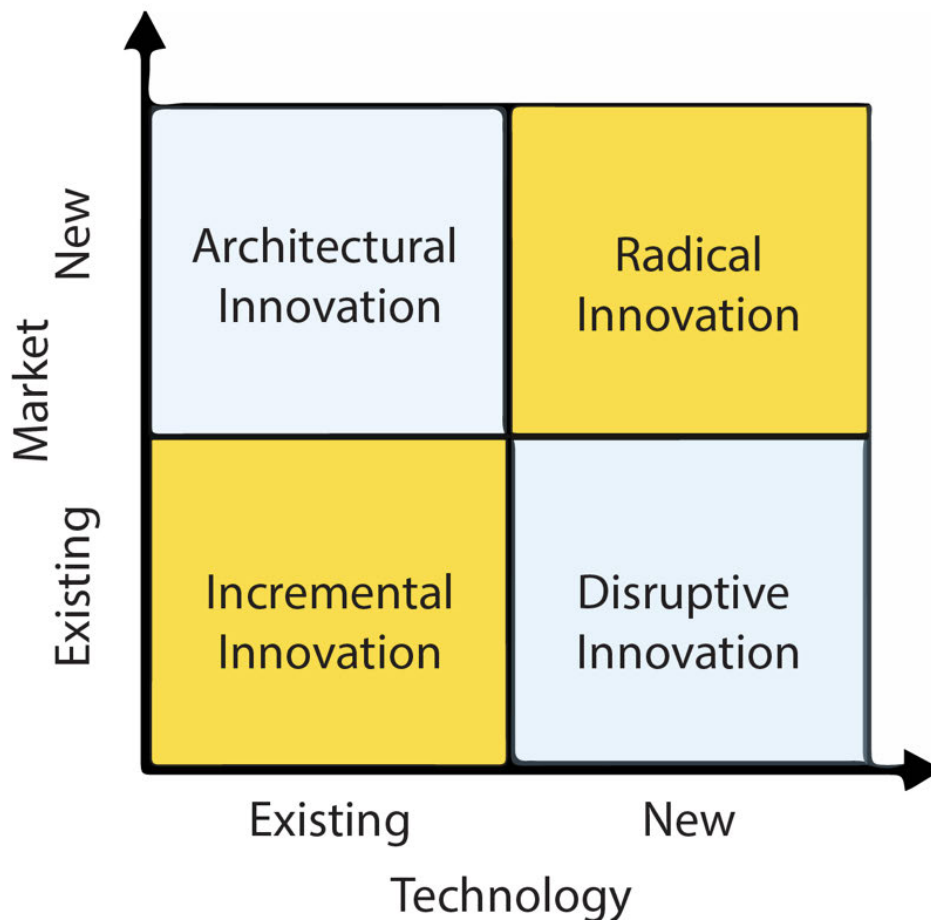


Figure 2.4: Innovation Matrix Source

Source: Schilling (2017) What's Your Best Innovation Bet?

Architectural innovation is a process of learning from one market and applying it to another (Schilling 2017). Radical innovation is revolutionary and where a new technology creates a new market whereas incremental innovation is where an existing market, product or system is evolved to create improved value to the customer (Schilling 2017). It is perhaps one of the most common forms of innovation and most often seen when innovating in primary care and the wider NHS. There are very established systems in place which innovation, improvement and EBP seek to improve on. Disruptive innovation involves applying a new innovation to an existing market. This could be an innovation of process, improvement or EBP. (Schilling 2017)

Abernathy and Utterback (1978) suggested three different phases in an innovation life cycle. These are the fluid stage, transitional stage and specific stage. The life cycle begins with a technological change and is followed by completion emerging and process innovations. Once a dominant design emerges, a standard is shared, and costs lowered across the industry. A standardised approach can be determined and businesses in the same context or sector then operate similar or interoperable models of the innovation. The latter assertions concern profit motivated businesses but there is less evidence of a dominant model in the professional services (where innovations are often intangible) and public sector, such as healthcare innovations. This contextual omission would suggest that all forms of process and service innovation should be included in any study of a national innovation ecosystem.

#### *2.2.1.2.5 Non-Sequential and Simultaneous Coupling Model*

The above linear models are sequential, however what drives innovation may be one of a number of enablers and motives, including external influences such as competition. These linear models concern the source of innovation and not the process of innovation (how it occurs). The coupling model suggests that there are three separate sources which together initiate innovation (Galbraith 1984; Trott 2016). The starting point is often unknown and can be any of these three or together. The source of innovation is, these authors believe, not as important as the process by which it occurs.

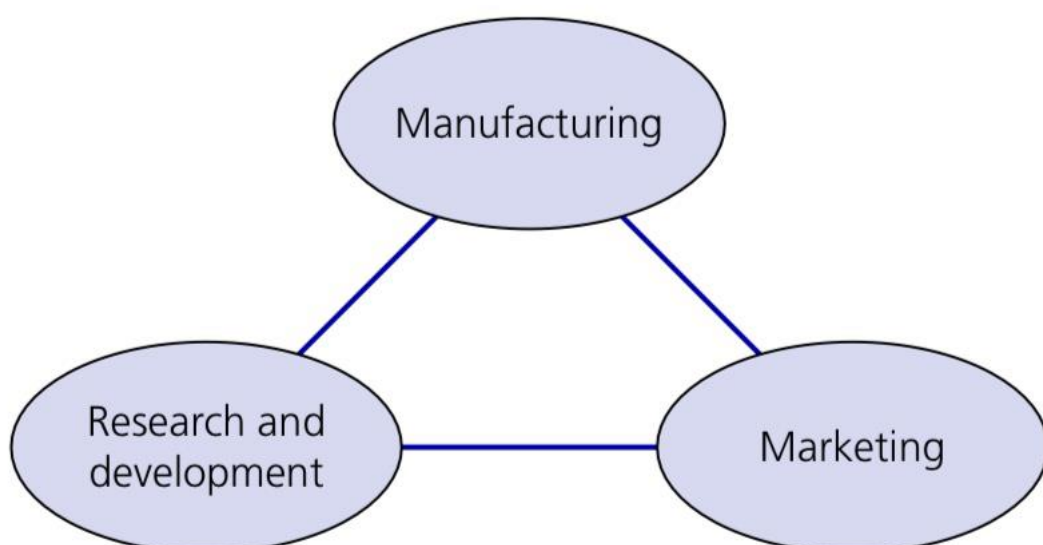


Figure 2.5: The Trilogy of Actors in Innovation (Coupling)

Source: Trott (2016)

The coupling model is therefore the formalisation of the hybrid approach (Rothwell and Zegveld, 1985). The methods are iterative and reveal the complex nature of innovation in more modern organisations (which operate in more complex environments than traditional and historic business models and the relatively slow-moving markets up to the 1970s). The iterative model is proposed to be superior to linear models because it forms a systems approach, with numerous interconnecting and interdependent elements as well as feedback between these.



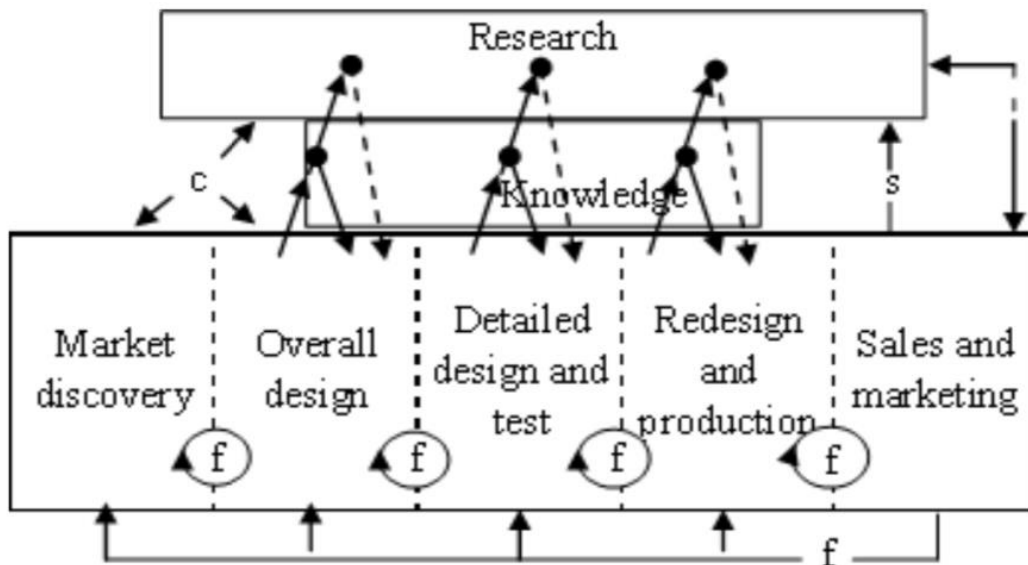


Figure 2.6: The Coupling Model  
 Source: Rothwell and Zegveld (1985)

This model focuses on the linkages between elements of the innovation process. The diagram above represents an organisation's capabilities, and this model proposes that organisational capability in these areas, as well as improving the linkages between them, improves innovation due to internal dependencies. The model suggests collaboration is key and different stages of the innovation process for an organisation must share and, when coupled with a market-pull approach external collaboration with customers and suppliers will be needed too.

The Chain Link model was proposed by Kline & Rosenberg (1986) and is a hybrid of the linear and coupled models. It has a linear flow with feedback between parts. It evolved as a response to linear models and their drawback of not capturing the interactions between elements, such as interaction between market and knowledge bases. It is however still a linear model though a modified one which is the source of criticism. It is still unlikely to reflect the process of innovation for most organisations.

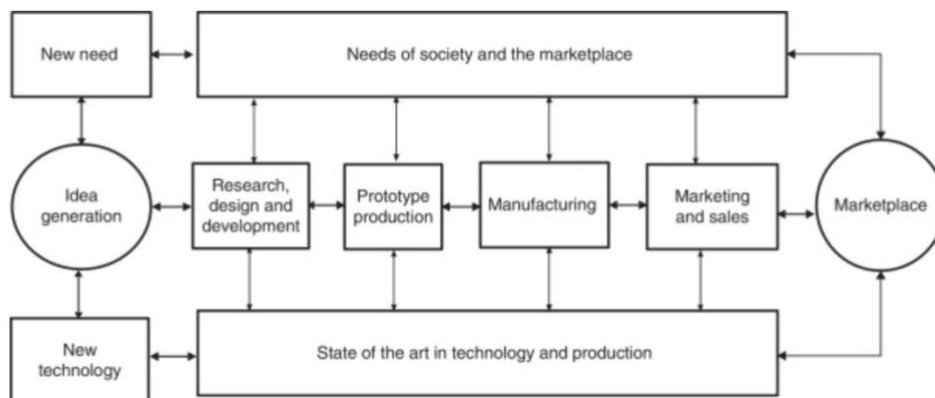


Figure 2.7: The Chain Link Model

Source: Kline & Rosenberg (1986)

The researcher regarded the 'chain link' model as an improved and evolved coupling model and the connection with the marketplace represented a closing of the previous models' weaknesses. The integration of wider societal needs would support a systems approach to innovation in healthcare and theoretically this would improve the efficacy of any solution (product) entering the market.

#### 2.2.1.2.6 Architectural Innovation

Henderson and Clark (1990) introduced a new dimension to the understanding of architectural innovation, specifically concerning technical knowledge, which gave rise to four possible types of innovation. These are incremental, modular, radical and architectural with similarities to the model proposed earlier.

Innovations had been categorised as incremental or radical, that is, small successive steps along a path of progress or a substantial transformative change which shifts the path. These authors argue this categorisation is incompetent and that two additional categories exist. These are modular and architectural.

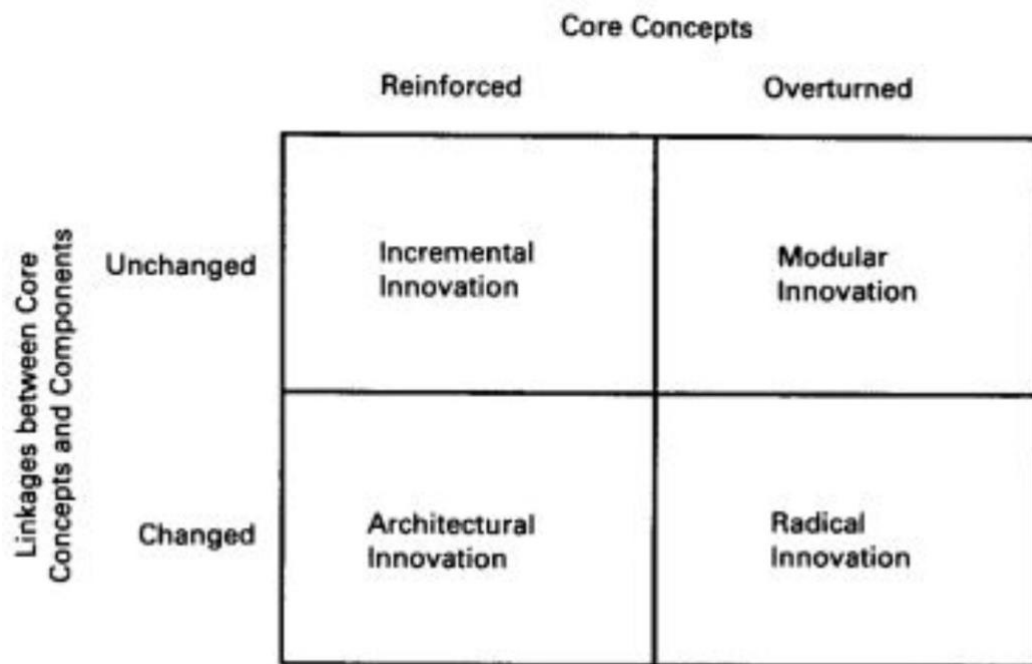


Figure 2.8: The Innovation Matrix of Modular, Incremental Architectural and Radical Innovations

Source: Henderson and Clark (1990)

The next phase of models includes introducing the concept or architectural innovation in the 1990's. The Innovation Matrix divides technical knowledge into two dimensions, knowledge of the components in a product or service and knowledge of the linkages between them. Incremental change is the result of modifying both component and architectural knowledge. Modular innovation requires new knowledge for one or more components of a product but the architectural knowledge linking those components remains unchanged. Architectural knowledge is where the linkages between components develops but the components themselves remain unchanged and radical innovation changes both component and architectural knowledge.

### 2.2.1.2.7 Interactive or Integrated Models

These models respond to the linearity of initial models, focusing on the interaction between activities which make up the process of innovation. The linear line of boxes is replaced by cross functional processes which interact with one another.

Hobday (2005) proposes the integrated model where cross functional segments interact with one another, and can exist as parallel processes.

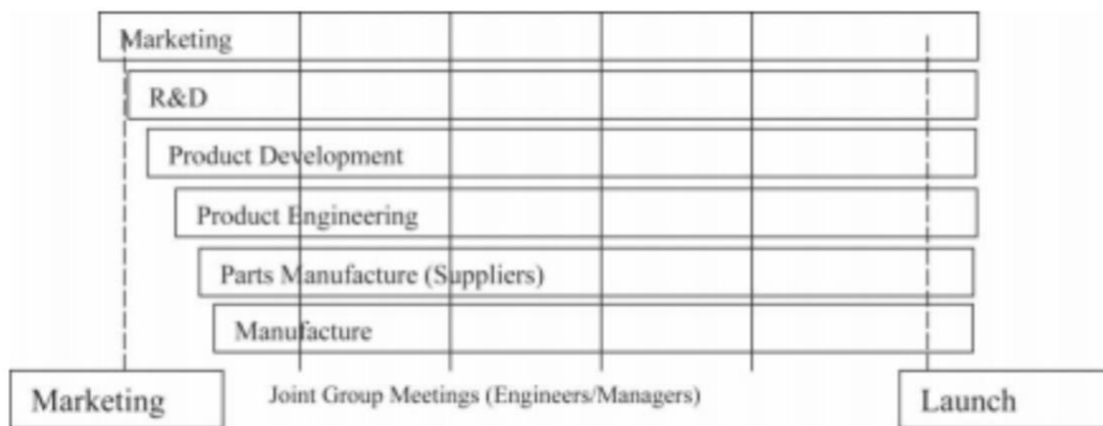


Figure 2.9: Integrated Model of Innovation

Source: Hobday (2005)

Interactive or integrated models respond to the ideas of technology push and market pull into the process with the linear flow being improved to incorporate feedback. It is not a linear model in this respect. The idea invention is the result of the demands of society, solving problems, the science and invention base and technological developments. The model again suggests that successful new product development is a combined series of pushes and pulls where the provider is close to the customer and uses their core competence to deliver superior solutions to the customer.

### 2.2.1.2.8 Network Models

Network models were the first models to recognise the role of external partners at scale. The approach features in the fourth-generation models but by the 1990s the management literature and landscape of practice was evolving with the new internet enabled world. Trott (2005)

proposes a networked model which places external inputs as feeding into the innovation process of the firm and adds a new dimension of complexity to the innovation process. This new dimension was termed 'open innovation'.

#### *2.2.3.2.9 Defining Open Innovation*

Network models introduced the concept of greater complexity and outside influences on the innovation process and content, but ideas are still developed internally and follow an internal process, only marginally affected by external actors. Chesbrough (2003) and Du Preez and Louw (2008) propose a new model of open innovation; where collaboration takes a primary role and explains the process of innovation. The knowledge flowing into the company originates externally, and the process of taking to market is taken together with partners. This extends the role of external partners in innovation from the network model and solidifies the role of linkages between internal and external actors.

Open innovation models represented a paradigm shift in the thinking about how innovation occurs. It is not only about the process internal to the company but heavily influenced by the flow of knowledge across a permeable boundary of the company (Chesbrough 2006).

#### *2.3.1.2.10 Open Innovation 2.0*

Curley & Salmelin (2013) developed the idea of open innovation, refining it with one further step. The transfer and exchange of knowledge in open innovation, they argue, is extended to co-design and co-creation of innovation. Open innovation 2.0 is similar then to open innovation, but with a wider scope. The 'funnel' of innovation similar to the linear models and later variants is now an ecosystem with no direction. The direction and roles different organisations play is driven by the value they bring to the innovation collaboration.

The differences between previous models of innovation, open innovation and open innovation 2.0 in practice are summarised below:

<b>Closed innovation</b>	<b>Open innovation</b>	<b>Open innovation 2.0</b>
Dependency	Independency	Interdependency
Subcontracting	Cross-licensing	Cross-fertilization
Solo	Bilateral	Ecosystem
Linear	Linear, leaking	Nonlinear mash-up
Linear subcontracts	Bilateral	Triple or quadruple helix
Planning	Validation, pilots	Experimentation
Control	Management	Orchestration
Win–lose game	Win–win game	Win more–win more
Box thinking	Out of the box	No boxes!
Single entity	Single discipline	Interdisciplinary
Value chain	Value network	Value constellation

Figure 2.10: Open Innovation, Closed Innovation and Open Innovation 2.0 Comparisons

Source: Curley (2016)

The most interesting aspects of this model and approach is the move to an ecosystem and value constellation of customers. Such an evolution in thought was reflected upon by the researcher during this review of innovation and models of innovation success. The conclusions of the reflection concerned the adoption of an innovation by a constellation and ecosystem of stakeholders rather than the processes of generating the innovation, posed a greater gap in the body of knowledge. This can be seen in the work of Chesbrough (2006) and others beyond where the adoption of innovation starts to feature however is still, even now, deficient and this can be seen in real word applications.

### 2.2.1.3 Exploring Differences Between Innovation and the Process of Innovation

One question the extant literature on innovation seeks to answer is how innovation occurs, as well as the process by which innovation takes place. Initial papers on how innovation takes place were from Schumpeter (1934) who proposed that innovation was not random.

Schumpeter proposed an economic view of innovation, driven by effective competition between entrepreneurs and inertia in society.

Kline and Rosenberg (1986) argue it is a mistake to treat innovation as a linear process. Most innovations are continuous and 'fuzzy' where an initial idea or technological advancement is refined and improved over time, until it is meaningfully integrated into the economy through companies and organisations. These authors use the steam engine and aeroplane as examples of unreliable initial versions of technology, which over many iterations evolved into an innovation. These innovations were refined and developed in a nonlinear way they argue.

There are two problems with innovation being linear which support Kline and Rosenbergs views. The linear process implies there is always a technological invention, where science and engineering produce a product, which is then commercialised and marketed. This need not be the case and oftentimes firms begin by exploring existing knowledge to find a solution. If this is not likely to yield results, then investing in research and development. The second issue with the linear model of innovation, as suggested by these authors, is that many feedback loops take place at each stage, leading to potentially improved and new innovations.

#### 2.2.1.4 Innovation and Healthcare

Healthcare innovation is a subset of service innovation which could take the form of push or pull types and linear or dynamic processes. Such service innovation is further specialised to the complexity, variety and specific context of healthcare delivery. The process of innovation, its origins in the organisation and implementing invention and innovation again feature as objectives and debates within the field (eg Fixen et al 2005, 2009; Grol 2005,2007) This is the research theme given most attention, adoption or implementation of innovation. The notable difference between the literature reinforced the researchers view that an ecosystem approach should be undertaken. The difference in focus between manufacturing and healthcare service innovation may be because innovation is not usually a physical product in healthcare innovation, at the organisation or system level. Instead, innovators focus on new and improved ways of delivering services. This may include medical products and technology, but more often the ways in which sets of services are delivered. The focus of research is how process innovation is implemented into the wider organisation.

One recent meta-analysis in this field is provided by Greenhalgh et al (2015). These authors provide three definitions. Innovation in healthcare is defined as “a novel idea or set of behaviours, routines, and/or ways of working that involve a change in practice within a healthcare setting”. This is a broader definition than those discussed earlier and is specific to non-product innovations. There is no invention through science or engineering of a physical product in this definition. This view highlights a limitation of existing models of innovation. Process models of innovation where a physical product is developed, may not be fully explanatory or relevant when healthcare is the context. They may need development to apply to intangible service innovation, improvement or EBP. The researcher reflected that the reason may be that process models not relevant at all, As we will see later, other theoretical ways of looking at innovation, such as models which identify enablers and inhibitors only and stay away from suggesting any linear process, may better explain innovation in healthcare. These theories, models and frameworks take the view that as healthcare occurs in such a complex environment, the process is always different because there are different underlying contexts. Whilst the process may change, the factors enabling and inhibiting innovation may be more relevant.

Implementation is defined by these researchers as “*as the process of putting to use or integrating innovations within a setting*”. In wider innovation study, this is sometimes referred to as adoption of innovation. These authors introduce the concept of adoption in terms of sustainability- if an innovation is integrated in a system to ‘routine practice’. The “*process of maintaining innovation use, capacity and benefits*”. A framework is as “*a graphical or narrative representation of the key factors, concepts, or variables to explain the phenomenon of implementation and include the steps or strategies for implementation*” Moullin et al. (2015). The literature responds to the challenge of implementation through proposing frameworks, which are either descriptive, prescriptive, explanatory or predictive.

There is no uniformly accepted model of healthcare innovation adoption or implementation, and this remains a highly debated and contentious subject. Early literature was made up of mainly case studies, with some attempts to theorise (Nilsen 2021; Eccles et al., 2005; Kitson et al., 1998; Sales et al., 2006). This has since evolved into the field of implementation research, with five different categories of theory, model or framework. However, there remain significant gaps in theorising successful implementation of innovation, improvement and EBP in healthcare (Nilsen 2019) - especially the primary care context. The following



table reflects recent the diversity and sporadic nature of developments in the study of implementation of innovation in healthcare, stratified by the five innovation ‘types’ proposed by these authors:

Innovation	Definition	Studies
Interventions	These are active change programmes with a purpose to take a starting point and deliver an improvement of some kind.	Scheirer MA & Dearing JW 2011, Johnson K et al 2004, Schell SF et al 2013, Wandersman A et al 2008, Simpson DD & Flynn PM 2007, Fixsen DL et al 2009, Racine DP. 2006, Mendel P et al 2008, Feldstein AC & Glasgow RE. 2008, Damschorder LJ et al 2009, Greenhalgh T et al 2004, Bradley EH et al 2004, Helfrich CD et al 2007, May C & Finch T. 2009, May C. 2013, Ballard N. 2010
Guidelines	Usually look to improve adoption of guidelines in healthcare organisations.	Carey M, Buchnan H & Sanson- Fisher R. 2009, Berta W et al 2005, Hader JM et al. 2007, Gagliardi AR et al 2011
Knowledge	Look to translate knowledge into practice.	Grol R & Wensing M. 2004, Pronovost P, Berenholtz S & Needham D. 2008, Kitson AL et al 2008, Stetler CB et al. 2011, Rycroft- Malone J et al 2013, Kontos PC & Poland BD. 2009, Best A, Hiatt RA & Norman CD. 2008, Graham ID et al 2006, Edgar L et al. 2006, Landry R et al 2006, Palmer D & Kramlich D. 2011, Baumbusch JL et al 2008, Gauthier N et al 2005
Evidence based practice	These models focus on innovations which are the result of reviewing evidence	Vratny A & Shriver D. 2007, Reavy K & Tavernier S. 2008, Olade RA. 2004, MacRobert EBP Program M. 2008

	collected from organisational settings, leading to implementation of new ways of working.	
Implementation Programmes	Wide range of innovations and their adoption in the organisational setting.	Kilbourne AM et al 2007, Vega MY. 2009, Glisson C & Schoenwald SK 2005

Table 2.2: Types of Innovation in Healthcare

Source: Adapted from Moullin et al (2015)

Moullin et al argue that frameworks focus on one aspect of these strata, and users have to choose which best fits their own innovation. There is a clear gap to make theory more widely usable when implementing a wider range of these strata, not only a specific aspect. There is another argument that implementation as the final part of the list is in fact relevant to all the others, the benefits of their innovation only are realised when implemented into an existing healthcare system. The frameworks and case studies which make up the fragmented literature on adoption or implementation of innovations in healthcare services operations can also be stratified in terms of their type. Moullin et al (2015) proposes three separate types of framework found in literature, these are to describe, to prescribe or explain.

Innovation Type	Definition
Description	Describe the properties, characteristics, and/or qualities of implementation
Prescription	Provide direction on the implementation process via a series of steps or procedures
Explanation	Specify the linkage and/ or relationships between framework concepts
Prediction	Hypothesise or propose directional relationships between the concepts of implementation

Table 2.3: Innovation Types and Descriptors

Source: Adapted from Moullin et al (2015)

Though there were no dominant models of healthcare innovation implementation or adoption identified by Moullin et al (2015), they propose one which may be more universal:

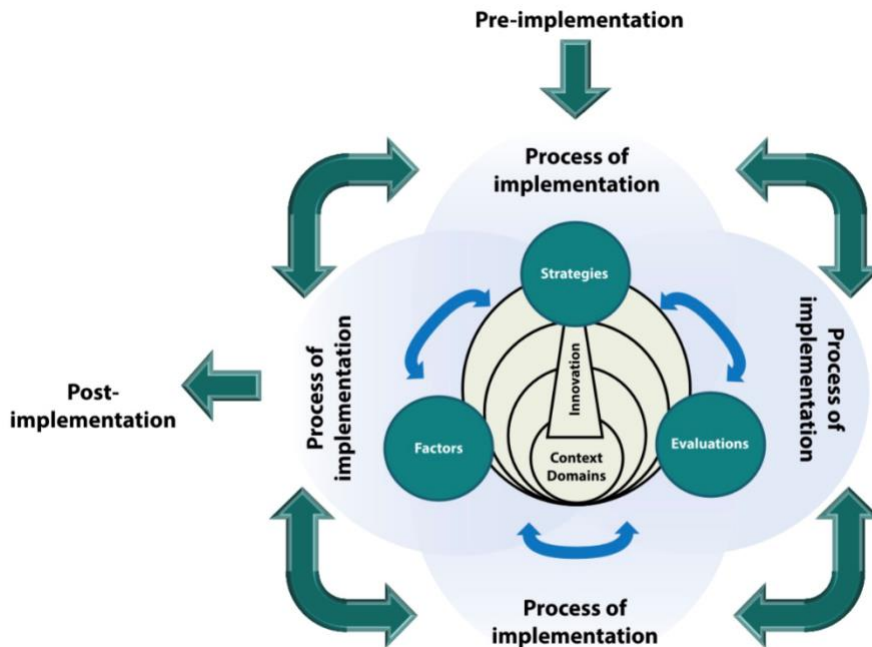


Figure 2.11: Moullin et al.'s Model of Implementation

Source: Moullin et al. (2015)

This simplistic model is useful in explaining and predicting how the innovative process is occurring in healthcare organisations. It however, as we will see later in this chapter, new frameworks better capture the vague ‘process of innovation’, which this model does not offer much to understand. The model does not include the role of engaging healthcare professionals and other stakeholders (of many different specialisms) for even the most simple of changes to working practices. The model did reinforce the view of the researcher concerning the importance of the health and care ecosystem and the diffusion of innovation and the model posed many questions about who or what organisations are instrumental in spreading innovation and how a collaborative approach could be used with so many different actors in an NHS system. Similarly, the readiness of an organisation is absent from the model features, which is now known to play an important role, as will be discussed in detail later in this chapter.

### 2.2.1.5 Enablers and Inhibitors of Successful Innovation in Healthcare

Conceptualising the process of innovation is important, but the adoption of innovation has been a focus of recent research. In addition to studying the process by which innovation occurs, to establish what promotes and what inhibits innovation.

Barriers to innovation have been defined by Mirrow, Hoelzle & Gemuenden (2008) as the factors which lead to prevention, delay or distortion of outcomes of the innovation process. The context of this research is service innovation and so the researcher was interested in literature showing the issues and barriers to innovation, which had been identified in service sector settings. It is likely the barriers to successful product innovation, might be different to service and professional service innovation such as is the NHS (Balachandra & Friar, 1997). There is the additional issue of ‘success’ being subjective and so the enablers and inhibitors also being subjective (Boynton & Zmud, 1984).

Innovation in healthcare and process innovation includes a “novel set of behaviours, routines, and ways of working that are directed at improving health outcomes, administrative efficiency, cost effectiveness, or users’ experience and that are implemented by planned and coordinated actions.” (Greenhalgh 2004). Therefore, service sector enablers and inhibitors mediate either positively or negatively, in the perception of the person implementing the innovation. The current debates in the field reveal no dominant model. This presents a gap in the body of knowledge and an understanding of such factors would be timely and useful. A pragmatic investigation to identify fuller range of enablers and inhibitors to successful exploitation of innovation in the health and care sectors.

### 2.2.2 Operations Management

The second school of literature on which this thesis is supported, is operations management. Operations management is the study of how organisations, manage the resources that create and deliver services and products (Slack et al 2016). Every organisation delivers some product or service, these can be private, public or third sector. It can also be known by different names to operations management in different settings, such as within NHS organisations. However, the intrinsic characteristics of an operation transcend organisations

in different economic sectors. An understanding of operations management is important or useful to this study as every innovation, improvement and EBP is embedded in an existing or planned operation. Operations management is the critical function in the organisation, which innovation impacts and in turn leading to performance and/or quality improvement.

Slack (2019) defines operations management as a critical subsystem of the organisation. Without it, there is no delivery of products or services. Schmenner and Swink (1998) argue that operations management is a mixture of natural and behavioural sciences; reflecting the interaction between the processes which are set up by operations managers and the people who interact with those processes. At the heart of operations management is the input-process-output model is the main model on which operations management is developed. It is the idea that operations are processes which take resources, physical or intangible such as knowledge, and convert these into some valuable output for a customer. Much has been theorised in literature about product-based operations, particularly manufacturing. This is with the aim of improving an organisations ability to take raw materials from suppliers and convert these into outputs for customers (Boer et al 2015, Melcher et al 2002). This thesis is interested in the operations management of services and particularly a subset of service sector operations called mixed services. The next section explains these mixed services, what is known about these and what is not in terms of adoption of innovation.

#### 2.2.2.1 Service Sector Operations

Services have become a large part of modern economies and despite this growth there remains no single definition of what a service is. Johnson et al (2014) propose that a service is an *“activity – a process or a set of steps – which involves the treatment of a customer (or user) or something belonging to them, where the customer is also involved, and performs some role in the service process (also referred to as the service delivery process”*. There are two perspectives from which a service operation can be viewed, from the perspective of the organisation and the customer. Organisations service operations manage input resources; in the case of the NHS these include physical resources, premises, specialist professionals and technical equipment. The diagram below shows the model of converting inputs to outputs for service operations:

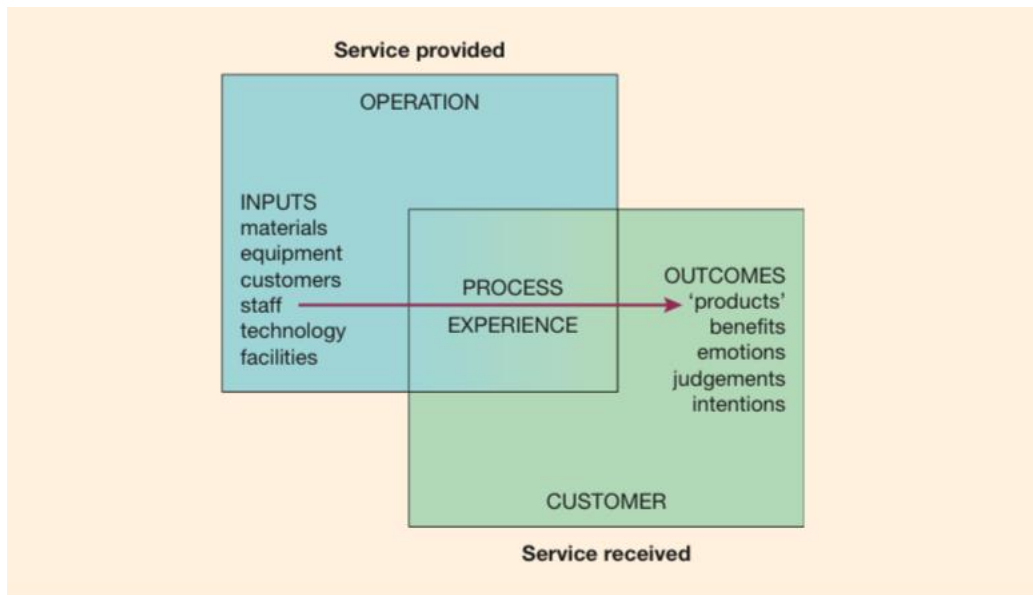


Figure 2.12: Service Operation Process Flow Schematic

Source: Johnson et al (2016)

The inputs listed in the blue box are transformed to the outputs in the green box through some process. It is the process of conversion which this literature explores. These authors propose that the difference between a product manufacturing and service operation is that a service is co-created with the customer (Johnson et al 2016). From the customer's perspective, the service is a combination of two things: outcomes and experience. The outcomes are listed in the green box above as products; the functional outcome of the service, benefits; how the customer perceives they have benefited, emotions; how the customer feels about the service, judgements; conscious or unconscious assessment of service, intentions; based on judgements to purchase or recommend.

The debate about whether an organisation is a product or service organisation has evolved in that most organisations have a blend of product and service operations. Few if any organisations have no service component of their operations. Proportions of the value to the customer vary between product and service outcomes for different markets and organisations. For example, Lusch et al (2007) distinguishes between value in exchange and value in use. Even when a product is purchased, the value to the customer often is from its use. This is a service concept. This is before the service aspects of delivering and maintaining products which almost all organisations must also approach. The customer experience, for example is well researched as it is valuable to both organisation and customer (Vargo 2004). Those

customers who have positive judgements about a service element of an organisation, are likely to return and recommend.

Services involve processes where they either process customers or “things belonging to the customer” (Johnson et al 2016). This is often known as the customer journey, the route taken through a process through which the customer receives a service. The customer is an active participant in the service if they are involved in the process, which incorporates all healthcare services. Thus there is a two-way flow to deliver that service, some services can have a high customer involvement for example self-service and scan supermarkets and others low, for example repeat order home delivery. The goods purchased may be the same but the participation of the customer in delivering that service is different. This idea that customers are involved in the creation of services is called co-production.

#### 2.2.2.2 Types of Service Processes

A service process is “*the set of interrelated activities that together, delivers the service concept and creates the customer’s experience and outcomes.*” (Johnson et al., 2016).

Service processes can be categorised in various ways according to their characteristics. There are three different types of service (Silvestro et al., 1994), these have different features and different forms of innovation adoption. This proposes three types of service based on six characteristics; the people and equipment needed to deliver the service, contact time, customisation, discretion, whether the service is front office with a high degree of customer involvement or if value is created in the back office and then presented to customer, and focus as being either process or product orientated. The three types of service are:

##### 2.2.2.2.1 Professional services

These services are defined as high variety, low volumes contexts. These include organisations or services with relatively few transactions, high customisation, relatively long contact time, value is added in the front office with customer, knowledge driven. These include medical and professional services.

#### *2.2.2.2.2 Mixed services*

This context is where standard services, with some customisation are offered to customers. They have characteristics of both professional and mass services. NHS organisations are examples of this where there is a high degree of customisation yet high patient volumes.

#### *2.2.2.2.3 Mass services*

A high volume low variety service, has many customer transactions, limited contact time and value added in back office. Examples include banking, supermarkets

#### *2.2.2.2.4 Comparing Different Types of Service*

These three service types and the interactions between them and the characteristics they have are shown by the following model:



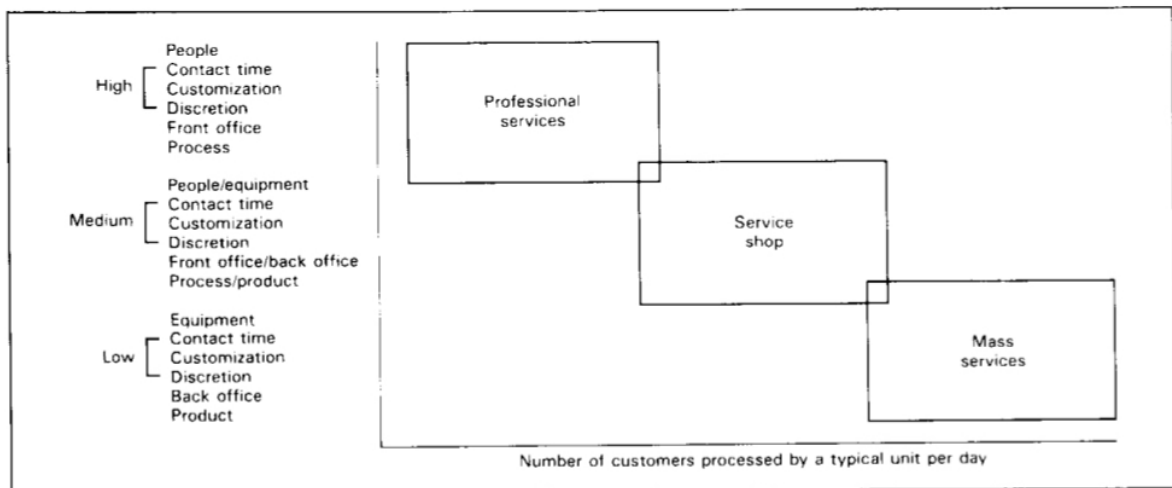


Figure 2.13: Types of Service Process

Source: Silvestro et al., (1994)

Another way to categorise services is by assessing how value is added from the service (Bowen 1989). This can be done by a key decision area matrix (KDAM) proposed by Larson and Bowen (1989). The model proposes four types of service, characterised of comprising of activities which are ‘runners’; standard activities possibly automated which are high volume, ‘repeaters’; standard activities but more complex and less frequent and ‘strangers’; non standard activities with a low frequency. These classifications of operations management flows, have an influence on innovation and whether such innovation is pushed, pulled, linear or dynamic. Any service innovation will be welcomed when it increases flow efficiency for mass services (productivity) but much less is known about complex settings such as healthcare; where profit motivations do not exist in the UK NHS, there are budget constraints and a presence of significant and powerful stakeholders from professions. It is under explored in the context of healthcare services innovation.

### 2.2.2.3 Types of Service Operation

The types of service operation will now be reviewed and The impact of innovation in the different forms of service management will now be explored. These include:

#### *2.2.2.3.1 Service projects*

Service projects represent processes that are predominantly repeaters and strangers, limited customer involvement. There is often an initial scoping phase with customer followed by work being completed in the background. Service projects have more variation than service factories, however less variation than service partnerships.

#### *2.2.2.3.2 Service partnerships*

Service partnerships are highly specialised service processes made of either strangers or repeaters. Services are developed in partnership and so there is a high degree of customer interaction and front office delivery of services.

#### *2.2.2.3.3 Service factories*

Service factories are high volume, low variety services which are made up of runners and sometimes repeaters. Retailers, banks and other high street service operations try to operate service factories as they are scalable.

#### *2.2.2.3.4 DIY services*

DIY services are again high volume low variety, but involve the customer more. Self service checkouts and internet retailing is often a DIY service. It shifts much of the service delivery on the customer and has been a trend in service provision.

These impact of processes can be repositioned by organisations to match their objectives; what services they want to deliver and to who. The diagram below shows how different service processes are made up of different types of activity and how this changes with levels of customer involvement:

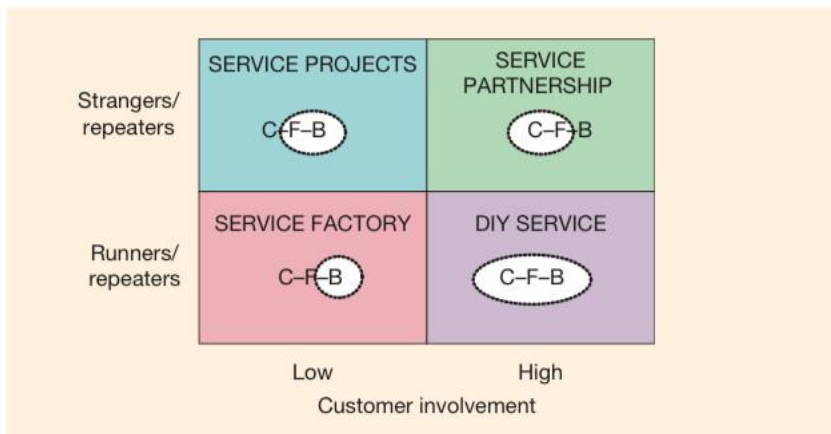


Figure 2.14: Customer Involvement in Different Service Types

Source: Johnson et al., (2016) adapted from Larson and Bowen (1989)

At each box in the model it is still possible to deliver a high level of customer satisfaction, there is reduction in satisfaction where organisations do not mirror their stated process. For example, DIY services such as self-service supermarkets can provide a high level of customer satisfaction, where there is no gap between the services customers are marketed and what is delivered. NHS organisations, in the drive to make services digital are reconfiguring services around this square, with apps and internet communication leading to more services being delivered by DIY services or service factories.

#### 2.2.2.4 Service Innovations and Operations Management

Service innovations usually concern improving the processes by which services are delivered to customers, as this is how value is created for the customer in a service operation. This section details the literature on continuous improvement in service operations, how organisations take an existing operation and innovate to improve it. The outcome should be an improved value for both organisation and customer. Improvement is usually either radical or incremental (Slack et al., 2016). Radical change, as discussed in the following section involves redesign of the whole process or large parts of it at one time. It is the opposite of incremental, which is where improvement is the result of the evolution of many smaller changes to the process over a longer time.

Service innovation can be either radical or continuous, radical however is less common and often driven by step changes in technology, for example. Many of the approaches to service

process innovation in the literature focus on continuous improvement. The following table from Johnson et al., (2016) compares features of these two types of improvement:

	Continuous change	Step-change
Existing process	Little change	Redesigned
Improvement expected	Modest	Substantial
Benefits attained	Long-term	Short-term
Change driven by	Employees	Senior management
Senior management time/effort	Small	Substantial
Business risk	Small	High
Capital expenditure	Small	Substantial
Use of information technology	Little	Significant

Table 2.4: Evaluation of Continuous and Step Change

Source: Johnson et al., (2016)

Small continuous innovations, it is argued, can be implemented or adopted into an existing service operation, or innovation can take the form of radical reshaping of that service operation. Many modern improvement approaches (including lean management and Total Quality Management TQM) promote this form of continuous innovation called kaizen (Imai, 2021). The impact on processes, improvements, who drives the change, risk and expenditure is highlighted in the table above. Radical change is short term and requires high levels of effort and investment. It may also be risky and upset the complicated relationships between service provider and customer as well as role changes within the service provider itself. However, incremental change is likely to be more involving of all within the organisation and with sustained improvement.

These operations management theories are very good at equipping organisations to improve their operations and include Total Quality Management (TQM), Kaizen and lean thinking (Womack and Jones, 1996). Others such as Business Process Re-engineering (BPR) (Hammer and Champy 1993) - are radical process innovations. These theories are not widely applied in NHS organisations for the purpose of innovation adoption and so there may be scope to integrate them more fully for this purpose. These four theories of operations improvement are explored below:

### *2.3.2.3.1 Total Quality Management (TQM)*

Total Quality Management is an approach to continuous improvement where an environment where employees can continuously refine eight key principles is created. The objective is to promote long term success by producing goods or services which are of value to the customer. These principles are; customer focus, leadership, people involvement, process approach, strategic and systematic approach to management, continual improvement, factual approach to decision making, mutually beneficial supply chains. Many quality management systems such as ISO9001 include these themes.

Aquilani et al., (2017) reviewed recent themes in TQM research. They proposed three themes on which research is based; identification papers showing the increase in importance of customer focus, implementation papers highlight the need for models which explain implementation and impact papers evaluate the impact of TQM on organisation performance. Critical Success Factors are variables that determine firm performance through successful improvement action of TQM, they are those factors which implementation of TQM and in doing so drive the success of the firm (Aquilani et al., 2016, Yusof and Aspinwall 1999, Wali et al., 2003). These factors, they argued, result in successful implementation of TQM and include top management commitment (Oakland 2011), information analysis and measurement (Malik et al., 2012), training and education (Kassicieh & Yourstone 1998), supply chain management (Gonzalez-Benito et al., 2003), strategic planning (Saraph et al., 1989), human resource management (Wright & McMahan 1992, Philip & McKeown 2004), process management (Deming 2000, Bigwood 1997), teamwork (Yusof & Aspinwall 1999) employee relations (Mohanty & Lakhe 1998) and service design (Arumungam & Mojtahedzadeh 2011). Research concerning the relationship between TQM and performance is still at an early stage (Aquiliani et al., 2017; Kumar, Maiti, & Gunasekaran 2018). However, these critical success factors offer one theoretical avenue for exploration in terms of how innovative new ways of working are implemented or adopted into organisations with existing operations.

With the open innovation paradigm becoming the main dominant paradigm in practice, this creates a challenge for traditional views of quality management. The TQM principles are not

replaced or removed from modern models but instead need to be reinterpreted and reapplied to this new open innovation landscape as suggested by Ramaswamy & Ozcan (2014).

#### *2.3.2.3.2 Kaizen*

An alternative term for continuous improvement, used in the literature, which has been well researched in the literature is the Kaizen philosophy and method from Japan (Imai, 1986). This approach has again been associated with higher organisational performance, greater levels of staff involvement and creating an environment in the organisation where continuous improvement is possible, where leaders support change however employees are the drivers of the improvement. Kaizen has five elements, these are; teamwork, personal discipline, improved morale, quality circles and suggestions for improvement (Johnson et al., 2016). This methodology also aims to improve organisational success by aligning everyone in the organisation with the objective of improving customer value. The original proposer of Kaizen was Imai (1986) and since this time has been presented as synonymous with Japanese continuous improvement culture. It is widely accepted in industry and by some management researchers, however not by others (Carnerude et al., 2018). This is because Kaizen and continuous improvement is seen by some to have a theoretical deficit (Bhuiyan and Baghel 2005, Brunet and New 2003). The criticism is that Kaizen can become a practical set of tools for managers but does not always promote understanding of the underlying principles (Miller et al., 2014)

#### *2.3.2.3.3 Lean Thinking*

Since the 1990s, the lean model has become a dominant approach and methodology. It is closely associated with continuous improvement. Lean is a waste reduction combined with a quality focused continuous improvement philosophy, its purpose is to establish a logic and processes whereby an organisation can deliver what customers want, in exact quantities, when needed, where required and at the lowest cost (Slack et al., 2016). There are three perspectives of lean; that it is a philosophy for managing operations, it is a method of planning and that it is a philosophy of improvement.

The main way in which lean achieves superior organisational performance results is from reducing waste. Waste has three sources and seven types. The sources in Japanese are muda; activities which do not add value to a process such as poorly communicated objectives or the

inefficient use of resources, mura; lack of consistency, this might include tasks being performed differently by different people, muri; overloading or placing too much on a system (Slack et al., 2016).

Lean has been applied to healthcare and determinants of success, enablers and inhibitors, are often common features of such applications and theory. (eg D'Andreanatteo et al.,2015; Åhlin, Almström & Wänström, 2022). Here, the role of teams is highlighted as being very important in achieving a lean operation as well as establishing a high trust environment and integrating formalised innovation adoption processes. Much less is known about the lean approach to implementation of innovation, improvement and EBP in the healthcare and primary care setting and the publications that do exist concern secondary rather than primary care (Graban 2016)

#### *2.3.2.3.4 Business Process Reengineering*

Business Process Reengineering is BPR involves the radical redesign of business procedures and has been popular since the 1990s. The authors argue that redesigning a patient journey process, in the case of healthcare services, so that dramatic performance improvements can be made (Hammer & Champy,1993). Improved performance means a restructured organisation and gains in terms of relative cost, speed and quality of incremental improvements to the existing processes. There is an evaluation of exiting business model and processes for converting inputs or resources to value for a customer or patient. This is then redesigned from scratch. If applied well, the literature suggests that BPR can be successful and deliver improvements (Bertolini. et al., 2011). There are seven principles suggested by BPR proposer Michael Hammer to guide its use. These are:

- Shared Information- integrating information processing into the activities which create value, sharing information and communicating.
- Result oriented not process orientated- activities only included if they create value, minimizing waste
- Merge similar processes together

- Data captured at points of origin
- Industry benchmarks used to make decisions
- Standardization around industrial processes
- Outsourcing non-core activities

Though BPR has a use in improving processes and improving delivery by removing waste in a radical and single event, it is now not well used in industry or practice. It is imposed change and restructuring, which thinking in many ways has moved beyond. The role of co creation and participation of stakeholders has improved. It also is a major project and high risk to redesign, where, in organisations like the NHS it can be very hard to overhaul such established and wide-ranging existing systems.

The researcher did look for any enablers and inhibitors of BPR which might be useful for a conceptual model of implementation of innovation, improvement and EBP in primary healthcare but very little was found of any import to this study.

Having reviewed the dominant models of innovation and improvement, most authors present case studies of single organisations and depict improvement processes as emergent and piecemeal activities within a single organisation as opposed to an ecosystem. When the researcher extended his literature review to the management of innovation in the supply chain, the authors were almost exclusively from the manufacturing sector (see Hines & Rich 1997) and very few studies of British supply chain innovation were identified. This gap suggested that a research programme to address the issues of an innovation ecosystem (an innovation supply chain form) would be a significant addition to the extant body of knowledge.



### 2.2.3 Change Management

To explore the question of how innovation is introduced to organisations and how organisations adopt innovation, the literature on innovation and operations management have been explored in the first two sections of this chapter. Literature on change management now supplements these two sections before a theoretical model specific to this research is constructed informed by the three fields.

#### 2.2.3.1 Episodic change vs continuous change

A distinction can be made between two types of organisational change: episodic and continuous (Weick and Quinn 1999), (Ackerman 1997). Episodic change or radical change is exactly that, a one off major replacement of one way of doing things, for another. Continuous change is, by contrast, slow and incremental; where continuous changes add up over time. There is no right or wrong way to introduce change and it will depend on context and objectives. There are implications for risk too when thinking logically, if a major change is made and does not meet its objectives it is likely to have more impact than a small change or multiple changes over time which can be reversed or revised before the next change is implemented.

#### 2.2.3.2 Models of change in the Literature

##### 2.2.3.2.1 Lewins (1947) Three Step Change Model

The first and still a dominant model in the change literature associated with the health and care context is known as the unfreeze-change-refreeze model or the Lewin cycle (Lewin, 1947). His model is a staged model, the first stage is to unfreeze existing organisational working practices where change is identified as being needed. A person or group identifies the need for change and sets about the activity of delivering that change. To do this, the status quo needs to be framed in the context of what needs to change and why. One early observation in the context of primary care was the dynamic between partners. This group of “emergent modernisers” in a practice would often be those highlighting, to others, the aspects of the care journey which need to change and why. The change phase involves making the changes that it is perceived will lead to an improved outcome. It is not always clear that this will result, though, and resistance to change is likely to be encountered. The final stage is to refreeze which is about ensuring that

the change that has been implemented has the desired effect. This theory focuses on the role of people in change and applies steps which can be easily conceptualised by practitioners.

This model is very old and as such its main drawback is that it is possibly outdated. It is a process model and not a model of enablers and inhibitors specifically; however some such as the unfreezing- can be seen in terms of creating a motivation and willingness to change within the organisation and planning for change. The 'change' part of the model is a 'black box' (unexplored enabling or inhibiting factors are not presented by the author) and though the model explores engaging and preparing the organisation for change it, does not provide very much detail about the enablers and inhibitors of what impacts this, or how it can be done in practice. The researcher accepted that the model did depict the process of change management associated with project introductions of new technologies and innovations in the health and care context and as such duly decided that the model implied an influence of an external or internal agent in determining or making a perceived need to change happen. The implications of this line of reasoning was that an ecosystem view of primary care innovation would need to explore how actors perceived the need to change and how they could then proceduralise the change to a successful or unsuccessful outcome. The latter would demand a collaborative relationship between organisations, trust, mutual investments in the change process and other activities to realise the actions for change.

#### 2.2.3.2.2 Lippitt's Phases of Change Theory

Lippitt's approach extended Lewin's theory and consisted of four interlinking elements which present steps with which one might achieve change (Kritsonis, 2004):

- **Diagnose the problem or issue to be improved:** This is similar to the unfreeze Lewin stage where change is diagnosed;
- **Assess the capacity for change among stakeholders:** This may include resource availability and the effects of doing so on wider organisational output;
- **Assess the motivation for change among stakeholders:** This includes the change agent's commitment to change as well as influences on various groups;

- **Create progressive change plans to identify and make operational how change will be delivered:** This may include action plans, strategies, periodic updates and other forms of ensuring progress;
- **The roles of all of the individuals who are involved in the change should be defined and clearly understood by all:** Examples given include cheerleader, facilitator, and expert. Each are roles which contribute to the overall change;
- **Maintaining the change:** by setting up mechanisms for communication and feedback;
- **Gradually terminate from the change:** The change agent should gradually withdraw from their role over time. This happens when the change is already operating, usually.

This model is of some utility in explaining implementation based change, features such as assessing capacity for example is consistent with implementation specific literature (Weiner 2009), which focuses on the idea of organisational readiness as a determinant of successful implementation of innovation, improvement and EBP. Maintaining the change is a concept that features in implementation specific models also and is known as sustainability (Stirman et al., 2012). There are many features of this model which have already been used by researchers in the implementation research field to underpin their own research. Therefore, it is considered to be highly relevant. It is however a process model where steps are sequential. This may not be appropriate for primary care implementation where a set of determinants may better be applied to a variable and complex system.

#### 2.2.3.2.3 Kotter (8 stage model)

A hugely influential and another dominant model of change was proposed by Kotter (1996) and introduces a process or ‘how to’ model of change. This has 8 steps and are as follows:

1. **Create a sense of urgency:** a motivation or willingness to change within the organisation
2. **Build a guiding coalition:** leaders, stakeholders and who has the perceived and actual power to decide and influence others in the organisation. For example, in primary care

practice managers are not partners, but have a large degree of power within the organisation on a day to day basis.

3. **Form a strategic vision and initiatives:** why the change is proposed and a strategy to deliver this
4. **Enlist a volunteer army and communicate vision:** enlist supporters and communicate so they understand the what and why of the change
5. **Enable action by removing barriers:** identify and remove obstacles or inhibitors of change
6. **Generate short-term wins:** to motivate by building momentum across the actors involved
7. **Sustain acceleration:** don't say the project has been successful too early as change is about sustained and lasting impact, not short term changes which slip or revert back.
8. **Institute change:** anchor in the corporate culture to again sustain the change and make consistent with values

This model has several features which apply to implementation of innovation, improvement and EBP in primary care. The function of identifying inhibitors is supportive of and consistent with, the approach taken in this thesis. There are also other factors which the researcher could include in a model of implementation, such as exploring motivation and ensuring lasting change. This model lacks some concepts and features which might be expected. There is little mention of the external influences and context on change, for example. It is useful however for this thesis and can form part of a model of implementation of innovation, improvement and EBP in primary care.

#### 2.2.3.2.4 Kubler-Ross model of Change

Drawing from the palliative and end of life process of humans, Kubler-Ross (1969) proposes a model of the human response to change resulting from the study of grief. This has become a well-known model in management more widely as it suggests patterns of behaviour when change is taking place in an organisation, highlighting the role of emotions in change. The following diagram shows the stages of change as proposed:

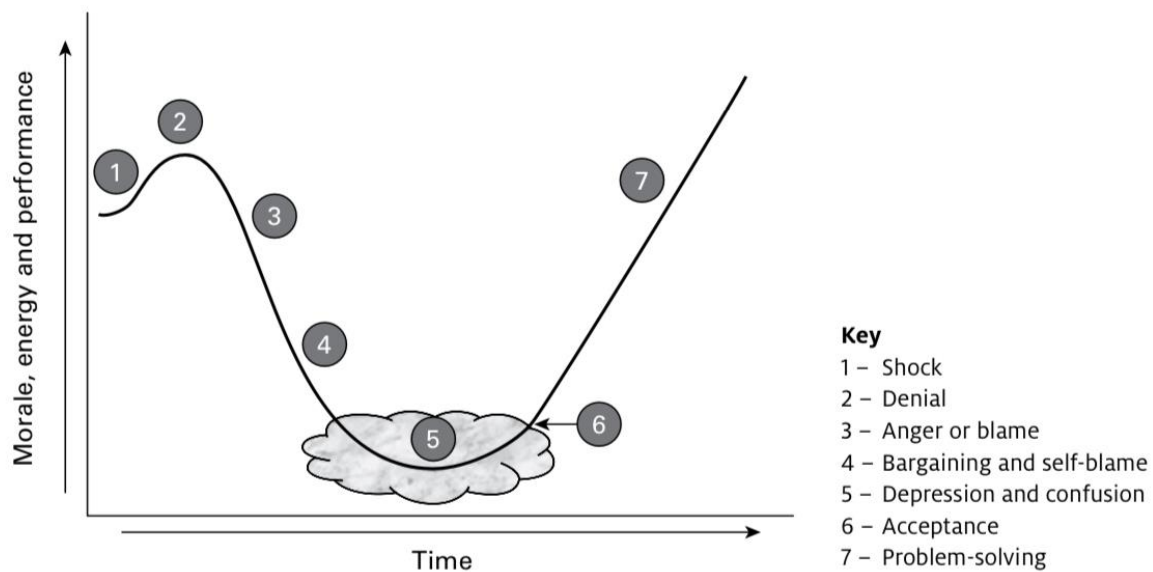


Figure 2.15: Kubler Ross Model of Change

Source: Kubler-Ross (1969)

The first stage is initial shock, this is where change is resisted as if it is unreal. The second stage is denial and likely to be accompanied by defensive energy. This stage can be reduced in organisational change by effective early dialogue with people affected by the change. This reduces the potential that the change not be taken seriously. The third stage is anger, where the change can not be avoided. This may be accompanied by blame. The fourth stage is bargaining or self blame where people try to mitigate potential loss. The next stage is the start of letting go of the status quo where depression and confusion give way to sixth and seventh stages of acceptance and problem solving.

This is highly relevant to the implementation of innovation, improvement and EBP in healthcare and primary care where there can be resistance to change by several stakeholders and low trust between them. There are examples at the context chapter four, where Welsh Government has mandated change, such as to access standards for example. This theory offers some utility in explaining the behaviour of primary care practices and practitioners when these mandated changes are imposed by government.

An alternative model of change is proposed by Bridges (2009) and makes the distinction between change and transition. Change is made up of the actual events, whereas transition is

the human process of transiting from one status quo to another. This model has three processes which have to be completed for transition. These are:

- Letting go of old ways and identities. This is the ending phase where people feel loss.
- Neutral zone where the old isn't fully gone but the new isn't fully operating either
- New beginning where new energy and optimism starts

This again can be useful when exploring the implementation of innovation, improvement and EBP in primary care. Often in small primary care practices have had the same leadership for many years, the same support staff and processes have been the same for as long as they can remember. Staff can be fixed to existing ways of doing things. The researcher reflected that this theory offers potential explanation of what is occurring when implementation takes place.

#### 2.2.4 Classifying Models of Change

The process of change is the issue which has been most researched in the literature. This has resulted in four groups of theory. Van de Ven and Poole (1995) undertook a meta-analysis of twenty change theories and categorised them as follows:

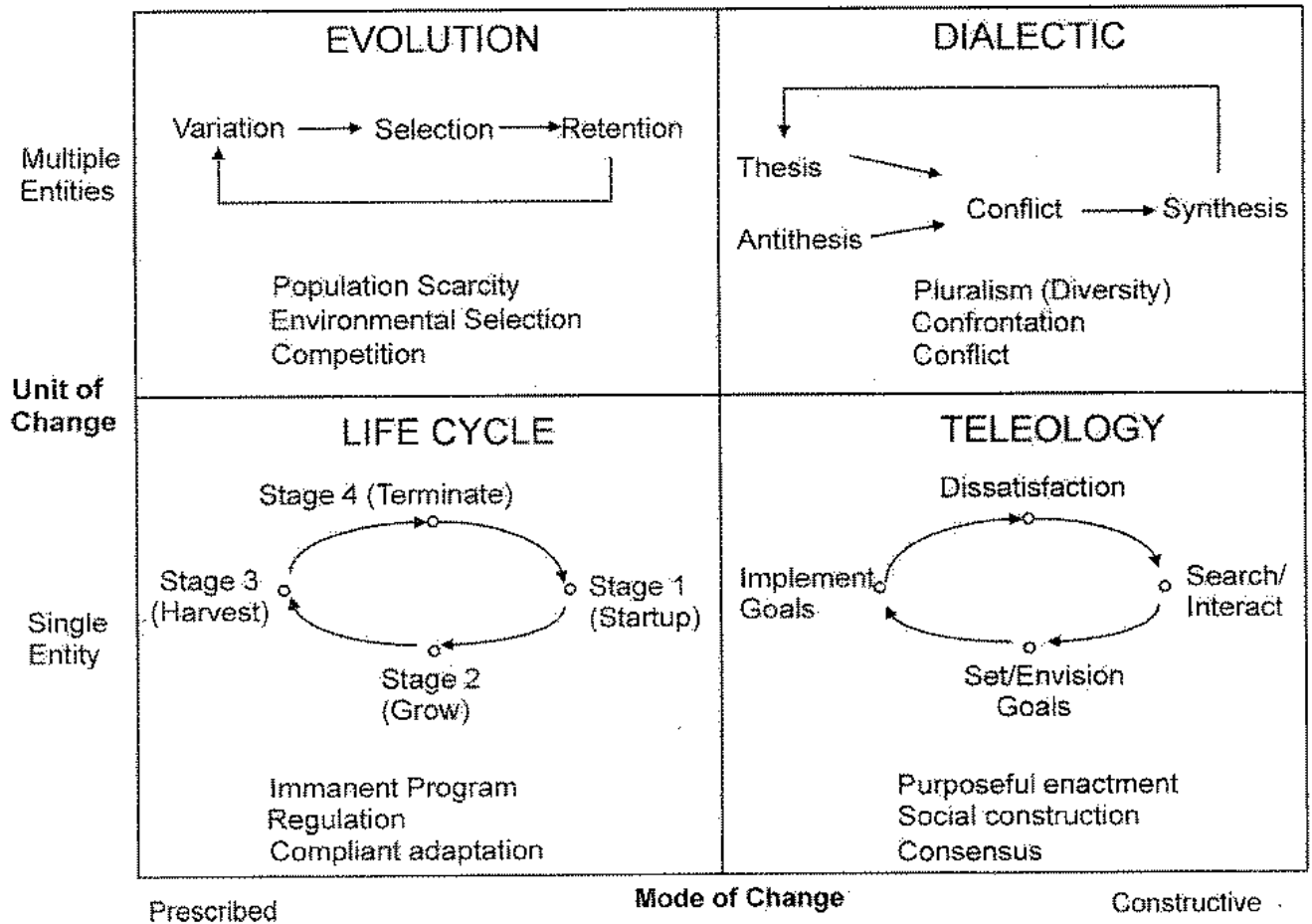


Figure 2.16: Four Types of Change Theory

Source: Van der Ven and Poole (1995)

These theories are useful to understand what is happening at a theoretical level when implementing, however were not specific to the context of primary care and so very limited. They would not be very useful to a practitioner alone, they are too abstract. They do underpin the wider theory of change however and would likely be of use when exploring implementation of innovation, improvement and EBP to build new theory. Each is now discussed in turn:

#### 2.2.4.1 Teleological theories

The teleological group of theories suggests that organisations plan changes and that change occurs as a cycle of goal formulation, implementation, evaluation and learning. This is a common set of theories in the context of NHS improvement and transformation. The learning takes place cycle by cycle as new forms of learning takes place. These theories take a planned

goal as the starting point – an aspect of change which is not always clear in organisations – and their authors explain how organisations transition towards such end goals. An organisation actively transitions through various steps to reach their end goal.

Leadership or control centres are those that set the agendas for change in accordance with these theories – who set goals and monitor progress. This can be seen in the NHS England Change Model: a collection of theories that were apparently made into a practical model, as discussed below. The model encourages those who are looking to effect change to plan goal formation, how they will approach implementation, evaluate and repeat, based on a continuous cycle.

These approaches are useful for this study in establishing the differences between generic theoretical models of change, teleological or otherwise and contextually relevant attempts to manage implementation. These include the role of leadership, which is always a uniting thread in these NHS change models, sharing goals and vision for example is another. It demonstrates that teleological theory has a role, but there are other determinants of success outside of the generic models the researcher will need to explore to develop a framework of innovation, improvement and EBP.

#### 2.2.4.2 Dialectical theories

The dialectical theories of change focus on conflicting goals in groups within the overall system. There may be competing agendas which alter the change agenda as well as affecting how change is delivered. In primary care, there are three groups with competing interests; funders, deliverers and patients. Funders are responsible for ensuring that the highest number of services possible are delivered within the parameters of the available budget, sometimes setting budgets and prioritising the mix of those services. Deliverers, general practitioners, must deliver services but also ensure that their profit-retaining motivation is balanced against a growing demand for care. Patients require medical care on an increasing basis; the mix of services is also changing.

These theories assume that change takes place as a number of separate events which interact and that forces compete. These are sometimes internal and sometimes, as in the case of primary care services, between external organisations within a wider industry.



The researcher reflected that dialectical theories as a concept, were likely to be highly relevant to this study. Implementation in primary care involves complex systems and tension between stakeholders within and around those systems. Again, the limitation is the level of detail and pragmatic applicability for practitioners. A specific framework, for example, would include the stakeholders or actors where tension occurs and the dynamics of these relationships.

#### 2.2.4.3 Life Cycle theories

Lifecycle and maturity theories are used to explain change a series of sequential or cyclical steps. Cameron (1991) attempted to merge ten life cycle models into a single meta-model. In life cycle models, people are seen as being critical to the process of change.

The researcher reflected that though there was some limited relevance to this study, there are two limitations. Firstly, that life cycles are passive and hard for implementers to influence. Secondly, that the healthcare and primary care innovation lifecycles are very long.

#### 2.2.4.4 Evolutionary theories

These mirror evolutionary theories where there is variation and selection over time, of a number of potential innovations or changes. The researcher reflected that this group of theories may apply to the wider NHS Wales Primary Care Ecosystem more than at the individual practice or implementor levels. NHS Wales has programmes to test new innovations on a small scale and evaluate how they perform. One example of this is the Pacesetter programme of which one of the cases in this study features. This is a managed form of evolutionary change, where Government can logically select those innovations which are perceived to deliver improved performance. There is an effective competition between projects as the funding to take projects forward and expand their implementation is limited.

A comparison of different theory groups can be made:

	<b>Evolutionary</b>	<b>Teleological</b>	<b>Life Cycle</b>	<b>Dialectical</b>
<b>Explaining why change occurs</b>	External environment is the main driver of change	Leaders are the main driver of change who influence an internal environment	Leaders guide individuals	Dialectical tension of values, norms and patterns
<b>Process of change</b>	Change is an adaptation which is gradual and not unintentional	Change is planned	Natural progression; result of motivation, habits, and identity	First order followed by occasional second order; negotiation and power
<b>Outcomes of change</b>	New structures and processes	New structures and organising principles	New organisational identity	New organisational ideology
<b>Limitations</b>	Environmental emphasis; systems approach	Importance of change agents; management techniques and strategies	Change related to phases; temporal aspect; focus on people throughout the organisation	Change not always progressive
<b>Benefits</b>	Lack of human emphasis; deterministic quality	Overly rational and linear; inability to explain second order change; plasticity of people	Little empirical proof; deterministic nature	Deterministic; lack of environmental concerns; little guidance for leaders

Table 2.5: A Comparison of Change Management Theory Types

Source: Change Management Lecture Notes Swansea University

The researcher reflected that this comparison highlights underpinning dynamics of change which are likely to be occurring when innovation, improvement and EBP is implemented in primary care. A dialectical theorising of the dynamics of implementation is likely to be most relevant and there are features of other groups, for example the role of dissatisfaction or tension for change, which improves the researchers understanding. As standalone theory however, again, change management theory alone has little explanatory or pragmatic power for implementors. This is because the specialist contextual factors are not featured and so use is limited. For example, the specialist features of the innovation itself are not mentioned, nor the many external factors which influence the primary care system.

### 2.2.5 Other Change Management Theory

There are a number of other theories and models which may be of use when thinking about implementing innovation, improvement and EBP which are used in change management. These do not yield a direct comparison to implementation in primary care, nor show in detail the enablers and inhibitors. However some aspects were found to be relevant. Two very well known theories are as follows:

#### 2.2.5.1 Social Cognitive Theory

The social cognitive theory has its grounding in psychology and is used in a variety of fields to explain the role that human behaviour has on change and the management of change, as “a three-way, dynamic, reciprocal model in which personal factors, environmental influences, and behaviour continually interact” (Glanz, 2001). This theory is based on the belief that people change not only based on their own learning, but also under the influence of others and according to the perceptions of others. In this model, three constructs interact to bring about change:

1. Personal: the individual must have self-efficacy about the change, believe they can be part of the change and see incentive;

2. Behavioural: the outcome that a person sees after they take part in effecting a change;
3. Environmental: a range of factors around the change may influence the self-efficacy of the people who are central to the change.

The ways in which we perceive others are seen as being key drivers of our own approaches to change in the context of this theory. It is a theory that is most usefully applied to behaviour-related changes in organisations. The researcher reflected that this is applicable to the primary care implementation environment, both for the implementer and other stakeholders. Implementers are influenced in terms of selecting the implementations, improvements and EBPs they believe will deliver the improved performance they seek. There is also an implication for those implementors, in that motivating others through behaviour is likely to be essential in implementing successfully.

#### 2.2.5.2 Theory of Reasoned Action and Planned Behaviour

A second behavioural theory that is used to explain change is the “Theory of Reasoned Action and Planned Behaviour”. A method of explaining change can be built on these theories as a function of planned behaviour – the ways in which those central to change process such change. These are two separate theories, with the theory of planned behaviour being an extension of the Theory of Reasoned Action (TRA) see Fishbein & Ajzen 1975 and Ajzen & Fishbein 1980.

Both of these theories are based on the idea that people making logical decisions by evaluating the information that is available to them. Change is determined by the individual’s intention to engage in it and is influenced by factors including the value that the individual places on the change, the ease with which it can be effected, and the views of significant others – as well as the perception that the behaviour is within one’s own control (Ryan, 2010). There are a number of variables in the theories which drive behaviour.

1. Normative beliefs and subjective norms relate to an individual’s perception of those whom they value and how they may see a change. Subjective norms are an individual’s perception of change which is influenced by their perceptions of others whom they value.

2. Control beliefs are an individual's beliefs about factors that may improve or dampen success.
3. Perceived behavioural control is an individual's perceived ability to perform the particular behaviour. These create behavioural intention which, in turn, drives behaviour.

Again, these theories are possibly applicable to the explanation of change in primary care organisations and include a range of stakeholders. It makes clear the potential drivers which can be influenced so as to drive change. Perceptions of others being a key factor, if others in the organisation see primary care partners championing an implementation this is likely to have a positive effect on implementation. Similarly setting joint goals is another area of potential applicability. However again the main limitation of this theory is that it cannot be used alone to influence successful implementation. It are not specific to the context of primary care or healthcare and as such. Another field of research, implementation science, is underpinned and influenced by the theories discussed to this point and is the subject of the next section.

#### 2.2.4 Implementation Research

When a new research outcome, innovation or potential improvement is identified, this alone does not translate to improvements in organisational or system delivery. Implementation research is the field which has emerged to bridge this gap; integrating innovation, potential improvements and research outcomes into healthcare delivery systems (Lehman 2017). Implementation research and implementation science are terms used interchangeably in the literature and this thesis.

This field was found as part of a wider search of the literature in innovation, operations and change management and exists at the intersection of these fields. There are influences of each within implementation research however it exists as a focused field. It provides a robust theoretical underpinning for this study; and opportunity to meaningfully contribute and develop that existing work. Innovation research often takes the form of applying innovation to healthcare; where research outcomes are implemented by providers to realise the potential improvements those innovations make possible (Tabak et al., 2016). One consistent finding

from clinical research, is the persistent failure and reported challenges of translating outcomes into practice and policy (Grimshaw et al., 2012). This has given rise to evidence-practice and policy gaps, where “healthcare systems are exposed to unnecessary expenditure resulting in significant opportunity costs.” (Grimshaw et al., 2012). Implementation strategies are the specific approaches, methods, structures, and resources used to introduce and encourage uptake of a given intervention’s components (Gold et al., 2016).

Evidence-based interventions (EBIs) include any action or set of actions that delivery systems introduce; to improve health behaviours, health outcomes, or health-related environments (Leeman 2017). These include built and communication environments that support healthy behaviours. EBIs target factors that directly contribute to health as compared to implementation strategies, which target factors that contribute to EBI adoption, implementation, scale-up, or sustainment. There are seven types of intervention (Brown et al., 2017); programs, practices, principles, procedures, products, pills, and policies (the seven Ps). Interventions are evidence based to the extent they are supported by research that has established a causal relationship between the intervention and a specified improvement in individual or population level health behaviours, health outcomes, or health-related environments (Lehman 2017).

As implementation research has progressed and matured as a field of study, three stated aims have emerged (Kirchner et al., 2020):

1. To develop effective strategies for implementing evidence-based practices, thereby improving health-related processes and outcomes;
2. To produce generalizable knowledge regarding these strategies by understanding the processes, barriers, and facilitators that influence implementation success or failure
3. To develop, test, and refine relevant theories, conceptual frameworks and measures to advance the science of implementation (Grimshaw et al., 2012).

This third aim represents a gap, which this research could contribute towards. There is a reported deficiency of models and frameworks to implement innovation, improvement programmes and evidence based practice into practice. The literature is in need of

generalisable theory and a model explaining the successful implementation of innovation and improvement, particularly in primary care settings. This would represent a contribution specifically to this service delivery context, it may also thereafter be of use more widely in other contexts with contextual amendments.

#### 2.2.5.1 Theories, models and frameworks that are used in Implementation Science

Implementation Science tended to be empirical in its infancy, with little or no explicit theories identified in many studies. Davies et al., (2003), for example, notes that only 10% of the papers identified in their study, provided an explicit rationale or theory. This has since evolved and researchers have a wide variety of theory to choose from when structuring research and for use in practice. Some have since complained that there are too many theoretical approaches, making selecting the most appropriate problematic (Cane et al., 2012; Godin et al., 2008).

This section takes the Handbook of Implementation Science chapter (Nilsen 2020) as well as six textbooks suggested therein (Rycroft-Malone and Bucknall (2010c), Nutley et al. (2007), Greenhalgh et al., (2005), Grol et al., (2005), Straus et al., (2009) and Brownson et al., (2012)), as well as searches of the terms ‘implementation science’, ‘theory’, ‘model’ and ‘framework’ in the EBSCO search engine, to introduce the theoretical landscape of the field.

The terms ‘theories’, ‘models’ and ‘frameworks’ are often used interchangeably (Estabrooks et al., 2006; Kitson et al., 2008; Rycroft-Malone and Bucknall, 2010). This section first defines each of the three, following Nilsen et al., then looking at the classification of different types of theories, models and frameworks present in the field of implementation science.

A theory is defined “as a set of analytical principles or statements designed to structure our observation, understanding and explanation of the world” (Nilsen 2020; Carpiano, 2006; Frankfort-Nachmias and Nachmias, 1996; Wacker, 1998). Variables are often identified and defined and the relationships between these forms the explanatory or predictive purpose of the theory. We are interested to explain why something happens, or sometimes what may happen; given the relationship between variables in the theory.

1. A model is a “deliberate simplification of a phenomenon or a specific aspect of a phenomenon’ (Nilsen 2020). Models relate closely to theory; the difference between them is not always clear. Models can be theories with a narrowly defined scope; models are descriptive, whereas a theory is explanatory as well as descriptive (Nilsen 2020; Frankfort-Nachmias and Nachmias, 1996).
2. A framework “is a structure, overview, outline, system or plan” which consists of various descriptive categories (Nilsen 2020). These could be concepts, constructs or variables and the relationships between them which are present in a phenomenon (Nilsen 2020; Sabatier, 1999). Frameworks do not provide explanations, they only describe empirical phenomena by fitting them into categories.

There are three aims of theory, models and frameworks in implementation science (Nilsen 2020):

- If implementation science is about translating research into practice; theory helps to describe and/or guide that process;
- Understanding and/or explaining what influences implementation outcomes- the determinants which encourage or impede implementation
- Evaluating implementation- was the implementation a success and did it result in improvement? This is depending on perspective and the status quo position, where the existing system started.



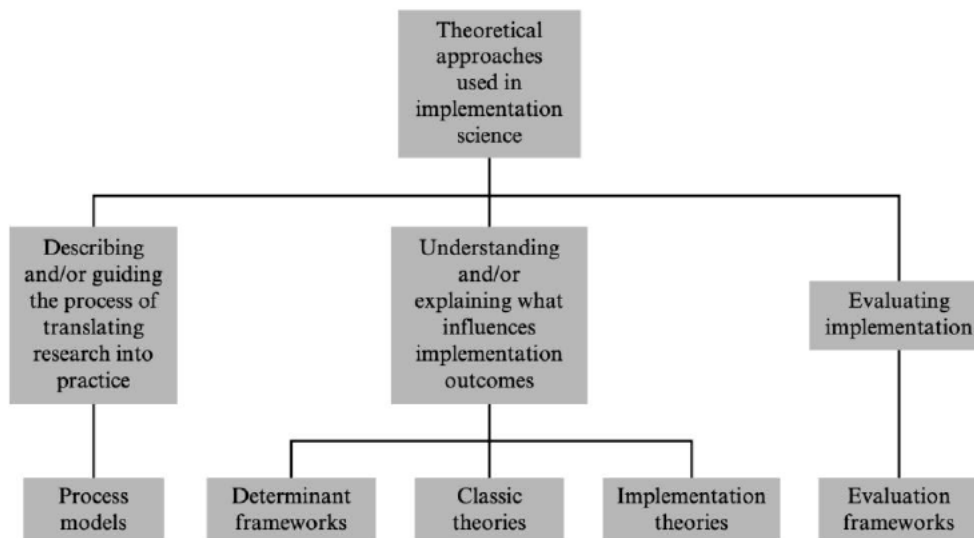


Figure 2.17: Theoretical approaches and the five categories of theories, models and frameworks in implementation science

Source: Nilsen (2020)

There are three overarching aims of implementation science and five theoretical approaches. The describing and guiding of research into practice is achieved by process models, the evaluation of implementation is achieved by evaluation frameworks. The middle section of the above diagram is split into three ways of understanding or explaining what influences implementation outcomes; these are determinant frameworks, classic theories and implementation theories.

These five types of theories, models and frameworks used in implementation science are summarised by Nilsen (2020) as follows:

Type	Description	Examples
Process models	Specify steps (stages, phases) in the process of translating research into practice, including the implementation and use of research. The aim	Model by Huberman (1994), model by Landry et al., (2001), model by Davis et al., (2007), model by Majdzadeh et al., (2008), the CIHR Model of Knowledge Translation (Canadian Institutes of Health Research, 2014), the K2A

	<p>of process models is to describe and/or guide the process of translating research into practice.</p>	<p>Framework (Wilson et al., 2011), the Stetler Model (Stetler, 2010), the ACE Star Model of Knowledge Transformation (Stevens, 2013), the Knowledge- to-Action Model (Graham et al., 2006), the Iowa Model (Titler et al., 1994; Titler et al., 2001), the Ottawa Model (Logan and Graham, 1998, 2010), model by Grol and Wensing (2004), model by Pronovost et al., (2008), the Quality Implementation Framework (Meyers et al., 2012)</p>
<p>Determinant frameworks</p>	<p>The overarching aim is to understand and/or explain influences on implementation outcomes,</p>	<p>i-PARIHS (Harvey and Kitson, 2016), PARIHS (Kitson et al., 1998; Rycroft-Malone, 2010), Active Implementation Frameworks (Blasé et al., 2012; Holmes et al., 2012), Understanding-User-Context Framework (Jacobson et al., 2003), Conceptual Model (Greenhalgh et al., 2005), framework by Grol et al. (2005), framework by Cochrane et al. (2007), framework by Nutley et al., (2007), Ecological Framework by Durlak and DuPre (2008), CFIR (Damschroder et al., 2009), framework by Gurses et al., (2010), framework by Ferlie and Shortell (2001), Theoretical Domains Framework (Michie et al., 2014)</p>

Classic theories	Specify types (also known as classes or domains) of determinants and individual determinants, which act as barriers and enablers. Theories that originate from fields external to implementation science,	Theory of Diffusion (Rogers, 2003), social cognitive theories, theories concerning cognitive processes and decision-making, social networks theories, social capital theories, communities of practice, professional theories, organizational theories
Implementation theories	Theories that have been developed by implementation researchers	Implementation Climate (Klein and Sorra, 1996), Absorptive Capacity (Zahra and George, 2002), Organizational Readiness (Weiner, 2009), COM-B (Michie et al., 2011), Normalization Process Theory (May and Finch, 2009)
Evaluation frameworks	Specify aspects of implementation that could be evaluated to determine implementation success.	RE-AIM (Glasgow et al., 1999); PRECEDE-PROCEED (Green et al., 2005); framework by Proctor et al., (2010)

Table 2.6: Theories, Models and Frameworks used in Implementation Science

Source: Nilsen (2020)

Each of the five types of implementation theory, model or framework is now presented in detail:

#### *2.2.5.1.1 Process Models*

These guide the process of translating research into practice and originate or have similarity to both models of innovation found earlier in the literature review, and knowledge transfer literature. Examples include Huberman (1994), Landry et al., (2001), the CIHR (Canadian Institutes of Health Research, 2014), the Knowledge Model of Knowledge Translation, Davis

et al., (2007), Majdzadeh et al., (2008) and the K2A (Knowledge-to-Action) Framework, Wilson et al., (2011)

Linear models in the infancy of the field have evolved from transferring from researchers or scientists to users, to include facilitation, context, and the multi-dimensional nature of knowledge transfer. These models present a how-to approach, an ideal formula for implementing a given intervention to a given context. This is useful in some ways, but is also limiting in others. The chaotic and evolving landscape to which innovation and improvement is applied is a varied one. This means that a 'how to' guide for one operation, may not be ideally suited to another.

The researcher reflected that process models were too constrained for this study. They do not have sufficient flexibility to accommodate the range of variance in primary care systems and their inherent complexity.

#### *2.2.5.1.2 Determinant Frameworks*

These describe generally the determinants which are thought to influence implementation of research and evidence based practice into routine practice. These are usually split into enablers, which improve the implementation, or inhibitors, which resist it. Some frameworks propose relationships between variables, whereas others see implementation as complex where individual relationships are hard to isolate from other variables present in the context of the implementation. These determinant frameworks do not address how change takes place or causal mechanism- in this sense they are not theories.

Frameworks are often multi-level, identifying determinants at the practitioner, organisation or government commissioner levels and so on. They are sometimes the result of literature reviews and meta analysis (Cochrane et al., 2007; Durlak and DuPre, 2008; Ferlie and Shortell, 2001; Greenhalgh et al., 2005) others modify existing frameworks (Damschroder et al., 2009) and sometimes determinant frameworks are rooted in the experience of practitioners (Jacobson et al., 2003). The stronger contributions are the result of both.

Determinant frameworks are often vary in the terms and definitions used, expression of different concepts and constructs, as well as outcomes (Nilsen 2020). There is similarity

however with regard to the meaning of what the determinants are. Similar concepts are expressed using different terms, with a lack of standardisation. Implementation researchers agree what influences implementation outcomes, but have yet to mature to standard terms that are best used to describe these determinants.

Nearly all of the determinant frameworks account for five types of determinants (Nilsen 2020), these are:

- Characteristics of the implementation object; research, guidelines, interventions, innovations and evidence
- Influences at the individual health care professional level
- Patient influences
- Collective-level influences
- Effectiveness of implementation strategies used to support implementation

These are highly relevant to this study. Determinants which either enable or inhibit successful implementation offer an approach with more contextual flexibility to practitioner implementors in primary care.

Determinant frameworks are based on a systems approach, which is the same theoretical start point taken by the researcher. They have multiple levels and imply relationships across these levels, internally and externally as part of a system. A system can only be taken as a whole, as it is difficult to separate its parts and isolate relationships between parts within the system. Some studies have tried to isolate the effect of one determinant on a system, which is problematic when it is not possible to exclude the other factors which also may be affecting that system alongside the determinant. It is also unlikely that all determinants affecting implementation have been established (Nilsen et al 2020).

The researcher reflected that it is clear from this literature that there are several determinants which will be important to a framework of implementation of innovation, improvement and EBP. Determinants such as communication, collaboration, skills and competence. These did not feature in the generic models of change but are implied by some of the determinant frameworks. The researcher used a number of determinant frameworks in far greater detail and these are presented later in the chapter.

#### *2.2.5.1.3 Classic Theories*

Implementation theory is built on or application of a number of well established classic theories from other fields. These are presented in this thesis mostly under the operations and change fields; however organisational theory, psychology, innovation theory and others are also helpful to understand implementation of research and innovation in routine practice in healthcare. Organisational theory is becoming increasingly important to implementation researchers as the role of context in implementation becomes clearer (Nilsen 2020). The context of implementation, where it is taking place and the environment in which it is taking place, or the start point, matters to implementation outcomes.

The next step which this thesis might wish to examine, is the role of these classic theories as well as implementation frameworks, to understand implementation of innovation and improvement projects in NHS primary care organisations.

#### *2.2.5.1.4 Implementation Theories*

Implementation theories are those, other than process models and determinant frameworks, which have been developed by implementation researchers for the purpose of understanding or explaining implementation. Examples are given in the table above and some have been developed by implementation researchers for the purpose of explaining implementation, for example Implementation Climate (Klein and Sorra, 1996), Absorptive Capacity (Zahra and George, 2002) and Organizational Readiness (Weiner, 2009). Others are existing or classic theories which have been modified, such as Normalisation Process Theory (May and Finch, 2009),

This body of literature implies that any modern implementation of innovation, improvement or EBP in healthcare and primary care will need to follow specialist implementation theory and not only the generalist theories of change. There are specific factors such as competence, readiness and the availability of absorptive capacity or resources, willingness and motivation (climate) and context that are implicit within this approach; but not explicitly stated in abstract generalist models of change.

#### *2.2.5.1.5 Evaluation Frameworks*

These provide a structure for evaluating implementation. How successful has the implementation been in achieving its objectives and what have the outcomes been? This can depend on the point of perspective, particularly where there are competing interests from, for example practitioners and commissioners of services. Proctor et al, (2010) have a framework of implementation outcomes which can be used to evaluate outcomes and the eight outcomes (acceptability, adoption, appropriateness, costs, feasibility, fidelity, penetration and sustainability) discussed in detail in the preceding section.

To evaluate an implementation, the most often used frameworks are RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) (Glasgow et al., 1999) or PRECEDE-PROCEED (Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation – Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development) (Green et al., 2005). Both specify implementation aspects to evaluate and suggest how to go about this.

Evaluation frameworks are a category in their own right; however theories, models and frameworks from the other four categories can often be applied to evaluate implementation. There are a number of specific areas of interest to the researcher, for example the management of the relationship with professionals as a key success factor for implementing change (Francesco 2007). The main drivers identified are characteristics of the actors involved: their motivation, leadership, and commitment; the quality of relationships among the main actors; and how the resources dedicated to manage change are used. This can be integrated into a theoretical model as one aspect of a wider set of determinates. Kurato (2014) suggests that while corporate innovation is commonly seen as a strategy for improving performance, successful implementation of innovation remains elusive. There are four key

implementation issues identified by this researcher, which could be improved. Effective recognition of and response to these four implementation issues, may help practitioners to realise the potential of innovation, improvement and evidence-based practice. These four issues are:

1. understanding what type of innovation is being sought
2. coordinating managerial roles
3. effectively using operating controls, and
4. properly training and preparing individuals.

For the purpose of this study, these determinants will need to feature in any framework of implementation of innovation, improvement or EBP in primary care. The researcher will need to establish how best these fit, what sub determinants of these may exist, or if these are indeed sub determinants of wider themes when applied to the context of implementation in primary care. From the perspective of relevance to a study of implementation of innovation, improvement and EBP, this literature also implies that trust is important but it is not explicitly stated.

#### 2.2.5.2 Implementation Outcomes

Proctor et al. (2010) attempts to resolve the issue of conceptualising and evaluating successful implementation. Their main contribution is the development of a taxonomy of eight implementation outcomes, which presumably the next stage is to develop measurements for. These are:

- Acceptability: “Acceptability is the perception among implementation stakeholders that a given treatment, service, practice, or innovation is agreeable, palatable, or satisfactory.” This is recognised as a challenge in implementation (Davis 1993) and acceptability should be assessed based on knowledge of or direct experience with the existing service and



dimensions of the innovation or change programme to be implemented. Acceptability is different from the larger construct of service satisfaction, referencing specific interventions while satisfaction is about the general service experience.

- Adoption: Adoption “is the intention, initial decision, or action to try or employ an innovation or evidence-based practice” (Proctor et al 2010). It can also be described as “uptake.” (Rabin et al. 2008) Rye and Kimberly (2007).
- Appropriateness: Appropriateness “is the perceived fit, relevance, or compatibility of the innovation or evidence based practice for a given practice setting, provider, or consumer; and/or perceived fit of the innovation to address a particular issue or problem” (Proctor et al., 2010). Appropriateness is similar to acceptability, however an intervention may be appropriate but not acceptable, and vice versa. Appropriateness explains some of the resistance to change to implementation efforts- “when providers feel a new program is a “stretch” from the mission of the health care setting, or is not consistent with providers’ skill set, role, or job expectations” (Proctor et al., 2010).
- Feasibility: Feasibility is “the extent to which a new treatment, or an innovation, can be successfully used or carried out within a given agency or setting” (Proctor 2010) (Karsh 2004). It is usually thought about retrospectively to explain an initiative’s success or failure “as reflected in poor recruitment, retention, or participation rates” (Proctor 2010).
- Fidelity: Fidelity is “the degree to which an intervention was implemented as it was prescribed in the original protocol or as it was intended by the program developers” (Dusenbury et al., 2003; Rabin et al., 2008). It is the extent to which the programme Fidelity compares the original system and the intervention “in terms of (1) adherence to the program protocol, (2) dose or amount of program delivered, and (3) quality of program

delivery.” Fidelity is about transitioning innovation from theory or lab, to real world delivery systems. The literature identifies five implementation fidelity dimensions, these are: adherence, quality of delivery, program component differentiation, exposure to the intervention, and participant responsiveness or involvement (Mihalic 2004; Dane & Schneider 1998).

- **Implementation cost:** Cost means the financial cost of an implementation effort (Proctor et al., 2010). These vary according to three components; First, as innovation project complexity raises, so too does the cost of implementation. Second, the cost of implementation varies depending on how the innovation in service delivery is implemented, the implementation strategy used. Finally, the project setting (eg hospital or primary care, or differing primary care partnership structures or delivery systems) means costs vary.
- **Penetration:** Penetration means the integration of the innovation project within a service setting and its subsystems. Proctor et al. (2010), Stiles et al. (2002) and Rabin et al. (2008) propose similar definitions and quantify service saturation as the number of eligible persons who use a service, divided by the total number of persons eligible for the service. Penetration can also be thought about in terms of the “number of providers who deliver a given service or treatment, divided by the total number of providers trained in or expected to deliver the service.” (Proctor et al., 2010)
- **Sustainability:** Sustainability means “the extent to which a newly implemented treatment is maintained or institutionalized within a service setting’s ongoing, stable operations.” (Proctor et al., 2010). There are varied definitions of sustainability in the literature as these authors note, the one above incorporates aspects of these offered by Johnson et al. (2004), Turner & Sanders (2006), Glasgow et al. (1999), Goodman et al., (1993), and Rabin et al., (2008). Rabin et al., (2008). The core theme is that sustainability is the “integration of a given program within an

organization's culture through policies and practices and distinguishes three stages that determine institutionalization" (Proctor et al., 2010). These are (1) passage (a single event such as transition from temporary to permanent funding), (2) cycle or routine (i.e., repetitive reinforcement of the importance of the evidence-based intervention through including it into organizational or community procedures and behaviours, such as the annual budget and evaluation criteria), and (3) niche saturation (the extent to which an evidence-based intervention is integrated into all subsystems of an organization). Thus, the outcomes of "penetration" and "sustainability" may be related conceptually and empirically, in that higher penetration may contribute to long-term sustainability. Such relationships require empirical test, as we elaborate below. Indeed Steckler et al. (1992) emphasize sustainability in terms of attaining long-term viability, as the final stage of the diffusion process during which innovations settle into organizations. To date, the term sustainability appears more frequently in conceptual papers than actual empirical articles measuring sustainability of innovations.

These outcomes will need to feature in any framework of implementation of innovation, improvement and EBP for primary care. They are well established in the literature above and map easily to the context of primary care. They give a tangible definition to what 'successful' means, which could otherwise be very broad.

#### 2.2.6 Existing Determinant Frameworks for Implementation of Innovation, Improvement or EBP

Now that what implementation is trying to achieve had been discussed, the models and frameworks showing the determinants that enable or inhibit those outcomes can be introduced.

The literature search identified a number of existing determinant models that had been developed to explain and apply when practitioners are implementing a new innovation, improvement or EBP. This section details these models. The models existing literature were inconsistent in the factors or determinants they expected to enable or inhibit implementation.

None separated enabler from inhibitor, suggesting that determinants are either enabling or inhibiting depending on their level of presence. For example, a presence of motivation in successful implementation is present in all determinant models; its presence enables and lack of it inhibits. It was possible that many of these determinants already in existing models of implementation would be relevant to this study of successful implementation of innovation, improvement and EBP in primary care. Many of the models had been developed pragmatically and suggested a realist-pragmatist stance was the norm for implementation research. This is logical as its purpose is to assist leaders to navigate implementation in the context of a chaotic environment where every system is unique and responding to unique delivery challenges.

Existing models in literature were not specific to primary care, nor were they specific to innovation, improvement or EBP. Therefore, this research could advance and add to the literature by assessing aspects of existing models and using this with new research, do develop a model specific to implementation of innovation, improvement and EBP for primary care delivery organisations. It may be that many factors present in implementation for general service organisations and in the models below are also relevant to primary care, however there are likely to be many differences as primary care, for example, is operated through small private provider organisations. There is also likely to be differences between UK and international studies as the healthcare systems are different, with the UK NHS being unique. Finally, presenting and assessing the various models available has taken a thorough search of the literature. Practitioners having to undertake this could be easily confused and demotivated from using any theory at all (Grimshaw et al. 2004). Understanding the following models and integrating aspects which are relevant to primary care along with new relevant determinants will add to not only the body of knowledge with a new framework, but its usability.

#### 2.2.6.1 Diffusion of Innovations in Service Organizations: Greenhalgh (2004)

A model, drawn from empirical research in the NHS, is proposed by Greenhalgh et al. (2004). It is a generalist model for NHS service organisations though the studies and the authors suggest there are eight main determinants of implementation success. These are shown in the model below:

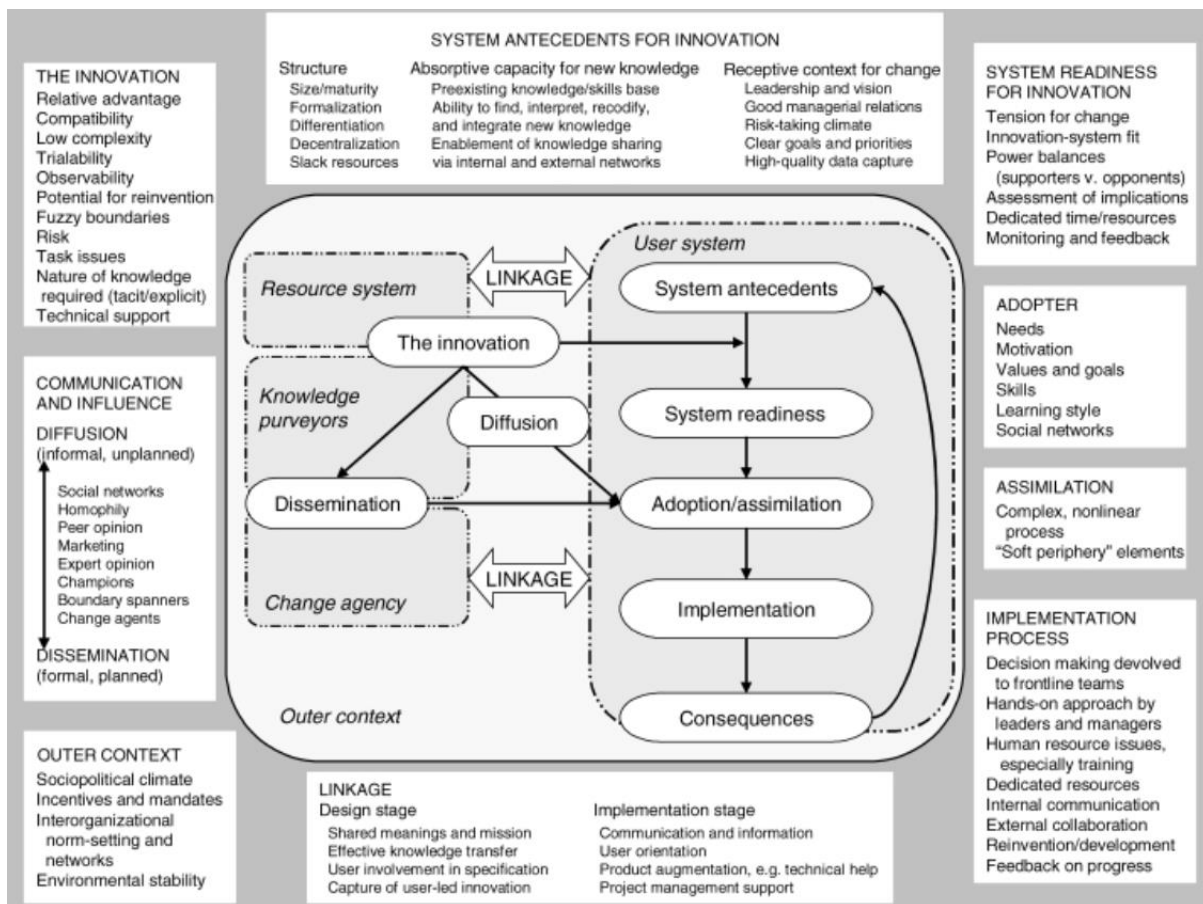


Figure 2.18: Greenhalgh (2004) Framework of Diffusion of Innovations in Service Organizations

Source: Greenhalgh (2004)

For the model, the 'innovation' itself includes the features of the innovation, improvement or EBP which impact its suitability for the system where it is intended to be implemented and lead to improvement. These include relative advantage, compatibility, low complexity, trialability, observability, potential for reinvention, fuzzy boundaries, risk, task issues, nature of knowledge required and technical support.

There is a concept of communication and influence which suggests a continuum between innovation diffusing organically, perhaps with the joint participation and collaboration between influencer (government or service commissioner/manager) and provider of that service. This concept seems potentially applicable to NHS Wales primary care, but again underdeveloped and over simplistic.

The outer context is present and suggests four determinants: socio-political climate, incentives and mandates, interorganisational norms and networks and environmental

sustainability. These can again be assessed using new data collected to establish potential relevance to primary care and if any further concepts need to be included.

The inner core of this model suggests a process and in this way the model is also a process model. This study will need to assess if this process is relevant to implementation of innovation, improvement or EBP in primary care. It may also be that another mechanism is at play, or that a process model is not relevant to primary or workable as part of a determinant framework where there is significant variability between organisations and systems where implementation is taking place. There are some notable absences from the inner core theme in this model, for example culture has no mention but is present elsewhere in literature. For example, Glisson et al. (2002, 2005, 2008, 2010) discusses the role of the organisation-social climate and culture.

Overall, the model seems cluttered with many separate themes which may be too much information for a practitioner user. There is lots to think about if using this model and simplification may lead to improved usability.

This model was potentially the most significant in shaping the researchers thinking. It was the first model of any direct relevance the researcher encountered in the literature. The purpose of the model is well suited to the research questions in this study and it is a deterministic model, though the centre box does imply a process takes place. The external environment is featured as well as the internal environment, with a starting point of determinants this author found to be applicable for the general service sector. These may either map directly to primary care or need amendment. This is a role this study can take in making this assessment and proposing an improved framework, specific to primary care.

2.2.6.2 Conceptual model of evidence-based intervention sustainment across multiple public-sector service settings; Exploration, Preparation, Implementation, Sustainment (EPIS) multilevel conceptual framework (Aarons, Hurlburt, & Horwitz 2014)

These researchers have developed an implementation model for service delivery organisations in healthcare, again where some constructs may be considered predictors or outcomes dependent on particular hypotheses or research questions. The objective of this model, its purpose, is sustainment of implementation and is shown below:

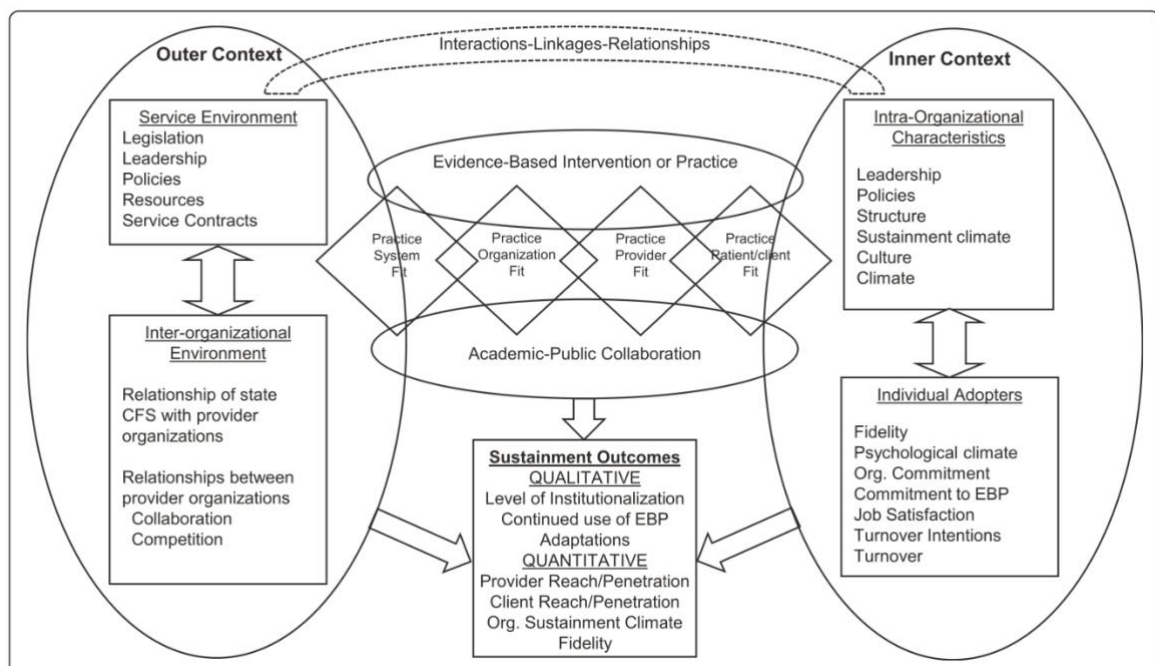


Figure 2.19: Sustainment conceptual model based on the Exploration, Preparation, Implementation, Sustainment (EPIS) multilevel conceptual framework

Source: Aarons, Hurlburt, & Horwitz (2014)

The model above and the Greenhalgh model in the previous section have some similarities, they both appear as a schematic model where determinants are influencing the outcome of implementation. The selection of determinants is also somewhat similar, though the terms used differ and there are notable absences from each compared to the other. This model also features an inner context and outer context; therefore this may be similar to implementation of innovation, improvement and EBP in primary care. These researchers have included the

relationship between the organisation and external partners within the outer context circle. This model was developed for hospital settings and given the structure of primary care in the Welsh NHS as being through a high number of small organisations, the fragmented environment may make this conceptualisation too simplistic for the primary care context. There is also no mention of trust between these parties. This may be a factor for exploration as the dynamic between organisations may impact the relationship.

There are then an inner context section of the model. This includes policies, structure, resources, turnover and turnover intentions. System features enabling success is present in a number of other determinant models of implementation (e.g., Greenhalgh 2004, Grohl 2007,2009), however in this model they seem incomplete. Weiner (2009) for example provides more clarity with a categorisation of internal factors being motivation or capability based. There are also likely to be primary care specific determinants as the setting is different to hospital implementation. This might include, for example, resources for delivery and system specific determinants.

#### 2.2.6.3 Model of Organisational Readiness (Weiner, 2009).

Readiness refers to a state of preparedness for future action (Weiner 2019). Organizational readiness for change is defined as members of an organisations overall psychological and behavioural preparedness to implement change (Weiner, 2009). In colloquial terms, or general usage of English, readiness means that someone or a group, is willing and able for some future action. This could be a proactive readiness to do something, or a responsive one.

There are two concepts which underpin the theme of organisational readiness. There are change commitment and change efficacy (Weiner et al., 2008, 2009). Change commitment is members of an organisations shared resolution to follow the project implementation. The collective aspect of organisational readiness is important as implementation is a shared effort. Implementation of an innovation, improvement or EBP involves a coordinated set of activities where many actors inside and outside the organisation work or are stakeholders. Where members of an organisation are not in unison or equally motivated, this may lead to implementation problems. This is termed change valence- the value placed on the implementation by implementors and the organisations people. Value motivators might include because people may feel innovations, improvements and EBPs may improve their



ability to do their job, that it will solve an organisational problem, that it has personal benefits or that it fits with their opinion leaders or professional mentors or peers who value it. Change efficacy is the other part of organisational readiness, it is the members collective capabilities to undertake the implementation (Weiner, 2009). The collective is again the differentiator between individual capabilities and organisational. This incorporates a shared or joint level of skill and understanding- which is influenced by the skill mix and levels within the organisation.

There are two paradigms through which organisational readiness can be viewed: psychological and structural. Psychological is the shared feeling of capability among the organisations people. Structural includes “financial, material, human and informational resources” (Weiner et al. 2019; Bloom et al., 2000; Demiris et al., 2003, 2007; Lehman et al., 2002; Medley and Nickel, 1999; Oliver and Demiris, 2004; Snyder-Halpern, 1998, 2001; Stablein et al., 2003). It has until recently been thought that the structural and psychological paradigms are incompatible- with readiness being thought of in terms of either one or the other. However, Weiner (2019) proposes a view which does reconcile these two paradigms. In his theory, structural are determinants of psychological perceptions which organisations employees have about themselves and the collective capability. That is, organizational members take into consideration the organization’s structural assets and deficits in formulating their change–efficacy judgements.

The two paradigms of organisational readiness, change commitment and change efficacy, are conceptually linked. Weiner’s (2019) theory posits that if someone lacks confidence to implement, this is likely to be a demotivator (Weiner 2019; Bandura, 1997). Likewise, there is an impostor effect and anxiety where team members can talk down or not feel confident in their own capabilities (Maddux, 1995). Organisational readiness is therefore a specific situation or state, at the current time or a point in time. It is specific to the content of change (Weiner 2019), that is- the design of the innovation, improvement or EBP. For example, an organisation may have a high degree of readiness for one implementation, such as a new patient record system for which they have had a previous success and a strong set of digital native employees, but a low readiness for an implementation of another project where the structures required are different to those they use.

Readiness can also fluctuate over time as requirements to successfully implement change or, for example if staffing changes take place which modifies the skill mix. Weiner (2009;2019) proposes a flow of theorising readiness for change, this is presented below:

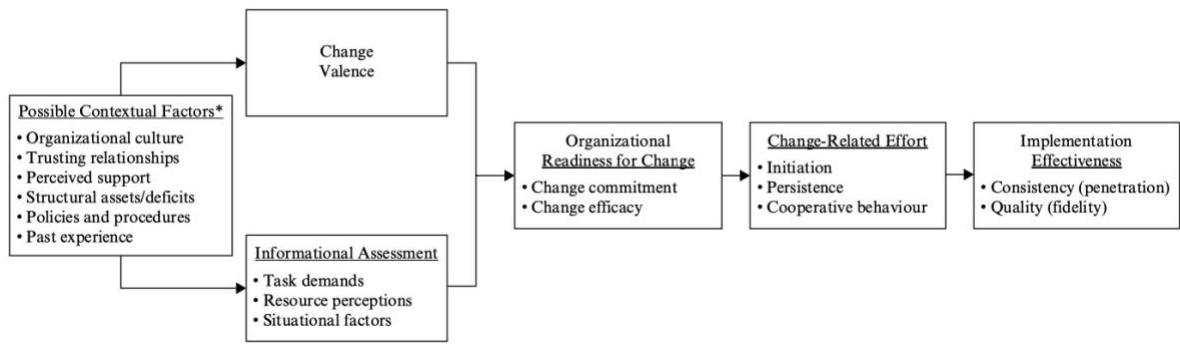


Figure 2.20: Determinants and Outcomes of Organisational Readiness for Change  
Source: Weiner (2009;2019)

The model begins with contextual factors specific to the implementation, which leads to change valance (the value stakeholders place on implementation). This leads to organisational readiness for change which in turn influences change effort and then outcomes.

Outcomes are described in two ways, either as implementation consistency or fidelity. This is the same format and definitions used throughout the literature. Change consistency “is consistency of use or delivery among organizational members” (Weiner 2019) and fidelity “quality of use or delivery by organizational members” (Weiner 2019). Fidelity was introduced in a previous section as the extent to which the implementation is the innovation, improvement or EBP as designed or planned.

This model of organisational readiness as the main theory implementation science has to offer, goes some way to explaining what organisational readiness is and its theoretical impact on implementation. It also recognises that fidelity is important, that the implementation and the design are separate- and that the outcome of the project, what Proctor refers to as the client outcome, depends on both the design of an innovation, improvement and EBP and then the way it is implemented.

What it lacks however, is practical use to practitioners. There is a list of aspects of valance which may be found that a project will improve an “important organizational problem (outcome expectancy), produce tangible benefits for the organization, or them personally (perceived benefits), because it resonates with their core values (innovation–values fit), because managers support it, opinion leaders support it, or peers support it” (Weiner 2019). This is of little practical use however to an implementor other than communicating to stakeholders to frame the implementation in these terms. An improved theoretical offering might blend the engagement aspects proposed by this theory as well as structural and operational aspects of readiness.

For this study, it is clear that organisational readiness has a role in any determinant framework. The split of motivation and capability factors also appears to be a useful way to model organisational readiness and may be applicable for a model of implementation of innovation, improvement and EBP in this study. The determinants which form part of these two broader concepts, especially for a framework of implementation of innovation, improvement and EBP in primary care, need to be established.

#### 2.2.6.4 Integrated Promoting Action on Research Implementation in Health Services (PARIHS) framework (Harvey and Kitson 2019).

Of the theories, models and frameworks identified as part of the literature search, many focused on linear representations of implementation; either as the result of a recipe or a linear process. This might be along the lines of key stages including “research production and synthesis (for example, systematic reviews and clinical guidelines), followed by dissemination (the education of clinical staff to increase knowledge) and then clinical audit to monitor uptake and feedback on progress (Harvey and Kitson 2019). This linear model of implementation, where the facilitator follows the stages prescriptively in order, does not match well with the empirical evidence (Harvey and Kitson 2019). It also resembles early innovation models discussed earlier in this chapter.

When implementing innovation, improvement and EBP in practice, the process is haphazard and chaotic. Process models are unlikely to be able to incorporate the many complexities in their entirety, it oversimplifies the process. This chaotic environment is now accepted to be part of the landscape of implementing complex interventions and Kitson et al., among others,

worked on new types of models which might address this problem. These models are known as deterministic models and instead of specifying a linear process through which implementation flows, a set of determinants or elements can be applied where relevant to the context of the implementation. These can indicate either success or failure, or points to consider for the implementor. This is a more flexible approach to conceptualising implementation processes and recognises, firstly, that it may not be linear. Secondly, that contextual differences mean a different set of concepts may be relevant to different implementations. Kitson et al. (2019) also developed the PARIHS framework as an alternative to process models as a conceptual model in 1998 (Kitson et al., 1998). The proposition was that successful implementation of EBP and research, is a “dynamic interplay” between evidence, context and facilitation (Kitson et al. 2019). Each of these constructs had a number of sub constructs, for example evidence encompassing the research itself and clinical experience. The main concepts were considered enabling of successful innovation, if the sub concepts here highly rated. Users of the framework were invited to self-assess their own projects as the first diagnostic and evaluation tool of its kind.

From an inductive phase the authors moved to deductive testing and refining of the framework. This led to revisions including those suggested by Rycroft-Malone et al. (2002, 2004), with revisions to concepts including, for example, matching the facilitation approach to evidence and context. Since this time more diagnostic and evaluative tools have been produced (Kitson et al. 2008), an international study looking at facilitation as defined in PARIHS as an implantation strategy (Sears 2012) and revising the model itself to the i-PARIHS model (Kitson 2016). The i-PARIHS framework is an update of the original PARIHS with the same underlying philosophy that its purpose is to promote successful implementation of research into the complex healthcare delivery environment.

The first PARIHS model proposed that  $SI = f(E, C, F)$ . That is to say; successful implementation (SI) is a function of (E) evidence (research, clinical, patient and local experience), (C) context (setting in which implementation takes place) and (F) facilitation (way in which the process of implementation is supported and by whom) Kitson et al. (2019). In the i-PARIHS model, is updated to  $SI = F(I, R, C)$ , where I=innovation, R=recipients and C= context. In this model successful implementation is the result of facilitation of an innovation, with the intended recipients in their contextual setting. Successful

Implementation has an explicit definition in the literature (Kitson et al. 2019), as the achievement of agreed implementation goals, these are suggested by these authors to include:

- Uptake and embedding of the innovation, improvement or EBP in practice.
- Stakeholders (individuals, teams and wider stakeholders) engaged and owning the innovation.
- Variation relation to context being minimized across implementation settings.

Kitson et al. have underpinned their model with a range of relevant theories and antecedents. They provide a summary table of these (Kitson et al. 2019) as below:

Focus of facilitation	Relevant theories to consider
Innovation: what is being implemented?	Evidence-based decision-making Experiential, problem-based and situated learning Diffusion of innovations Engaged scholarship
Recipients: who is involved in implementation?	Diffusion of innovations Readiness to change Behaviour change Communities of practice Sticky knowledge and boundary theories
Context: where is implementation occurring?	Complexity/complex adaptive systems Distributed leadership Organizational culture Learning organizations Absorptive capacity Sustainability
Facilitation role and process: how will implementation take place?	Humanist psychology Cooperative inquiry Quality improvement

Table 2.7: Theory underpinning i-PARHIS model.

Source: Kitson et al. (2019)

The i-PARHIS model creators have also designed a toolkit to help practitioners operationalise the model. This focuses on the role of the facilitator in implementing innovation, improvement and EBP and recognises the facilitator as the central node through which change occurs. The facilitator is seen as the change agent; facilitating and enabling, with the toolkit being a process to make facilitators aware of the aspects of the theory and model which apply to their context. The toolkit also stresses the importance of softer leadership skills as a determinant of successful implementation, including needing to “be a good communicator and listener, sensitive to group dynamics, able to identify and address barriers to implementation, help build consensus and pay attention to project management” (Kitson et al 2019).

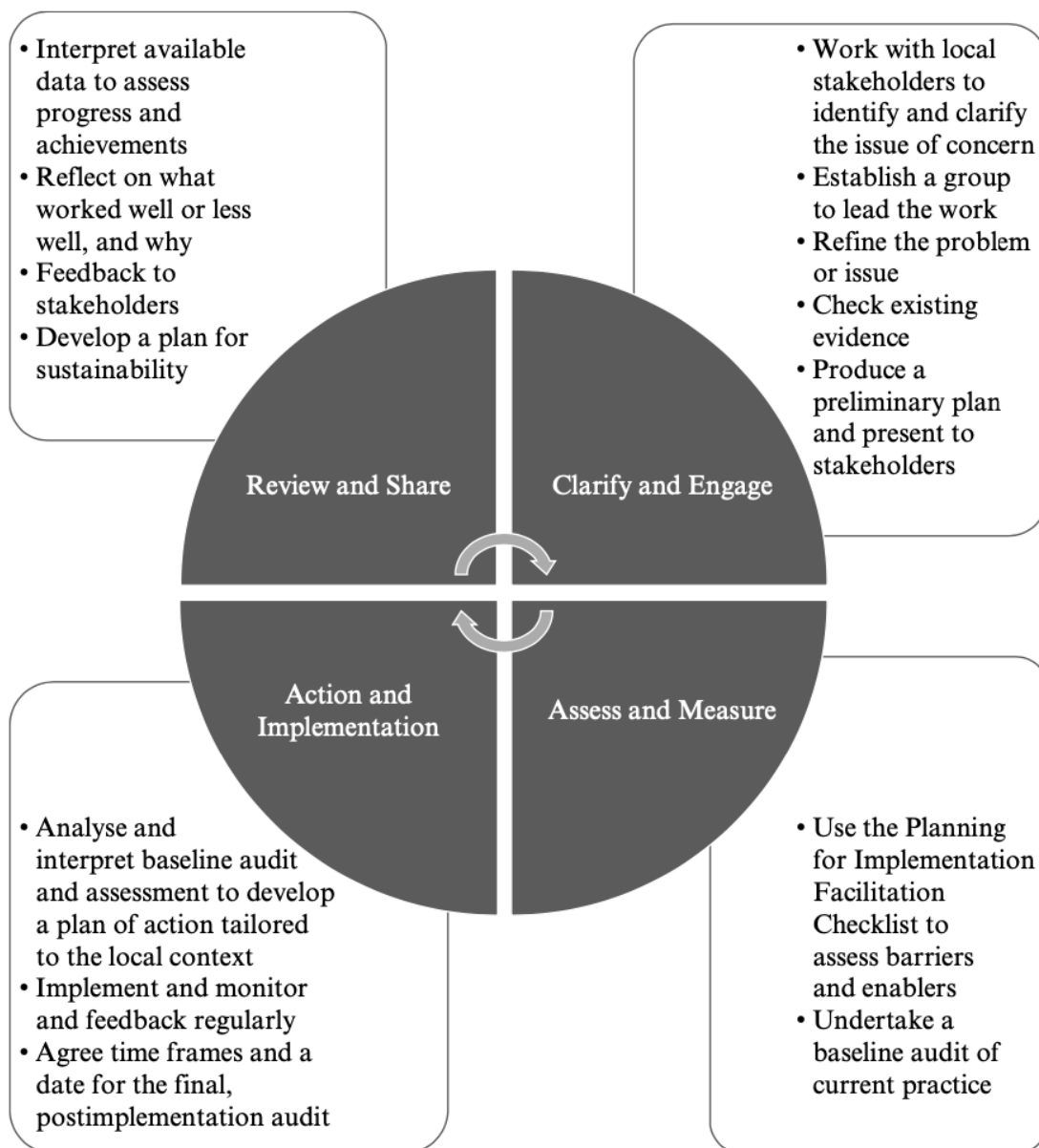


Figure 2.22: i-PARIHS toolkit as in Kitson et al. (2019)

The i-PARHIS implementation toolkit is a response to there being no one-size-fits-all approach to implementation, it provides a framework for assessment of context and a way of selecting relevant aspects of the model to meet the context. There is also, according to authors of i-PARIHS, no standard or normal facilitator (Kitson et al. 2019). It can be a range of job roles which become facilitators of change, with different experience. What is important is the ability to be reflective and learn from experience. Kitson et al. (2015, 2019) have produced the following model, linked to the i-PARHIS model, which charts the development of the facilitator.

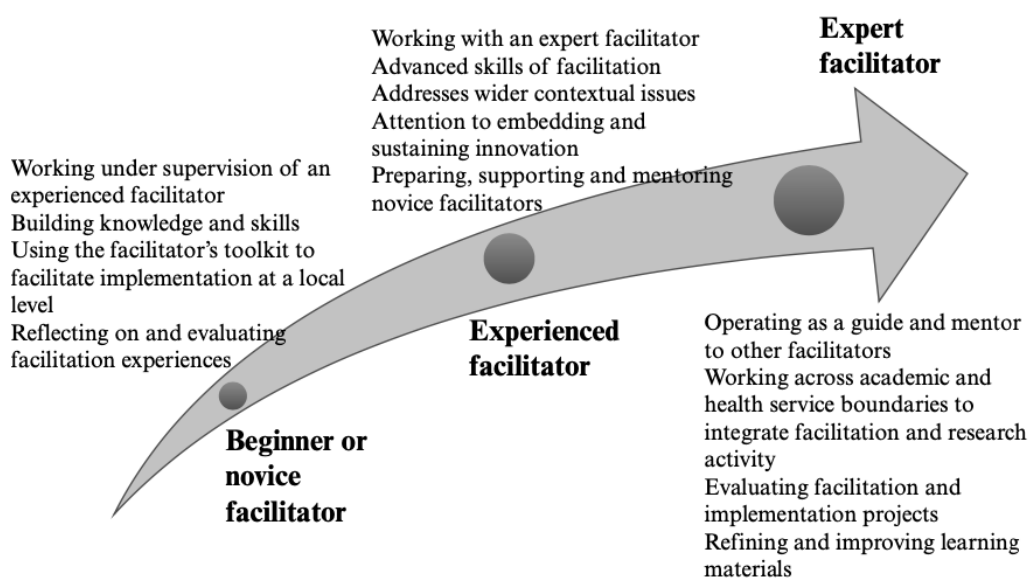


Figure 2.22: The Facilitators Journey Using the i-PARHIS model

Source: Kitson et al. (2019)

The overall model as updated, is presented by its authors using the schematic below. It is a spiral diagram, with innovation being at its core and a range of skills, leading to gateways of ever wider context as the spiral expands. The spiral is designed to signify the 'phases' of a project, beginning with innovation at the centre and being followed outwards through the contexts or levels and matching with skillsets related to the project phase. For example, when working at the inner organisational context, project management skills are important according to the model. When working at the outer context, influencing and negotiating becomes important.

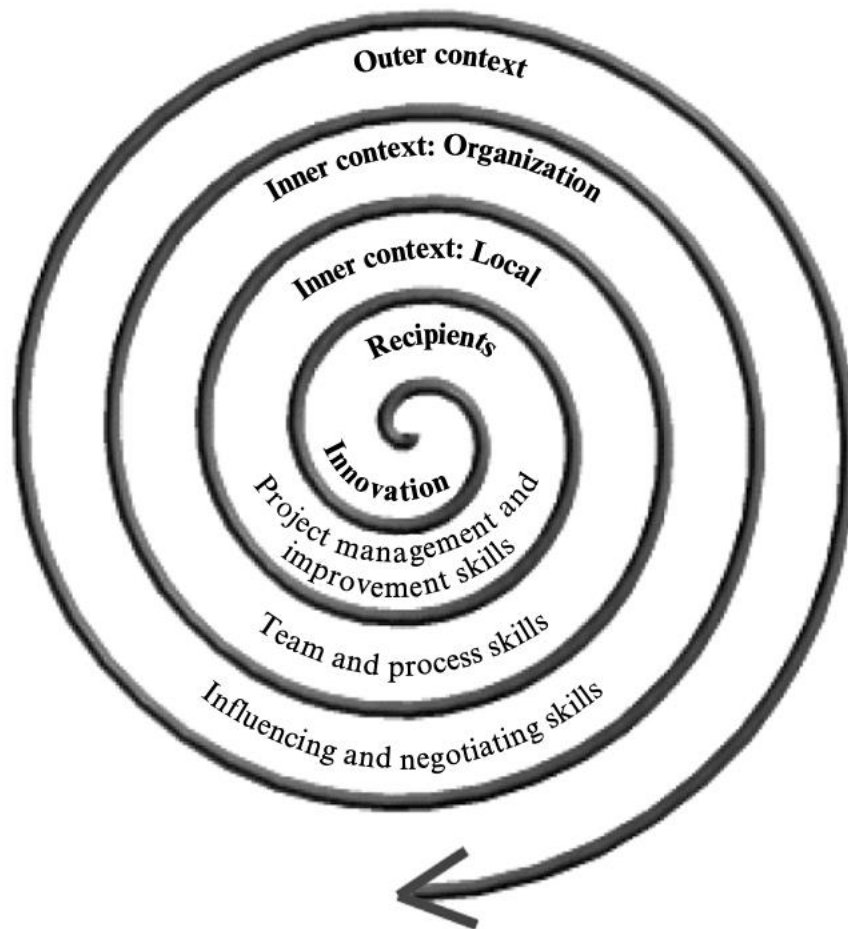


Figure 2.23: i-PARHIS model

Source: Kitson et al. (2019)

The i-PARHIS model is one framework facilitators can use to start to think about implementation. It is however very abstract. Though there are some supplementary toolkits with more specificity, it is quite difficult for an implementor to use this model to actually know what to do. It is in part a process model, but also deterministic. If there were to be any criticism, it is this lack of ability to be practically applicable. The spiral presentation of the model is too abstract, with many concepts which could be added. To the implementor in a primary care practice, which is it within these major headings which they need to consider? It is also possible to add more high-level concepts which are not present, for example; planning, resources, structure and systems and engagement all are likely to play a part but do not feature in this particular model.

This model again impacted the researchers thinking, particularly in terms of study design and focus. The i-PARHIS model is newer and more specific to healthcare, yet still cannot be



directly mapped to primary care. The approach these authors take of reviewing relevant literature and developing an improved framework using both inductive and deductive stages would also fit the objectives of this study and be highly defensible as an approach, when already employed by such a prominent contribution to the literature.

*2.2.6.5 Consolidated Framework for Implementation Research (CFIR) (Damschroder et al. 2009)*

One problem with the evolution of implementation research has been the lack of regularity of terms and definitions used to describe key concepts. For example, this can be seen in the preceding section where a range of terms are used to describe the construct of context.

The CFIR consists of five sections or domains: innovation characteristics, outer setting, inner setting, characteristics of individuals, and process. This structure is similar to other determinant frameworks that highlight the importance of themes or domains in implementation (Kitson et al., 2008; Pettigrew et al., 1989), followed by sub sections within each domain.

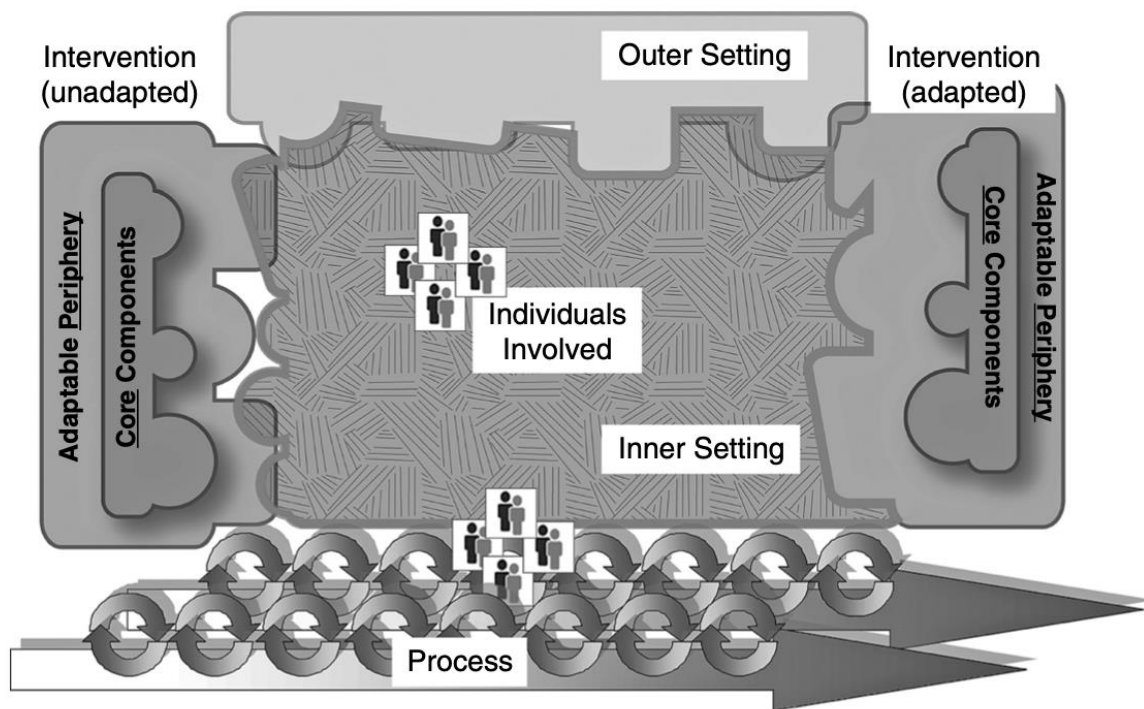


Figure 2.24: CFIR use schematic

This model is again a schematic model, and CFIR has advanced the field of implementation science by standardising definitions. It again includes an inner and outer context, highlights the role of the implementor and the intervention features. However, it is one of the weakest in its pragmatic applicability to practice. It does not specify the determinants which exist within these broad categories without the leader having to read in depth and apply. Therefore, useability of this model may be an issue which could be improved.

The work of Damschroder was useful to the researcher and this study in providing a standardised set of definitions already broadly accepted within the field. It also confirmed that the researcher should start by focusing on internal and external contexts and features of the intervention itself. These may or may not map to the situation of implementation in primary care, it is a gap in the existing literature this work can answer.

#### *2.2.6.6 Context and Implementation of Complex Interventions (CICI) framework (Ziemann, et al. 2017)*

The Context and Implementation of Complex Interventions (CICI) model focuses on the role of complexity when implementing innovation, improvement or EBP into a healthcare system. The model is shown below:

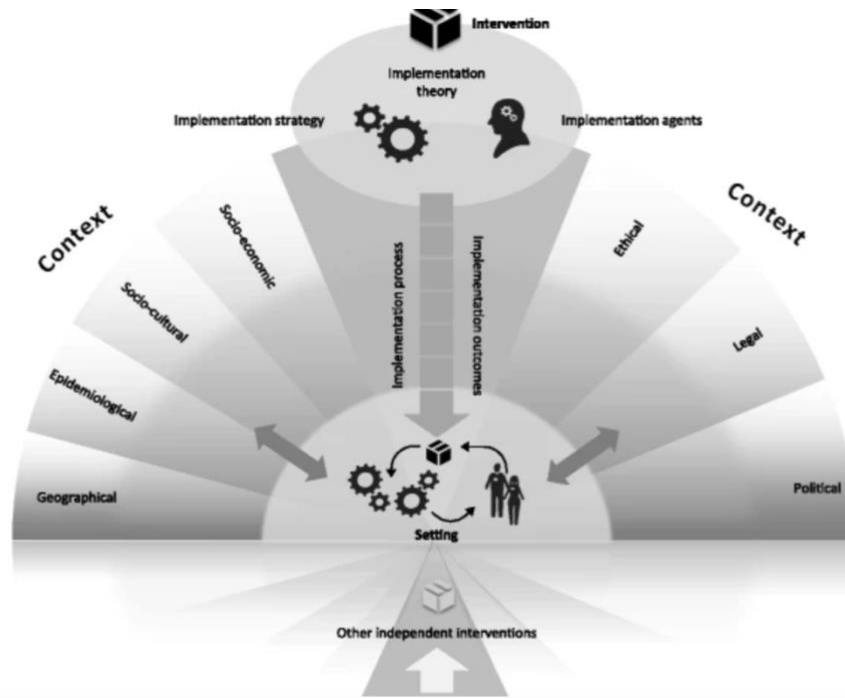


Figure 2.25: CICI model diagram  
 Source: Pfadenhauer et al. (2017)

This model of implementation has three dimensions or themes, there are context, implementation and setting. These are listed as determinants of successful implementation, with sub themes included for each. The interactions between them as part of a complex system is also feature of the model. Context comprises seven domains or themes: geographical, epidemiological, socio-cultural, socio-economic, ethical, legal and political). This is similar to the external environment theme in other models of implementation (Greenhalgh 2004; Aarons 2012,2014). There is the inclusion of a geographical element in this model not seen elsewhere. Other factors and the presence of the external environment theme is a repeating theme in all the existing models. The external environment aspect of this model is one of its strengths and is consistent with other literature on the external environment (eg Ziemann 2019). Implementation consists of five domains: implementation theory, process, strategies, agents and outcomes. This theme is somewhat confusing and differs from other models. This model takes a ‘black box’ approach to implementation in one theme but does not specify exactly what this entails. In this way it is weaker than other models. It oversimplifies implementation and as a result it is difficult to see how a practitioner implementing innovation in practice could use this model without further reading or finding implementation theory and processes elsewhere. Setting refers to the physical

location, potentially incorporating resource elements though the authors are not explicit about this.

The tools and methods to operationalise the framework are provided by the authors and include a checklist, 'data extraction tools, for qualitative and quantitative reviews and a consultation guide. The model itself however is somewhat vague in its applicability of the implementation aspect. It is likely to be challenging to use in practice without these additional tools, where additional steps may prove inhibiting to use by busy professionals.

This model appeared to have less relevance to this study, largely through its lack of detail and comparative incompleteness compared to some of the factors highlighted in other frameworks. The model does say in its title that context is its purpose, however this is of limited utility to an implementor in practice. There is more to consider than context, so it would always need to be used in conjunction with another model.

#### 2.2.6.7 The refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) Framework (Powell et al 2014; 2015)

The ERIC framework rather than a model and unlike the other main works featured in this literature review, has no schematic diagram. It is instead a systematic review of other theories, models and frameworks to implement innovation, improvement and EBP in healthcare. It has initial (2014) and refined (2015) versions. It had relevance to this study and was useful in incorporating all major works to 2015 on the subject. It again included only hospital-based implementation or general healthcare services.

The authors used a panel of 71 experts and 3 delphi rounds to structure an assessment of implementation strategies. The results are important but operational in nature, they are specific sometimes to hospital healthcare. Examples include "Develop a formal implementation blueprint, Tailor strategies [to overcome barriers and honour preferences], Identify and prepare champions, involve patients/consumers and family members, Provide ongoing consultation, Shadow other clinicians" (Powell et al. 2015).

The outcomes of this study could be used to inform the data collection phase, informing the researcher of common strategies used by practitioners. It would be limited otherwise as the level of analysis is at the specific level, which is likely to be context dependent, and the research objectives of this study were to produce a theoretical framework for primary care implementation.

#### 2.2.6.8 Model of Implementation through Fidelity (Carroll et al. 2007, 2019)

This model is more of a process model than deterministic but includes various determinants within stages of that process, which echo determinants seen in other models and may be relevant for a deterministic model of successful implementation of innovation, improvement and EBP in primary care.

Fidelity is the degree to which an innovation, improvement or EBP is implemented as intended by those who designed it (Carroll et al. 2007, 2019). It is also sometimes known as integrity (Carroll et al., 2007; Dane and Schneider, 1998; Dusenbury et al., 2003).

It does not necessarily follow that an innovation, improvement or EBP will automatically be implemented by its designer. Where an implementation does not have adequate fidelity, that is to say implemented other than as it was designed, it is difficult to assess the effect of that innovation, improvement or EBP on outcomes. This is because what has been implemented, is not in fact what was proposed or designed (Carroll et al. 2007). Whatever has been implemented may not have the outcomes expected and similarly, the impact of what was planned will remain unknown.

It is for this reason that Carroll et al. 2007 propose that all evaluations of innovation, improvement and EBP and their outcomes should also make an assessment of fidelity. The differences between what is planned or designed and what is implemented is the result of the complex real world implementation environment.

#### *First Theoretical Model*

Fidelity has been theorised as adherence outcome rather than an implementation outcome (Carroll 2007, 2019). Only where fidelity is sufficiently high, is the intervention planned or

proposed (and transferable) being evaluated. If it is not, it is whatever has been implemented which is leading to that outcome.

Researchers have developed a first theoretical model to understand fidelity and adherence with the first around 2007 and an updated version, based on more empirical work over around a 10-year period, being proposed in 2019. Both of these are the work of Carroll et al., however the first model started a field of study, which by the time of the updated version, had yielded many papers from other researchers which feature in the revision. The first model of adherence is linear and takes the intervention itself as a starting point. This leads to adherence, which is moderated by a number of factors. It is these moderators which form the basis of the model along with a set of features to define adherence, which are important if it is to be evaluated. The final part of the model is the end point of the outcome. This is the result is a function of the intervention and adherence.

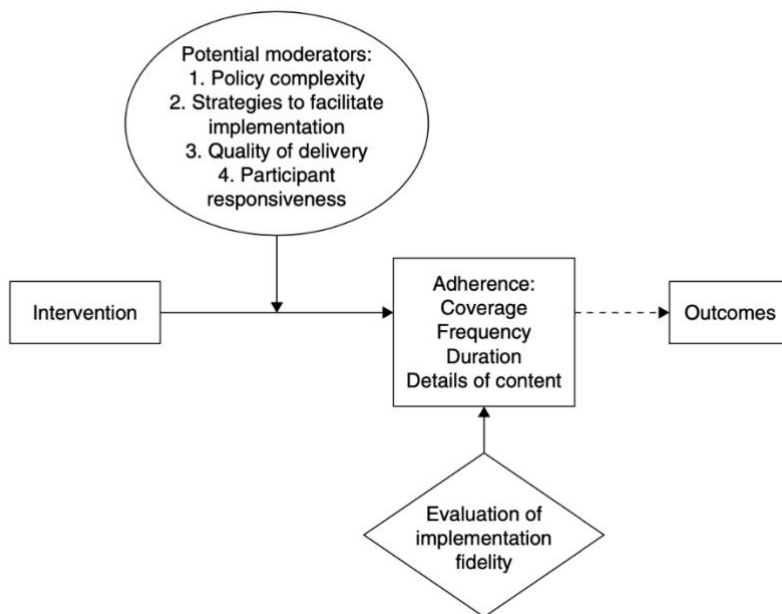


Figure 2.26: Original theoretical model for implementation fidelity or adherence

Source: Carroll et al. (2007)

The subcategories of the intervention, which can be used to assess implementation are.

- Content: the 'active ingredients' of an intervention; the actual research, drug, EBP, service, treatment, skills or knowledge (Carroll 2019)

- Coverage: are all the people who should be participating in or receiving the benefits of an intervention actually doing so (Carroll 2019).
- Frequency: “the amount of an intervention received by participants; for example, whether the prescribed number of educational sessions or service visits had been delivered.” (Carroll, 2019)
- Duration: whether an intervention is delivered for as long as required by an intervention’s designers (Carroll 2019)

Implementation and adherences to set roles in the change, becomes more important as interventions become more complex. They may be multifaceted and so more vulnerable to variation in their implementation (Moore, 2015). Many interventions are complex in practice, with multiple interrelated elements. If the intervention itself is not complex, the implementation landscape is. A main feature of the model is the role of moderators. These are concepts or themes which influence the transition between design of an innovation, intervention or EBP and the adherence to or fidelity of that design. The main ones in the first adherence model are (Carroll 2019):

- Intervention complexity; simple or complex. If an intervention’s “purpose, components and delivery requirements” are clearly specified and simple and easy to follow, they are more likely to be implemented with fidelity, than interventions which are vague or complex (Carroll et al., 2007) (Greenhalgh et al., 2004).
- Facilitation strategies; these are the mechanisms of implementation and include the range of facilitation strategies discussed in this theses and subsequent theoretical model proposed.
- Quality of delivery; “how well the participant providers actually delivered an intervention. That is, was an intervention delivered in a way appropriate to achieving what was intended” (Carroll 2019)
- Responsiveness of the participants; “extent to which participants responded to, or were engaged by and with, an intervention. It involves judgements by providers and recipients

about the intended outcomes and relevance of an intervention.” (Carroll 2019). This author goes on to say about a ‘reaction evaluation’ (Kirkpatrick, 1967) and Klein & Sorra’s (1996) ‘innovation–values’ fit. If participants don’t see any relevance of an innovation, improvement or EBP to them, engagement falls, and this might be a cause of limited implementation fidelity and adherence.

This research has shaped this study in that it is the first work to acknowledge there may be a variance between the same innovation, improvement or EBP in different implementations. The researchers then present an updated model as shown below.

### *Updated Model*

Since the first model was published, new moderators have emerged, and empirical work has established new dynamics between them. Though testing and refining the model empirically has been challenging, an updated model of adherence has been proposed. This is presented below:



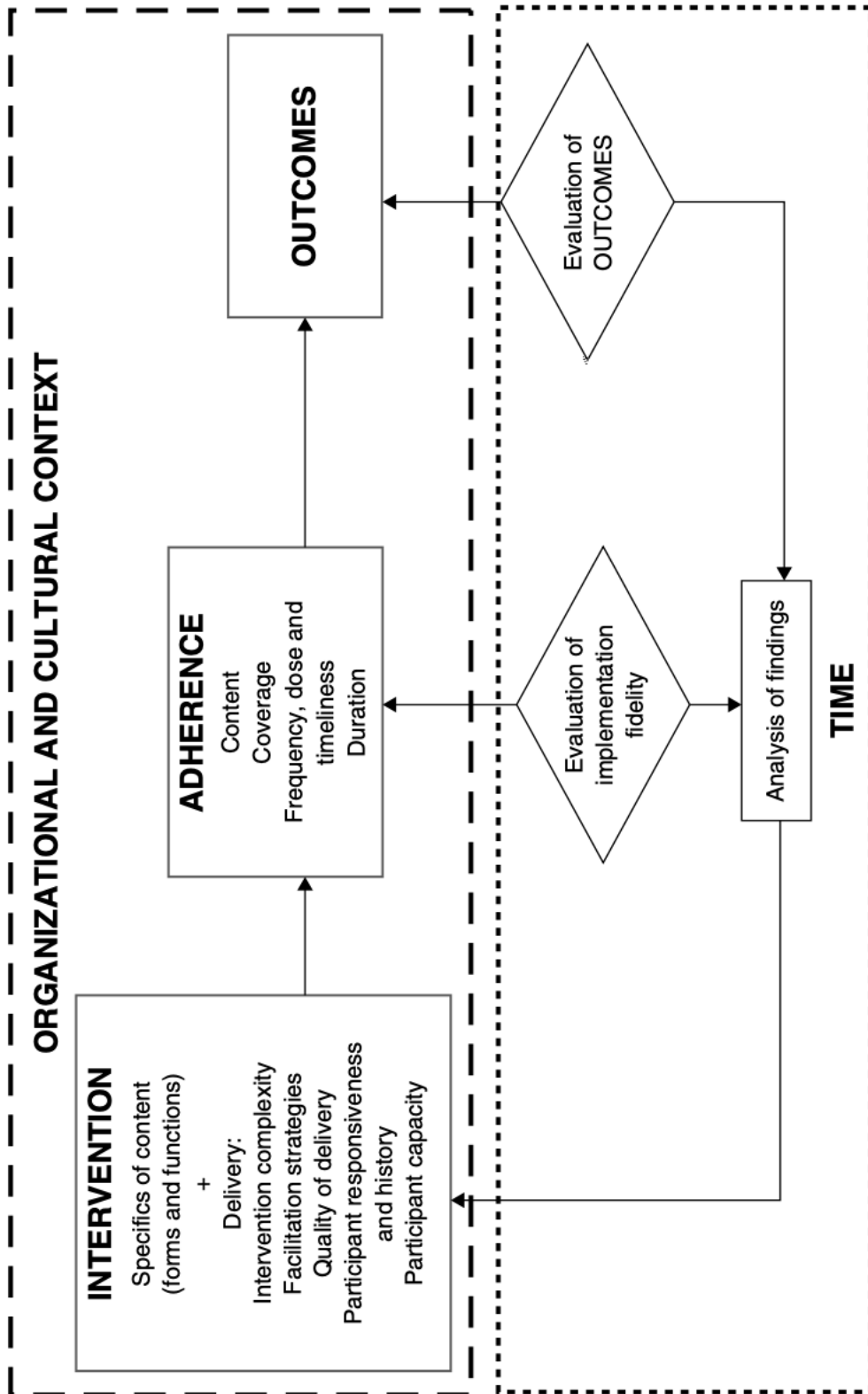


Figure 2.27: Updated Fidelity and Adherence Model

Source: Carroll (2019)

The main changes to the model in this update are understanding that innovation, improvement and EBP designs are different in terms of form and function. There is a great diversity in design, and this is recognised more in the updated model. The moderating concepts of organisational capacity and time are also important as well as cultural context. These are all concepts which would feature well in a model of implementation of innovation, improvement and EBP to ensure a high degree of adherence and fidelity.

The original model as well as an amended version (Hasson 2012), struggles to interpret or define the relationships between concepts and moderators of adherence. Researchers have attempted to address this deficiency, with limited success.

Evaluations of adherence involve looking in detail at processes and are time-consuming, requiring money and resources (Ang et al., 2018).

Where studies or practical evaluations look at fidelity, triangulation of data from multiple sources and using observation as a method to verify self-reported data, is seen as important. This is particularly the case, for example, for moderators such as quality of delivery (Ahtola et al., 2013; Augustsson et al., 2015; Gautier et al., 2016; Hasson et al., 2012; Heilemann et al., 2014; McMahon et al., 2018; Willeboordse et al., 2018). Data should also be collected longitudinally in order to understand relationships and to explore changes over time (Hasson et al., 2012; Heilemann et al., 2014; Huebner et al., 2015; Muntinga et al., 2015). The implications for this study are firstly that the concepts of fidelity and adherence are important to understanding implementation. Secondly, that that multiple data sources will need to be used, a multi-phase approach.

The introduction of the context construct in the second model is an important one for inclusion in a wider model. Implementation does not happen in a vacuum and there is a wider political and macro level context which does not seem to appear in any model of implementation seen in the literature. Nor does the relationship between implementor and this wider context. This is one area which may benefit from exploration in this study.

#### 2.2.4.6 Determinant Frameworks and the Role of Context Within Them

As introduced in the previous section; innovation, improvement and EBP projects take place in a dynamic and complex environment. This diversity can be challenging to those implementing programmes, as what is applicable and successful in one instance may be less so in another. These differences are known as context. McCormack et al. (2002) describes context as the interchange when knowledge and theory about an innovation, improvement or EBP is “woven together with a team, department or organization”.

If two identical innovations are implemented; despite being identical, the result may differ. Explaining the difference in outcome is the contextual factors- those specific aspects of the environment which the implementation is taking place. For findings in implementation research to be generalised and applied in practice by practitioners, the role of context has to be integrated into the ideas and thinking of the frameworks (Dopson and Fitzgerald, 2005; Kaplan et al., 2010; Edwards and Barker, 2014). Some frameworks, such as Promoting Action on Research Implementation in Health Services (PARIHS) (Kitson et al., 1998; Rycroft-Malone, 2010) and the Theoretical Domains Framework (Cane et al., 2012), have context as a specific determinant within the model, whereas other frameworks do not explicitly mention context.

There is a lack of consistency in defining context conceptually and in the terminology used, both in the literature and practice (Nilsen 2019). This is a problem because context can be causally significant in affecting outcomes of implementation of identical innovation, improvement and EBP projects. The addition and improvement of contextual factors to a model of implementation, would therefore be an improvement on existing models as is identified in the literature (Nilsen 2019).

Section 2.5 presents the different types of theory, model and framework which have evolved through the development of implementation research as a field. Sometimes abbreviated to TMFs, these range from process models where implementation follows a set path to determinant frameworks. This thesis is based on the determinant model idea, where implementation is not a result at the end of a production line or pipeline. It is instead taking place in a complex and chaotic environment and several factors or concepts are assisting that implementation, with potentially several others hindering successful implementation of the

innovation, improvement or EBP. If a determinant model is to be successful in to explaining and enabling implementation- it has to include a thorough presentation of the role of context- as this is quite clearly a determinant of success or failure.

Though context matters to determinant frameworks, it isn't always properly included. Nilsen et al (2019) undertook a review of 17 unique determinant frameworks to understand the role context was given within them. These were as follows:

<b>Author</b>	<b>Research</b>
Kitson et al. (1998), Rycroft-Malone (2010) Harvey and Kitson (2016)	Promoting Action on Research Implementation in Health Services (PARIHS) and Integrated PARIHS (i-PARIHS):
Cabana et al. (1999)	Why don't physicians follow clinical practice guidelines? A framework for improvement
Mäkelä & Thorsen (1999)	Changing professional practice: Theory and practice of clinical guidelines implementation
Grol and Wensing (2004)	What drives change? Barriers to and incentives for achieving evidence-based practice
Fleuren et al. (2004)	Determinants of innovation within health care organizations: literature review and Delphi study
Greenhalgh et al. (2004, 2005)	Diffusion of Innovations in Service Organizations
Fixsen et al. (2005) Blase et al. (2012)	Active Implementation Frameworks (AIF)
Rainbird et al. (2006)	A checklist for identifying determinants of practice: A systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice
Feldstein and Glasgow (2008)	Practical, Robust Implementation and Sustainability Model (PRISM):
Michie et al. (2005) Cane et al. (2012)	Theoretical Domains Framework (TDF):

Cochrane et al. (2007)	Gaps Between Knowing and Doing: Understanding and Assessing the Barriers to Optimal Health Care
Nutley et al. (2007)	Promoting Evidence-based Practice: Models and Mechanisms From Cross-Sector Review
Wensing et al. (2005)	Improving Patient Care: The Implementation of Change in Clinical Practice
Damschroder et al. (2009)	Consolidated Framework for Implementation Research (CFIR)
Gurses et al. (2010)	Using an interdisciplinary approach to identify factors that affect clinicians' compliance with evidence-based guidelines
World Health Organization (2011)	Supporting the Use of Research Evidence (SURE)
Flottorp et al. (2013)	Tailored Implementation for Chronic Diseases (TICD)

Table 2.8: Determinant Frameworks and Role of Context

Source: Nilsen et al (2019)

The researcher reflected that there are now many determinant implementation frameworks for healthcare and service sector generally and the role of context is important. The important question to understand to progress this research- is what is context? And what are the contextual differences between existing models and primary care.

Researchers looked at three issues as part of this review:

1. The terms used to denote context in the model
2. How context is conceptualised
3. Which context dimensions are common between frameworks

Terms used to denote context were wide ranging with 6 of 17 frameworks (Fleuren et al., 2004; Greenhalgh et al., 2005; Grol & Wensing, 2004; Kitson et al., 1998; Harvey and Kitson, 2016; Nutley et al., 2007; Rainbird et al., 2006; Rycroft-Malone, 2010) explicitly

referring to 'context' and 11 frameworks using a broad range of other terms. These were sometimes sub concepts or adjunct concepts to context- as illustrated by Nilsen et al (2019) such as 'external barriers' (Cabana et al., 1999), 'environmental factors' (Cabana et al., 1999), 'environment' (Mäkelä and Thorsen, 1999), 'external environment' (Feldstein and Glasgow, 2008), 'inner setting' and 'outer setting' (Damschroder et al., 2009), 'system characteristics' (Gurses et al., 2010) and 'organizational drivers' (Blase et al., 2012).

For the second question, how context is conceptualised in each of the 17 models- researchers found that most lacked a definition of context. Only three frameworks (Cane et al., 2012; Damschroder et al., 2009; Kitson & Harvey, 1998) provided a specific definition of context Nilsen et al. (2019). Damschroder et al's Consolidated Framework for Implementation Research (CFIR) described context as consisting "of a constellation of active intervening variables and is not just a backdrop for implementation". For implementation research, 'context' is the set of circumstances or unique factors that surround a particular implementation effort" (Damschroder et al., 2009, Nilsen et al. 2019). The Theoretical Domains Framework (TDF) includes a category called "environmental context and resources" which is essentially context. They define this as the "situation or environment that discourages or encourages the development of skills and abilities, independence, social competence and adaptive behaviour" (Cane et al., 2012; Nilsen et al. 2019). The PARIHS framework defines context as 'the environment or setting in which the proposed change is to be implemented'. The revised version called i-PARIHS, has different layers of context, differentiating between the local level, the organizational level and external level (Harvey and Kitson, 2016; Nilsen, 2019). The third objective was to explore the different dimensions of context. 12 different dimensions were found by Nilsen et al (2019):

- Organizational support: included in 17 frameworks. Various forms of support that can influence implementation, including administration, planning and organization of work, availability of staff, staff workload, staff training, material resources, information and decision-support systems, consultant support and structures for learning.
- Financial resources: included in 16 frameworks. Funding, reimbursement, incentives, rewards, costs and other economic factors that can influence implementation.

- Social relations and support: included in 15 frameworks. Influences on implementation related to interpersonal processes, including communication, collaboration and learning in groups, teams and networks, visions, conformity, identity and norms in groups, opinion of colleagues, homophily and alienation.
- Leadership: included in 14 frameworks. Influences on implementation related to formal and informal leaders, including managers, key individuals, change agents, opinion leaders, champions, etc.
- Organizational culture and climate: included in 12 frameworks. Shared visions, norms, values, assumptions and expectations in an organization that can influence implementation (i.e., organizational culture) and surface perceptions and attitudes concerning the observable, surface-level aspects of culture (i.e., climate).
- Organizational readiness for change: included in 12 frameworks. Influences on implementation related to an organization's tension, commitment or preparation to implement change, the presence of a receptive or absorptive context for change, the organization's prioritization of implementing change, the organization's efficacy or ability to implement change, practicality, and the organization's flexibility and innovativeness
- Organizational structures: included in 11 frameworks. Influences on implementation related to structural characteristics of the organization in which implementation occurs, including size, complexity, specialization, differentiation and decentralization of the organization
- Patients: included in 11 frameworks. Patients' preferences, expectancies, attitudes, knowledge, needs and resources that can influence implementation
- Wider environment: included in 10 frameworks. Exogeneous influences on implementation in health care organizations, including policies, guidelines, research findings, evidence, regulation, legislation, mandates, directives, recommendations, political stability, public reporting, benchmarking and organizational networks.

- Feedback: included in 8 frameworks. Time restrictions that can influence implementation Evaluation, assessment and various forms of mechanisms that can monitor and feedback results concerning the implementation, which can influence implementation.

Source: Nilsen et al (2019)

Most frameworks do not mention context specifically, but instead a range of terms and concepts to denote context Nilsen (2019). Frameworks often lack a definition and display the concept indirectly, with different types of determinants that comprise context. This shows that context is a multifaceted construct, with many dimensions.

The ‘line’ between inner and outer context is not clear and poorly understood (Damschroder et al. 2009). Relatively few frameworks address the outer context and fewer still include the political climate- which in the UK NHS is influenced by policy where Government has direction. A model of implementation would benefit from better understanding the ‘line’ between outer and inner contexts.

### 2.3 Developing a Theoretical Framework from the Literature

From the review of various theories, models and factors cited in the extant research, the researcher devised a conceptual framework model based on the most pertinent and consistently cited factors that enabled success of the failure of innovation diffusion within a healthcare innovation ecosystem. At this point in the literature review it was clear that the most meaningful development in the field of study would be to concentrate on the primary care setting where less research has been undertaken. The initial reviews of innovation and its forms were of less relevance at this stage due to the need to focus on a systems approach to change and inter-organisational relationships needed to create awareness and to implement innovation to improve patient processes. The literature concerning the stages of innovation were therefore of interest to the study but, the study of how device development or new service developments were of less concern relative to the importance of how organisations embrace the innovation agenda. The change in the unit of analysis to a systems approach was more appropriate for the objectives of this study. As such, the conceptual model of Greenhalgh et al (2004) and the enabling organisational and inter-organisational factors implied her model would be of more relevance (goals, leadership, competence, trust and other



factors). In effect the boundary when the outer context translates an innovation into adoption via the inner context.

The objective of this literature review is to understand what the existing literature says about what influences successful implementation of innovation, improvement and EBP. To assess the existing literature available, in relevant academic fields. The exploration begins with a background underpinning literature; the widest ranging theories which underpin the ways in which we understand the world. The most appropriate for this thesis is systems theory. This is well used and explains well the organisation as a system, functioning to achieve its objectives and evolving as a system to meet changing demands.

Four more focused areas of literature were then explored. Three of these were broad and applied to many different organisational problems; innovation, operations and change management. These clearly were useful to understanding the research objective; what research is able to offer and what is needed to progress to understand implementation of innovation, improvement and EBP in primary care. The first three areas of literature then have already evolved into a fourth. This is implementation research, which this thesis sits firmly within.

From this, the researcher created a theoretical model; a representation of what the literature says influences the implementation of innovation, improvement and EBP. The literature-derived conceptual model will now be explored to assist the contextualisation of the reader.

This can be shown graphically:



Figure 2.28: Conceptual Framework of Determinants of Implementation of Innovation, Improvement and EBP success from Existing Literature

Source: The Researcher

At the centre of the diagram is the main issue; what influences the successful implementation of innovation, improvement and EBP. The context for this study is primary care but the literature is much broader than this. Therefore, the researcher assessed relevance of literature, which was found, across four distinct fields, to this study.

The researcher considered all potential generic concepts from various fields of literature and implementation theories and frameworks. None of these were given any weighting or importance relative to any other. The purpose of the research was to use these as a framework for exploring implementation specific to the context of primary care and in the context of NHS Wales. This research would take existing frameworks of implementation and so had the benefit of including existing concepts; but not in a biased manner which would have been inappropriate for this theory building pragmatic study.

The left-hand side of the diagram is the internal readiness of the organisation. This was a key feature of the implementation research literature. It covers a range of implementation issues specific to the organisation. Skills and learning for example (Damschroder 2021), resources (Harvey and Kitson 2016).

Change commitment and change efficacy also aspects of readiness; the motivation to change and the ability to change (Weiner et al., 2008, 2009). It may be possible to improve this model by taking other enablers and inhibitors and reframing in the context of being either commitment or efficacy readiness factors- commitment or 'want to' factors and efficacy or 'can do' factors. This would represent a step forward and contribution in taking the exiting work of Weiner et al., (2008) forward. It can also affect the level of fidelity of the implementation; that is, the implementing as intended (Carroll 2007, 2019).

The relationship between the facilitator of implementation and external stakeholders as well as the wider external environment is shown on the right-hand side of the diagram.

This model seems incomplete and could be improved. For example, current literature is silent on the role of external contextual factors. The PARHIS model (Kitson et al. 2019) makes reference to external context, for example, but gives no specific enablers or inhibitors which practitioners could use to understand external issues which might affect their project. These

will be explored in a later qualitative data collection phase, to see if practitioners perceive external context matters and specifically the issues which are relevant.

There may be a better way of structuring this diagram, if results of qualitative research from practitioners necessitates that. For example, innovation enablers and inhibitors here would be included in the organisational readiness section. The literature says that extent of the innovation is important; the extent to which it disrupts the status quo (Damschroder et al 2021). Similarly, Adaptability, how the innovation can be tailored to local context and needs (Damschroder, 2021; Greenhalgh et al., 2004; Feldstein and Glasgow, 2008); Trialability, if an innovation can be tested on a small scale (Damschroder, 2021; Greenhalgh et al., 2004; Feldstein and Glasgow, 2008) and evidence strength and quality (Damschroder, 2021; Rycroft-Malone et al., 2002; Stetler, 2001). A new phase of research will both identify new enablers and inhibitors as well as how wider concepts fit together. This section of the innovation, improvement or EBP itself, may become a section of its own, if the if it is found to be a factor of significance to that extent.

The conceptual framework model summarises the key debates in the field of innovation ecosystems in the context of healthcare processes. The researcher will now review the model from the perspective of the theories used to frame this study with the purpose of commencing his contribution to the theories used to study management phenomena.

## 2.4 Theoretical or Background Literature

This chapter introduces Systems Theory as the founding background of this study. It sets the theoretical context, viewing NHS organisations and organisations more generally, as systems with complex interactions and dynamics both internally and externally. This thesis takes the ‘system’ as the basis of which innovation and change programmes in NHS organisations are intended to improve; and to which adoption is required to realise that improvement.

This section also sets the context for focal literature presented and reviewed next. Operations management for example, has evolved from systems theory as has many aspects of change theory. Operations management is the process by which an organisation transforms resources into valuable outputs, setting up and operating a system.

### 2.4.1 Systems Theory

Systems theory is a well-established and interdisciplinary group of theories which are applied in fields including biology, sciences, engineering and psychology. Systems theory underpins a volume of modern organisational and business research, based on the idea that organisations are systems to which a general set of principles apply (Von Bertalanffy 1928) (Weiss 1971). The principles which apply to systems in biological, chemical or psychological contexts apply too to organisations: a process of input, throughput, output and feedback creates a loop. Through this process, a series of equilibrium shifts deliver long run growth and improvement of the system over time.

The initial need to explain, design and develop systems was developed from the scientific applications to be used as a metaphor for organisational performance and operations; the conversion of resources to outputs through a system which develops and evolves over time. Since Boulding (1956), this application of systems theory to the performance of operations has created systems theorists who use this for management problem solving and to

Systems in organisations differ from in biology or sciences in that they are human created. They also exist where individuals intentionally formulate objectives, and a system is the means of achieving these (Ackoff 1971). An organisational system therefore is purposeful, it has been set up by a human, to achieve one or more objectives. This implies that organisational systems and human behaviour are related. The aims of a system are driven by or interact with, mechanisms of human behaviour.

The researcher reflected that he would expect to see features such as collaboration, sharing, common goal, minimising risks, higher performance and more effective diffusion for benefit of patients in the NHS Wales primary care innovation ecosystem.

As a final observation, most of the implementation research models introduced and discussed in this chapter, are systems processes and not mathematical models (eg Greenhalgh 2004). This suggests that the using a systems approach to answer the research objectives and questions in this research, is a valid one.

#### 2.4.2 Viable Systems Model (VSM)

For system to adjust and to adapt, the system must remain viable (economically – for profit generating businesses or to ensure good value for money from publicly funded organisations). Beer (1981) propose a Viable System Model (VSM) which suggests that organisational systems, like biological, are set up to meet the demands of surviving. They adapt over time to best meet the survival needs of the environment as it evolves. Miller (1971) proposed the idea that organisations behave in the same ways as biological systems. VSM is a popular and well cited theory and is logical, it can be seen that organisational systems evolve as value creation for customers or patients evolves and needs change. Survival is being an organisation which meets its objectives in being capable to successfully meet those needs.

Viability is a subset of the systems approach. The same outcomes and features will be predicted, with emphasis on viability of all involved. Inviability interrupts the ‘input process output’ systems model described above. Special attention paid to the financial viability of the primary care practices when looking through the viable systems lens, without who patients do not receive care. Where primary care practices ‘hand back’ contracts this is market failure and Local Health Boards provide then deliver services unless a replacement can be found. This is uncommon as the reason for handing back the contract is market failure through an inviable system.

#### 2.4.3 Learning Organisation

To adapt, and to adopt new innovations, it is important that a fit is maintained with the environment and that learning occurs. Garvin (1993) proposes in an article in the Harvard Business Review (HBR) the learning organisation idea. This is in the context of the rising trend of continuous improvement programs, becoming popular at that time and equally today. The main motivation for this is organisations striving to improve themselves and potentially to gain an edge on competitors, to evolve and survive (Garvin 1993). There is also a suggestion that sometimes these improvement programmes are more for fashion and vanity on the part of managers, as they are so wide ranging and commonplace. It may be partly why failed programs far outnumber successful ones, and the improvement they seek is seldom

achieved. Garvin argues this is because to do so requires an organisational cultural commitment to learning.

Different levels of learning can be highlighted. At a national level, there should be a focus on sharing best practices and a common mental model of the future (Senge, 1992), including the innovation agenda and how existing systems. There should be extensive teamwork and sharing of resources between organisations, with a drive towards mastery or improvement through the implementation of innovations, improvements and EBPs.

For organisation to be a learning organisation, it needs to have (Senge, 1992):

1. Systems thinking (see below) where all in the organisation act as one system. They consider implications of actions on others in the system
2. A shared vision
3. A common mental model of the future, including which innovations government wants primary care practices to have and a common agreement on where best to invest in innovation, improvement and EBP
4. Teamworking
5. Personal mastery- every organisation having the human skills and competency to master and exploit the innovation being shared amongst the system.

#### 2.4.4 Systems Thinking

Systems thinking is a modern variant of systems theory. Systems thinking is now well established as part of management theory and systems theory, it has been used in many well cited works (Katz and Kahn, 1966) and requires a holistic approach to be taken when researching 'innovation systems' and other forms of system. Early attempts to put together a general systems theory (Hall and Fagen, 1956), have since been superseded by an uptake of ideas in different formats to different theoretical applications and contexts. For example, the

Lean operations management theory synonymous with The Toyota Production System is seen as a system. It is explicitly stated to be so (Seddon and Caulkin, 2007). Von Bertalanffy proposed that a system is greater than the sum of its parts and that open systems interact with their environment to transform resources into outputs and grow. This is opposed to closed systems which do not interact with their environment as say, for example, a chemical reaction in a reactor where nothing enters or leaves. The majority if not all business organisations are open systems and interact with their environment from market dynamics responding to external demand from consumers, suppliers, customers and regulators. In the context of the NHS, organisations are interdependent on one another as will be seen in this thesis.

Viewing organisations and business operations as systems dates back as far as Baridon & Lewis (1931), where systems are seen as the relationships, structure and interdependence or organisational and human functions. Harshbarger & Marley (1974) and Malott (1974) began referring to systems theory as Behavioural Systems Analysis. This takes the view that systems in the organisational context are a collection of patterns of behavioural interactions within the organisation and externally. Systems theory has been explored in this section as an underpinning literature in which to base this thesis and research. Theoretical literature is applicable to many fields, and this is true of systems theory, which has roots and applications in biology, ecology, meteorology, engineering, social theory, organisational and management theory. It is highly applicable to this work.

There are various sources of noise in the primary care context, coming from uncertainty, delays, guessing which innovations are likely to be supported by government and so holding back on investment. Failure demand is another feature, where organisations and systems do things twice because there was failure the first time, often a result of inappropriate technology. Systems thinking is a precursor for Total Quality Management and relies upon continuous improvement, using a structured approach (plan, do, check, act) and controlled change. This is to reduce or avoid uncertainty.



## 2.5 Chapter Summary

This chapter has presented a review of the literature which underpins this study. The immaturity of the subject meant that the researcher needed to address and integrate a broad set of literatures to ‘make sense’ of the modern view of innovation systems. The chapter has gone from a broad understanding of organisational innovation to the dominant models of innovation in the NHS. These models were found to be biased by secondary care as the focus of the model developments and this necessitated a new conceptual framework model to be devised. From a background literature perspective, this research takes a systems perspective to understanding implementation of innovation, improvement and EBP in primary care. A system is a set of interconnected ‘things’ which produces a pattern of behaviour over time and a complex system (healthcare) is where there are no single points of control (Marlow et al. 2018, Holmes et al. 2012). This chapter has reviewed the existing systems theory literature and identified there is an accepted need for a systems perspective approach to implementation (Holmes et al. 2012).

The key lessons from the literature review included:

1. The need for a systems approach including an understanding of the actors in the system and their roles, goals and motivations
2. The need to understand how the need for change is perceived and actions taken to introduce change in order to maintain viability and a fit with the needs and goals of the wider care system/national policy.
3. The imperative to understand the dynamics of a national innovation system and to identify the change models which are engaged explicitly or implicitly
4. To understand the relationships and collaboration between actors to generate success and to be ready, to embed and learn from the process of innovation diffusion.

As a reminder, the research questions set out in the introduction to this research and which this literature addresses are as follows:

*RQ1: What determinants effect successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*

*RQ1A: What determinants, featuring internally within primary care provider organisations, influence the implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*

*RQ1B: How do external determinants influence successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*

*RQ2: What insight can be gained for practitioners and policymakers, by applying the developed model to the context of NHS Wales Primary Care delivery?*

The next chapter will present and defend the designed, crafted and selected research strategy and its associated methodologies, to answer the fundamental question of how valid knowledge will be generated to answer the research questions of this study.

## Chapter 3 Research Strategy

### 3.1 Introduction and Purpose

The previous chapters have set the context of this research, located an important gap in the current body of knowledge in this rapidly-evolving field of study, and presented the general approach to this study. The literature review chapter, has identified gaps and issues within the current debates concerning change innovations in primary health and care organisations and a systems theory approach to understanding how innovation, operations management, change management and implementation research are applied in practice. At the intersection of these themes, the researcher identified that existing models do not fully explore and explain the enablers and inhibitors to implementing innovation, improvement and EBP in the context of primary care (Greenhalgh 2004). Most existing models are derived from literatures concerning predictable contexts such as large scale manufacturing or secondary care where activities are far more specialised, formalised, and where there are more human resources than the context of general practice (eg Greenhalgh 2004; Aarons 2014).

The purpose of this chapter is to explain and ‘make visible’ the decision-making journey through which the research design for this study was located in the broader philosophical debate; how the methodology and methods were selected, developed and then deployed during the field research stage to generate valid and legitimate knowledge and answer the guiding research questions. The chapter will also present and defend the chosen analytical methods and procedures which were used to ensure the validity of the data collected. In summary, this research programme takes a realist and pragmatic abductive design perspective, incorporating multiple phases of research with triangulated mixed-methods research to ensure a high quality and ‘context rich’ understanding of the experiences of innovation in the primary care setting. This chapter will also explore and acknowledge the limitations of the designed approach and review the ethical considerations of undertaking this theory building research.

Every stage and task of the research design presented choices for the researcher. Each decision was interconnected with previous selections and, at each stage, selecting from alternatives was taken with reference to how the decision improved the legitimacy, validity

and robustness of the study as a means to answer the guiding research questions. This chapter documents and defends that process of exploration and reflection. It transparently explains how the researcher developed the research design to operationalise his research philosophy and strategy. The outcome of this research design process was intended to be a framework and set of research procedures, through which new knowledge could be generated, in response to the research questions focal to this study and need for theory building in the field of study. The structure of this chapter follows a logical and incremental approach, focusing from the philosophical debates concerning research and ‘good knowledge’ creation to the actual selectin and execution of the study (Figure 3.1).

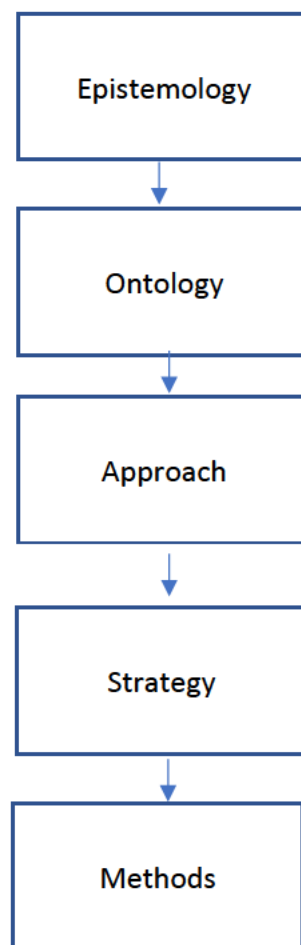


Figure 3.1 Research Design Process Levels

Source: Adapted from Saunders et al (2016)

Approaching the research strategy design in this way as a top down approach has many advantages by:

- **Making methodological framework choices explicit:** By following the procedure as presented, there was a greater chance that no methodological issues or choices were omitted or overlooked.
- **Ensuring consistency:** The philosophical tradition of research in a certain area of the social sciences would need to be complimented by the aligned choice of approach and methods. For example, a quantitative approach and method set might not easily be consistent with an interpretivist stance or where theory building is the intent of the researcher. Such a misalignment is a break between accepted theoretical approach and the methods employed which would be regarded as a major risk to valid results and any potential generalisation. As will be explained later, this study is an interpretivist study not a positivist one. As such qualitative methods are preferred in order to capture the richness of understanding dynamic environments where little previous research has been undertaken.
- **Sense checking:** It is acknowledged, by the researcher, that one school of thought and research approach “stood out” from the start as a generally appropriate means of frame and housing this study. This does not necessarily mean though that an expeditious approach was undertaken and the early detection of the need for theory building was tested and challenged at each stage of the research design. The research stages of design was each used to comparing the advantages and disadvantages of any potential method inclusion and such interrogation of validity and utility is consistent with an appropriate research methodology process (Saunders et al., 2016). This chapter will present a summary of the wide range of other potential options available, at all stages of the research methodological design to assist the reader understand these choices.
- **Communicating rationale:** The reasons for each part of the methodology framework are presented in this chapter as a transparent account of methodological alignment and scrutiny by future readers and researchers interested in this field of study.
- **Complimenting research objectives:** Following a systematic approach of logically derived methods which fit high-level research objectives allowed the researcher to create a

framework which compliments those aims and is aligned at each stage of the design/decision process.

To assist the reader, the chapter commences with discussions concerning research philosophy and fundamental approaches to generating valid knowledge before exploring appropriate methods that are aligned with the realist philosophy. The chapter will present discussions of ontology, epistemology, the sources of knowledge, and methodology. The chapter will explain the detailed choices and ensure a consistency at all levels of the research. Once positions for each stage had been established, the research process was then used to detail, in very specific terms, how each stage would be operationalised (Who? What? When? and how?).

The study design detailed in this chapter is considered as a ‘right answer’ of several to answer the guiding research questions that frame the gap in the body of knowledge. Every approach, tool and procedure has its advantages and limitations and these will also be explored to prove the ‘fit’ and validity of this research as a means of exploring the contemporary phenomena of innovation management in primary care. Later stages of the chapter will then demonstrate that the data collection and analysis are aligned, justified by historical precedent and robust, in order to make claims and contributions to knowledge. To achieve this, validity, reliability and objectivity are considered as part of the research design. These quality assurance processes and checks are specific to the mode of study selected and deal with how variances in the results obtained between designs could be minimised thus ensuring the results obtained reflect reality and an accurate account of the phenomena. Such a scientific method ensures both the validity of the results from the empirical stages and allow this study were to be repeated, by future researchers, under the same conditions to yield similar results and conclusions.

### 3.2 Philosophy of Research

The next section of this thesis will begin the exploration of general philosophical approaches to research and will position the choices of the researcher.

### 3.2.1 Ontological Positions

The next section will review the philosophical positions concerning the what is ‘reality’ and how it can be typified so that valid and useful knowledge can be generated from research activities.

#### 3.2.1.1 Introducing Ontology

Ontologies are classifications or assumptions made about “being” or “reality”. An ontology is a system of belief that reflects a view of what constitutes reality (Saunders et al 2012). Any research will be positioned within a continuum of ontologies that constitute valid views of reality. The two extremes of the continuum include emic (where knowledge is specific to context and unmeasurable) or etic (where it is only possible to observe, calibrate and measure knowledge) views. These positions are inseparable from subjectivism (emic origin) and positivism (etic origin). For the studies of mature phenomena it is likely that an etic tradition has been established and for emerging subjects (like the focus of this study where concepts are poorly understood) where context is important then an emic approach is likely to be adopted.

#### 3.2.1.2 Research Philosophies and their Ontologies

There are four main research philosophies (known as epistemologies that are derived from the aforementioned ontological paradigm continuum). Each epistemology has a different set of ontological assumptions about what is considered as reality or the ‘nature of being’. This is an abstract philosophical concept and can be explained by considering each philosophy and its associated ontological assumptions (Saunders et al 2012) as below:

##### 3.2.1.2.1 Positivist

Under the positive perspective and paradigm, reality is considered to be external to people and independent of social actors and their views. Reality in a positivist research undertaking can be measured or tested to establish a correlation or causality based on patterns within a population. Links or concepts are deemed valid and real, if they can be shown to be such using statistical measures and inference about the population of people, organisations etc

under study. This is a traditional and ‘science-based’ approach which is deemed to be impartial and an accurate account of reality.

#### 3.2.1.2.2 Pragmatic

Reality is external to people, possibly multiple people, and the approach is best chosen in the context of problem-based research subjects and questions concerning how individuals deal with issues such as innovation processes. Pragmatism is inextricably linked to practice of management.

#### 3.2.1.2.3 Realist

This philosophy has an ontology which is objective and subjective – it effectively uses both forms of understanding to propose that reality is both observed behaviours of a population and also the thoughts/feelings of those involved. Reality exists independently of human perceptions and also is influenced by human perceptions. Critical realism introduces social conditioning to the context of reality where interpreted through human perception or social conditioning which is the most popular form of this paradigm.

#### 3.2.1.2.4 Interpretivist

For the interpretivist, reality is socially constructed and subjective, it exists only because human perception and views it in that way. Research into the dynamics between people are researched as a means of understanding each individuals interpretation of a problem. The interpretivist research paradigm and philosophy views reality as a product of how those dynamics are perceived by protagonists within the research itself and this form of research accepts that there may be, and often is not, a common view or mental model. In this approach, reality is constructed by those within the social system and therefore must be treated as subjective. It is also possible to have multiple realities, as different people often have different perceptions, each of which is real to them. A final feature of interpretivist ontology is that reality may change, as the perceptions of those social actors may change over time.

#### 3.2.1.2.5 The Position of This Study



This study could take any of the above positions in relation to philosophy and ontology but defending certain views would be difficult and a suitable ontology and epistemology must be sought. This is likely to be guided however by a number of factors. For example, the researcher considered the approaches and methods employed by similar studies (theory building within health and care settings) and those publications in the focal subject of the literature review and the aims of his research. His conclusion was that, on the continuum, a realist epistemology which blends both observable data with the opinions of actors within the primary care setting was needed. This approach is endorsed by the eminent social scientist and research expert Bryman (2012).

A purely interpretivist philosophy and associated ontology was considered to be limited in its ability to meet the objectives and progress the theory building aims of this research by exclusively using an interpretivist perspective. There are likely to be social constructs and preceptory influences on the study and previous studies have found many aspects of the implementation of innovation, improvement and EBP programmes are observable but also many different views of success and resistance to change that are based on personal emotions. There are likely to be interpretivist influences at certain points within a study of this type, particularly when considering the role of people, the relationships between them and across organisations and the disruption to these relationships as a result of change and innovations on roles and responsibilities. It is possible that meaning can be found in the descriptions of implementation programmes. Participants are likely to provide rich and enabling descriptions of their perceptions. However, reviewing findings through an interpretivist epistemology exclusively was considered to be limited as these perceptions may be conflicting, and only take the enquiry so far and also would ignore general patterns of observation. It is more likely, that to understand the dynamics of implementation, observation of physical or measurable phenomena would also play a role and thus some patterns of behaviour would need to be drawn from the small population of individuals conducting innovations in general practice.

Many previous research studies of management phenomena answer both practical and theoretical research questions and take a pragmatic approach. Looking at the ontology of pragmatic research, this also fits well with the research objectives. This thesis takes a position which is at the connection of a realist and pragmatist ontology, that the inferences based on the results of data are so, because they are observed to be so and also using correlations to identify patterns in behaviours. The position was considered the best position from which to

build robust theory of practical relevance to professional managers and an understanding of the enablers and inhibitors to innovation diffusion in the primary care setting and the research objectives sought.

### 3.2.2 Exploring Epistemology

#### 3.2.2.1 Epistemology

One of the main objectives and motivations of this thesis, is the fulfilment of a PhD qualification through the creation and presentation of validated and defended new knowledge in the form of theory building. Before this can be achieved, the concept of knowledge itself must be defined and agreed upon. There is more than one view about ‘what knowledge is’. Epistemology is the study of knowledge (Suanders et al 2012).

The nature of knowledge is complicated and significant debates exist generally and in subject specific settings. There are potentially “many truths” on what constitutes valid knowledge. For example, is an idea true because someone thinks or feels it to be so, or does it need to be observed and measured? Both are potentially correct and different epistemologies have differing views about the correct answer to that question. The two main options, on the continuum established at the ontological level, are positivist epistemology and interpretivist. Both described in further detail below, with the former suggesting that knowledge is based on what is observable and repeatable, whereas the latter interpretivists suggest that no researcher can be independent of their research and instead look for knowledge in the meaning within human interpretation and perception (Bryman & Bell, 2011).

Epistemology also implies the source of knowledge and how contributions to knowledge may be legitimately claimed to be a legitimate view of reality. For example, intuitive knowledge is what humans innately believe to be true, as proposed by philosophers such as Kant (Broad 1978). Intuitive knowledge has no proof and perhaps is not provable, as there is no direct reasoning (Dörfler & Ackermann, 2012). It also independent of understanding how the knowledge was acquired. Creative thinkers, according to these authors, are often relying on intuitive knowledge within the creative process. They are often unable to describe how they know what they do, but are willing to make insights and judgements based on such knowledge. Very experienced individuals are also described as intuitive. Implicitly, when

conducting an expert interview, the views of the expert are taken as the knowledge generated from that research activity. This is particularly true if such knowledge can be triangulated with other experts or sources of data (Akinici & Sadler-Smith, 2012), at which point more weight is added and prominence given to findings.

Logical knowledge is deduced through logical reasoning (deduction) and empirical knowledge uses facts to demonstrate knowledge. If a set pattern or procedure is followed, the output must be true. For example, if a mutually exclusive option is set up and a statement or hypothesis can only be either true or false, if it is shown that the statement is one, it is not the other and vice versa. Logical knowledge is an inference that something is true, based on a pattern or deductive reasoning process (Hale, 2002).

Authoritarian knowledge relies on the ideas of other people. For example, knowledge may be found by looking at research papers, documents, books written by experts and other similar sources. Empirical knowledge is based on observed and measurable facts. These are sources of knowledge where are demonstrable and repeatable.

For this study, an inductive and realist approach is needed to generate such knowledge and deduction cannot be achieved with high levels of accuracy prior to entering the field of innovation processes in primary care. This study is therefore an inductive form of knowledge that will be assimilated to provide a systems view of actual practice.

### 3.2.2.2 Research Philosophies and their Epistemologies

The descriptions of epistemology as the sources, nature and limitations of knowledge generates fierce debate over what is generically and specifically (to an exact research programme) superior. The main epistemologies of relevance to this study will now be introduced and assessed, in the context of four main research philosophies. These established four main approaches and schools are;

1. positivism,
2. pragmatism,
3. realism and
4. interpretivist.

The most appropriate research methods designed and used for data collection in particular, are informed by the chosen research philosophy of the researcher (study designer) and include both personal biases as well as traditions in the field of study. The tools used by any study, need to be consistent with the epistemology underpinning selected for the study (Saunders, Lewis & Thornhill 2015). The main research philosophies and their epistemological positions are as follows.

#### *3.2.2.2.1.1 Positivist*

Observable and preferably measurable phenomena only can be counted as knowledge only and as such methods such as experiments and large scale questionnaire are favoured (including randomised control trials). Variables that are identified are joined by causal links, which can be shown, to exist and legitimated by statistical analysis. Observations are generalised and theorised to be applicable again in the same circumstances. As such positivistic studies have a predictive utility and work as valid rules until a null hypothesis is found and theory must be changed.

#### *3.2.2.2.1.2 Pragmatist*

Pragmatism does not favour or adopt either a positivist or an interpretivist approach exclusively. Instead, it suggests one fixed approach is unrealistic and a mix is needed. In this philosophy, both observable and subjective meaning can constitute knowledge, dependant on the research question being addressed. In both positivist and interpretivist philosophies, research questions are selected in the context of the philosophy. In pragmatism, it is the research question, which informs the choice of philosophy. This research philosophy is common in applied research and in scenarios where a practical research question exists. Pragmatist research takes the context of the research question and applies aspects of both positivism and interpretivist, whichever provides the most likely and useful answers in the context of the application. (Saunders et al. 2015)

#### *3.2.2.2.1.3 Realist*

This philosophy takes the position that knowledge is separate to the human mind essentially (Saunders et al. 2015). Observations produce data points and these are used to develop knowledge. They need not be sensory to human perception to exist and there are two types of realism, critical and direct. Direct realism suggests what we perceive through our senses is an accurate portrayal of the world. Critical realism introduces a second step, first the sensory observation and second how we interpret what we observe. Different people interpret differently and the mind can infer meaning to observations, for example in the context of social norms. To the critical realist, the observations and interpretations of observations, are the product of a wider social structure.

#### *3.2.2.2.1.4 Interpretivist*

This philosophy places the interaction between humans within social systems at the forefront of knowledge but that this knowledge is specific to each person and their unique perceptions. Understanding the individuals perception is key. Knowledge is the product of how we interpret these interactions. Interpretivist research is empathetic in that the researcher seeks to understand a phenomenon, through the meaning it has to participants within the study. The inference is that knowledge is such, because it is a product of the social interactions between actors within a social group. Meaning is subjective in interpretivist philosophy and therefore can both change and be multiple. Detail and context are important aspects of what matters to individuals and as such it impacts the interpretation of a situation. Under this approach, generalisation is not possible.

#### *3.2.2.3 Epistemology and Designing This Study*

The actual approach, design and methods crafted by a researcher and employed will be intrinsically linked to a research philosophy and epistemological view. Therefore, this section looks at the research philosophies available and makes a selection and alignment to an established paradigm based on the benefits and limitations of the view of knowledge of each. It also reflects the lead given by other prior work within the literature, which is likely to have been based on similar assessments.

The positivist approach is likely to be advantageous in capturing aspects of the system which are observable and generalizable, with application and potential generalisation to other

similar scenarios. This approach however is also limiting in that it would not capture the unobservable views and aspects of the system under study from informants. The non-observable and human preceptory elements of performance are well studied, for example the role of culture in implementation of performance improvement interventions. Therefore, positivism and its view of knowledge is important to this study but not in isolation.

An interpretivist approach on the other hand, is unlikely in isolation to capture the full dynamics of the performance system. It is known that though culture and human dynamics do play a role in performance and performance improvement, there is also clearly a system which can be mapped and observed. Knowledge will need to be generated not just in an interpretivist approach.

The most suitable approach for this study is to adopt a pragmatic philosophy (especially the position on the continuum at which the pragmatic and realist traditions are closely aligned). A view of knowledge in this philosophy is proposed by Saunders et al. (2015) to be “either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question.” Pragmatism also offers a good starting because as an initial focus any research, a pragmatic approach and questions will lead the researcher into elements of positivism and interpretivism, depending on research context and what is being detected. This approach and associated process allows a diverse and adaptable approach to be undertaken to a very pragmatic primary care problem and has been used by many previous researchers to build new theory. The approach allows the researcher to draw on the greatest range of research methods which will now be discussed.

### 3.2.3 Methodology Defined

The term ‘methodology’ is an overarching term to describe the ways in which a researcher gathers and analyses data to progress a research agenda or question and derived valid and legitimate knowledge (Bryman and Bell 2011; Saunders, Lewis and Thornhill 2015). An overarching research strategy, to answer research questions determined by gaps in the literature, leads to the specific selection of ‘legitimate’ methods and tools used.

The philosophical views of the researcher about what constitutes knowledge and the extent to which values feature in knowledge, informs how data might be best collected and analysed to fit the stances taken. This is the first set of choices for a researcher and leads, as shown in the diagram earlier in the chapter, to more specific choices about how data is collected, so that what results is consistent with the view the researcher has about what constitutes knowledge.

The researcher has approached the methodology design for this study by using the “Saunders research onion” (Saunders, Lewis and Thornhill, 2015) – See Figure 3.2. It is a well-established process which can be defended as a thorough consideration of the issues presented to a researcher when designing a research strategy. The remainder of this chapter follows the steps which are presented by the research onion and the researcher’s rationale for each of the choices made. The result is a connected and defensible approach, yielding high quality data, analysis and robust contributions to the existing knowledge about successful strategic improvement and innovation programmes.

### 3.3 Chosen Research Epistemology (Realist-Pragmatist)

The final step of the research design using the “Saunders Onion” is to explicitly state the research epistemology. This follows the sections above where the detail about each option can be found. The researcher considers that a realist-pragmatist approach offers the greatest variety of methods and best potential for theory development from the field of study. Rather than focusing on a single or mono method to support the research strategy for this study.

Traditionally, combining methods has been termed mixed methods and such a methodology has been used extensively by research studies that have been rooted in pragmatism. However, there is a growing awareness that the realist paradigm offers benefits, such as increased flexibility, to mixed methods research- particularly in healthcare management research (Allmark et al 2018). It is possible to take a realist-pragmatist approach, as demonstrated by these authors to provide a robust underpinning for this specific study and was duly accepted by the researcher.

Positivism, as a philosophical position was deemed to be too constrained for this study of a dynamic and poorly understood subject. It did not allow the full range of theory building but

would be suitable for theory testing once variables have been identified and calibrated (to then combine into a questionnaire for large scale engagement of primary care professionals). Interpretivism alone was also seen to be a weak alternative and would make the output difficult to generalise and this conflicts with an aim of this research.

The pragmatic-realist epistemology was deemed to offer the best of both approaches, where the objective nature of realism can be used together with the flexibility of pragmatism. This approach was duly accepted.

The next section uses the Saunders et al., (2012) “research onion” to develop the research strategy based on the realist-pragmatist epistemological position. Some of the previous sections will be summarised when conducting this positioning review of the ‘onion’.

### 3.4 The Saunders Onion

The conduct of any research (the process) is intended to explore concepts and explain the relationships between them and now that an epistemological position has been taken in terms of philosophy, epistemology and ontology, the next step is to understand the best ways to practically collect and analyse data (‘the methods’). The most popular way of presenting the range of choices which exist to do this and link to the philosophical positions, is through the Saunders Onion. This places the techniques to achieve the objective of data collection and analysis, to progress a research question at its core. It works inwards in layers, from philosophical choices to the operational ones.



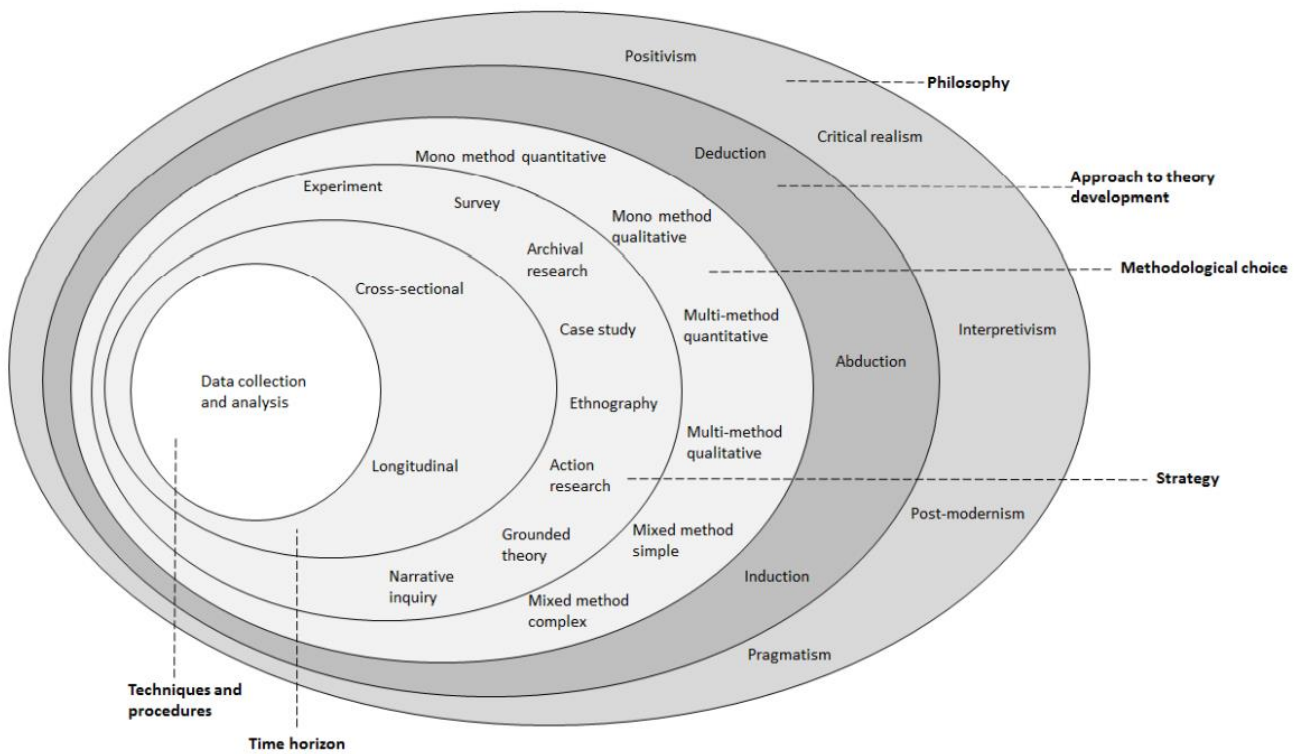


Figure 3.2: The Saunders Research Onion  
 Source: Saunders (2012)

The decisions made using the “onion” diagram are effectively a process through which the research design and research strategy can be approached systematically by moving from the outer ring of the onion to the innermost ring. At each stage of review, greater detail is added to each level in order to result in a valid methodology and this approach is a modern interpretation of much earlier philosophical work but is an effective graphical means of showing the decision-making process and alternatives at each decision-making ring (see Bryman, 2012). Either approach can be used to justify the choice and the final selection of a methodology for any research (Jensen, 2012). The process of planning research is about more than this though and involves each of the layers of the onion. A general definition of research design might be the “process of choosing a way to answer your research question, which requires knowing both what your options are and how to evaluate their relative strengths and weaknesses.” (Jensen, 2012). Qualitative and quantitative research designs are the main choices, though as can be seen from the diagram above, this is only one layer.

The purpose of this section of the chapter, is to demonstrate the thinking behind the output of the research design, the options and the researchers rationale. Bryman, (2012) and Saunders et al, (2015) advocate using this “onion” as a way to approach the research design process, to describe the general plan via which research questions will be answered and to show the particular strengths. The methods used to collect and analyse data, will be evaluated later in the chapter.

The first stage of the research design itself, was to search for those research strategies potentially of use, after which a logical appraisal of each and comparison would need to be made. A general reading around common social science research designs yielded a ‘shortlist’ of potentials. More could have been added to this list and it was not exhaustive, those with no perceived value to this study were omitted.

Developing criteria for assessing and selecting a research strategy to be used, it comprises of an amalgamation of those found in three key and best-selling social research methodology textbooks of Bryman & Bell, 2011; Saunders et al 2012 and Ritchie & Lewis, 2003). Each of these works was reviewed by the researcher and selections made by the researcher to account for the specific aims of this research and also the context of primary care. The result provided a basis through which the widest range of options could be considered, an assessment of benefits and limitations and minimizing inevitable subjectivity. The criteria used to evaluate included:

- Fit with epistemological/ontological positions
- Natural fit to research problem
- Availability of data and likely ease of collection
- Potential of strategy to deliver a high quality of insight
- Ease of implementation
- Time availability
- Used by other researchers in relevant field or in similar research

The researcher reviewed the full list of potential mix variations for the development of his research strategy and evaluated each in a layer by layer process , as suggested by Saunders et al. (2015).

### 3.4.1.1 Philosophy and the Research Onion

The first layer of “the onion” concerns a positioning of the research within a research philosophy. This covers the possible epistemological and ontological perspectives which can be taken by the researcher and will be covered in depth in the preceding section 3.2.

Therefore, this section will not repeat that content however in summary, this thesis takes a realist and pragmatic viewpoint. In terms of epistemology, the realist viewpoint is between positivism and interpretivism where concepts can be identified using qualitative more interpretivist methods and then verified and validated using quantitative, more positivist, approaches (Denzin and Lincoln 2008). The variations in terms of ontology, epistemology and axiology are presented below (Table 3.1).

	<b>Positivism</b>	<b>Realism</b>	<b>Interpretivism</b>
<b>Ontology:</b> The researchers view of the nature of reality	Objective: Independent of and unaffected by social actors and constructs	Constructive: Exists independently of human thoughts of knowledge, but interpreted through social conditioning	Subjective: may change depending on social actors
<b>Epistemology:</b> The researchers view of what constitutes acceptable knowledge	Focus on causality and correlation to see general patterns, reducing phenomena to simple elements applied broadly	Focus on explaining and understanding phenomena within context	Focus on understanding the situation as it is intrinsic to the knowledge
<b>Axiology:</b> The researchers view of the role of values in research	Research is independent of values. The researcher is independent of the data.	Research is impacted by values. Researchers world views and experiences matter as they impact and potentially bias research.	Research is interconnected with values such that they cannot be distinguished or separated.

### Table 3.1 Research Traditions

Source: Saunders et al (2009)

This thesis was aligned, located and is defended from the perspective of the realist-pragmatist column. The objective of this study is context-rich and new theory production thus there is an extent to which values will play a part in the context from which these theoretical relationships are viewed. From this philosophical standpoint, the realist-pragmatist tradition is best suited to this study and therefore the next layers of “the onion” will now be considered.

#### 3.4.1.2 Approach to Theory Development

The next layer of considerations is the research approach. As previously mentioned, there are two main approaches research can take; deductive or inductive. For deductive research a hypothesis exists, and the purpose of the research is to test that theory and to find null hypotheses based on knowledge of a population and its size (for the purpose of generalisation). Inductive research is the opposite and an approach where an existing theory or hypothesis is not yet existing to test (it is a new and emerging subject) and so the objective of such studies is to develop the basic concepts and issues ‘at play’. Inductive research often involves small samples and qualitative research to understand in depth and try to form new ideas and theory. Deductive involves larger samples and mostly quantitative research methods to test a more structured question.

The table 3.2 below shows these two opposites however a third, middle ground option, also exists. The abductive approach is where a mix of both inductive and deductive approaches. This would usually be in as part of multi-phase research where the initial stage produces new theory and a second stage tests that model, or vice versa.

	<b>Deductive</b>	<b>Abductive</b>	<b>Inductive</b>
<b>Data collection</b> techniques most often used	Highly structured, large samples, measurement, mostly quantitative	Methods chosen fit the subject matter, mixed methods are predominant	Small in-depth samples, mostly qualitative
<b>Theory</b>	Verifies or disproves theory	Theory generative, modifying or verifying	Theory generative or building

Table 3.2: Deductive, Abductive and Inductive Approaches Compared

Source: Saunders et al (2015)

Research considerations which were identified at the literature review stage of this study based upon the methods used in other studies, revealed the need to explain the success of innovation implementation, improvement and EBP programmes as well as significant confusion in this subject area with few studies finding recurring patterns of enablers or inhibitors. As such, the field of study was considered to be in a state of emergence and at a point where many concepts were undefined which would lead the researcher to select a generative approach to his study. Many cited literature sources approaches were process models, which were limited in that they propose “a one size fits all” linear process to explaining implementation of innovation rather than the complexity of issues which also impact on the process and content of such change. The researcher believed these previous studies do not reflect the complexity and variability in of such activities in the primary care delivery organisational context. In addition, deterministic models, which make readers aware of likely enablers and inhibitors of success, appeared incomplete- at least in the primary care context. The researcher believed that much of the existing literature was deficient in its insights or ability to fully explain the enablers and inhibitors of implementation success and especially, in the context of primary care. The models were themselves part of the knowledge gap and many were simple emulation of processes undertaken by manufacturing firms rather than localised and context-specific models.

As a result of the philosophical debates conducted during the reflection of the researcher, an abductive approach was selected as “the best way” to house and frame this specific study. Grounding the study in this manner allowed a robust methodology to be crafted which fitted

with the approach and was consistent with previous studies. The methodological alignment also allowed the researcher to proceed and guide the execution of the study. The selection of the philosophical position supported the researcher to generate new and context-rich theory albeit that the context-richness of his study would reduce his ability to generalise to other contexts.

#### 3.4.1.3 Methodological Choices and Onion Layer

The researcher reviewed the available methods in the context of a realist-pragmatist approach. These methods are the widest of all the epistemological positions and the following sections now detail the research strategy and methodological options as well as explaining the choices made and their defence.

#### 3.4.1.4 Research Strategy

A research strategy is an all-encompassing method with a logic of design and incorporating specific approaches to data collection and analysis (Yin 2013). The realist-pragmatic researcher can draw upon and incorporate the widest variety of methods in the research design, as they can use those usually used in positivist as well as interpretivist research studies. A summary of each of the methods available to the researcher is provided below, this is then followed by a more in-depth explanation as to why this method was either used or rejected by the researcher as a viable method for data collection and analysis.

Research Strategy	Summary	Epistemological View
Experiment	Tests the effect of one variable changing on another, usually confirming a pre existing hypothesis proposed by the researcher	Positivism
Survey	Usually deductive and used for exploratory or descriptive research	Positivism
Action Research	Is an iterative process where the researcher is involved in the defining the research problem and its solution, through a practical process.	Realism
Case Study	Explores the research problem through real life contexts	Realism
Archival Research	Uses records and documents as data which can be analysed	Interpretivism
Ethnography	Observations of people in context and in depth, looking at the relationships and interactions between them	Interpretivism
Grounded Theory	Takes a position of no prior influences or knowledge about a topic and the researcher uses only the observations and context to interpret meaning and propose new knowledge	Interpretivism

Table 3.3: The Research Strategy Options

Source: The Researcher

The experimental strategy option was rejected, at least for the theory development stage, as it is difficult to control variables in the setting of social research. Indeed it would not be possible to identify variables that would be effectively calibrated for a subject area where little is understood and there remains a significant amount of vagary. The organisational nature of the research involves observing the effects of systems, which ultimately are complex (Gray 2011). To control these variables is practically difficult and oversimplifies the multifaceted nuances of the research problem. From the literature review and conceptual model, it was thought that success in implementation of innovation, improvement and EBP programmes would have a theoretical link with both enablers and inhibitors internally and relationships externally between providers and stakeholders. These would be difficult to explore experimentally as there are so many variables impacting these which can be neither measured nor controlled.

Action research is a social science research method carried out or facilitated by a ‘professional’ action researcher and including members of an “organization, community, or network ("stakeholders")” to improve the “participants' situation.” Action research “promotes broad participation in the research process and supports action leading to a more just, sustainable, or satisfying situation for the stakeholders.” (Denzin & Lincoln, 2008; Greenwood & Levin, 2007). Action research is a research strategy which takes a ‘real world’ challenge as the focus for a study, and its overall objective is to deliver a pragmatic improvement. This strategy has become popular in areas such as healthcare and education, where there is a clear application in practice to which insight of research can be applied Bryman & Bell (2011). Three features are required for effective action research studies according to Greenwood & Levin (2007), for action research to be called such. These are;

1. **Action:** Aiming to alter the original situation of the group or organisation
2. **Research:** Incorporating the “knowledge, theories, models, methods, and analysis” which can arise from academic research
3. **Participation:** Transforming the status quo through “participation, placing a strong value on democracy and control over one's own life situations. These values... create a strong general commitment to democratizing the knowledge generation process.”

The philosophical position most associated with action research is pragmatism according to Bryman & Bell, (2011). A number of data collection and analysis techniques can be incorporated to facilitate the research element of the design (Greenwood & Levin, 2007) and this design has been applied in settings where system-based challenges are the focus of the research which is equivalent to this study (Ison, 2007). Action research itself is a systematic process, following a cycle of plan, do, check, act or plan, act, describe, evaluate process involving a dynamic learning process (Tripp, 1988). In effect, it is a learning cycle where learning is the result and outcome of the exercise.

The action research method was rejected by the researcher because it requires the researcher to be involved in the problem and its resolution. The inability to extract the influence of the researcher from the context also would serve little purpose beyond testing the capabilities of the researcher as a consultant and also the length of time for the research to be conducted



would not be conducive to a doctoral length of study. This study requires that the researcher works at a distance from the participants so as to not influence their perceptions and, as such, a similar method, that of the case study research method which would offer the same advantages without the need to be integrated into the organisations which data was being collected from. The method was rejected on practical grounds. If the researcher had been employed by an NHS organisation and this study was immersed in that particular organisation, this method would be possible. However, it would also have the limitation of extrapolating one organisation to general theory which could be applied by others. A case study approach, looking at many organisations or instances of a phenomena might have the same advantages of analysing the issues within those case studies, but with more robust outcomes.

Ethnography and ethnographic methods, is an in-depth observation of participants or a social phenomenon. Ethnographic methods are an inductive approach where the researcher immerses themselves into that setting (Saunders et al 2011). The literature review can sometimes take place, in full or in part, after the data collection phase in ethnography. This is because the purpose of data collection is to identify patterns in social relationships, resulting in theory to explain phenomena observed. The method is similar to that of action research as the researcher is in close proximity to the research problem in both settings. However, action research is a method where the researcher has an active role and ethnography and observation both involve the researcher observing from a distance. Ethnography is naturalistic (Saunders et al 2011), the phenomena and resulting theory originates from the context of what was observed. Therefore, this method is very effective for understanding context specific phenomena in depth. It was rejected as a method for this study however, as it can take up significant time. To understand service improvement projects, there would need to be many observations to collect data in this way. This would be inefficient also, other forms of data collection, such as interview and survey, offer many of the same benefits but without the need to observe for long periods of time.

Archival or document research involves using secondary data such as administrative documents as a method of data collection (Saunders et al 2011). The method involves using textual materials and materials produced by organisations as a source of data, which can then be analysed thematically. The materials analysed are selected as they represent or result from the day-to-day activities of the organisation or people (Hakim 2000, Saunders et al 2011).

The reality is accessed through the medium of the materials. The method can be explorative, descriptive, or explanatory and represents a versatile approach. The main limitation of this method is the availability of materials which map directly to the questions that the researcher is interested in. It is difficult to explore meaning in the same way as, for example, an in-depth interview with a participant as the material is fixed. The archival method was therefore rejected as a method for this study. Materials with specificity or depth were unlikely to be produced and thus the researcher determined that this would not be a viable methodological option for inclusion in his methodology.

Grounded theory, as a methodological option, assumes no prior influences whatsoever that impact on the researcher (the researcher should abstain from any literature review which could bias their thinking) and the approach is purely inductive (Glaser and Strauss 1967). The method is usually used to produce new theory, where little is known about a phenomena and where existing research is minimal. The data collection therefore takes places before a literature review or theoretical framework is produced (Saunders et al 2011). It can be challenging to undertake grounded theory well as it involves stages of collecting data inductively then testing elements of theory in a cycle. It can be seen as “messy” (Suddaby 2006) as it is an interpretive process and involves creativity to understand in an interpretive way, with no prior influences from theory. For this research, grounded theory was rejected as there is a wealth of existing research which, though not directly applicable to the research problem, could be transferred from three existing fields of literature. As such it was not possible to maintain a pure abstention from the existing literature and rely upon grounded methods to provide new insights. The literatures used as the foundation for this study include innovation theory, operations management and change management – the point of intersection remains at a stage of immaturity especially within the context of health and care systems. These could be used to create a theoretical model which could then be updated and would evolve from the results of the data collection and analysis. The research would be insufficient if it did not include these existing theories which work well within those fields and were likely to be applicable. It is not an approach however which suits grounded theory and generating themes from observations and perceptions so thus the method was not used.

#### 3.4.1.4.1 Case Study

The case study strategy has been used successfully for many social science research projects over the last 60 years and more. Case Studies are considered a flexible strategy capable delivering understanding in a range of issues across disciplines and especially for social science research (Harrison, Birks, Franklin, & Mills, 2017). The case strategy can be located in either pragmatist or realist philosophical traditions and is suited to new research areas (Rowley, 2002). Case study research is a popular method in various fields of management research including operations management (Stuart et al 2002, Flyvberg 2006, Thomas et al 2008).

The origin of theory building is not developing a hypothesis (predictions based on an ability to control the subject under study) but its value comes from generating assumptions, frameworks, concepts and understanding the research problem. A stronger theory results where it has been grounded in a holistic and grounded foundation (Yin 2013). Producing a theoretical framework is one way of achieving this grounding, where a literature review leads to presentation of all the ideas which are pertinent and the relationships between them (Voss et al 2002). It also highlights to the researcher what is not present in existing theory, the gaps in the existing knowledge which can be addressed by the research. This research adopted the approach above and produced a theoretical framework as the structure for the development of new knowledge. The case study method appeared a good way of following the literature review and theoretical model, to use a smaller number of cases to explore ideas within the model in depth leading to new theoretical elements, relationships and an updated model which better answers and explains successful service innovation and improvement programmes.

Some authors describe all research, at some level, as being a case study and the highest levels of theorisation attempt to find concepts applicable in all cases. Therefore, every study has some elements of case study research. Researchers use any number of smaller cases, a sample, through which concepts arise or are tested, and an assumption made that this then applies to a broader class.

Case studies are commonplace in management research; and in improvement and innovation programme research. Many studies focus on one particular case of intervention, for example

(Casey et al. 2017). These are in depth explorations and highlight the benefits of case study research as its ability to understand issues that relate to one particular set of circumstances. The limitation therefore, is that generalisability between cases and beyond the cases included can be difficult (Yin, 2009). Other studies look at many cases. For example, Carter, Fletcher, Sansom, Warren, & Campbell(2018) undertook an evaluation of one improvement programme in NHS organisations intervention using 61 case reports completed by medical staff. This creates one large case of one intervention used in many settings. Other forms of data collection were used to supplement and triangulate, supporting findings reported.

The case study method is rounded and holistic (Barratt et al 2011). It has three strengths which resulted in its selection for use in this study (Meredith 1998). These are firstly that theory is generated through observing phenomena in its natural setting. Secondly, why what and how questions can be answered in the context of the overall phenomenon. Thirdly, the method is suited to exploratory research where little is known and the purpose is development of new theory.

There are three types of case study; retrospective, current and longitudinal (Voss et al 2002). There may be multiple times where data might be collected or that clarification from participants might be required, but in general the approach of this study was not to follow one case over time. The case studies for this study involved several recent or live examples of service improvement and innovation programmes. This would improve the ability of the learnings and knowledge created to be generalisable on a wider basis.

There are at least four different applications of case study research (Yin 2014). The first is to explain the possible causal links in real-life interventions that are too complex for survey or experimental strategies. This is the situation for this research where survey would be useful as a second phase validator but not to understand fully the complex dynamics of what is driving improvement and innovation programmes in complex organisations. A second application is to describe interventions and the real-life situations in which they occur. Thirdly case studies can be used to evaluate programmes or projects. Fourthly the case study strategy is used to evaluate an intervention where it had no set of outcomes.

One further issue is selection of the number of cases to include in the study. It could include one case or many. The trade-off to consider is between depth and generalisability, with one

case study having depth and as others are added, this is diluted. The reverse is true of generalisability whereas further cases are added, the ability of the theory produced to be applicable more widely increases. The depth of a single case study in this study would not be offset by the lack of generalisable theory produced. The theory produced could not be easily exported or used by others if only one set of circumstances had led to its creation (Voss et al 2002). This concept is known as external validity and is the main reason why more than one study was later determined to be of most utility for this study and was duly included.

#### 3.5.3.4.1 Survey

Surveys are usually a method which is employed by researchers taking a positivist epistemological position and deductive approach (Saunders et al 2011). Surveys are the most commonly used as instruments to collect data in management research (Forza 2009) and most dominant in many management sub fields of study. They facilitate the collection of large amounts of data in an inexpensive and scalable way. It is possible for a researcher to reach a wide range and large number of potential participants by distributing a questionnaire.

A survey is the process or method of collecting data and the questionnaire is the operational mechanism of undertaking a survey. The method is quantitative in that the output is a number of frequency oftentimes based on a measurement scale, though these can be supplemented with open questions with a narrative. Surveys are also versatile in that they can be used as part of exploratory and descriptive designs, and also to test more specific hypothesis.

In summary, the researcher selected a multiple cross comparative case study approach where informants, representing organisations and interventions, could provide insight into the system in operation in Wales and also used to generate the key concepts by pattern matching.

#### 3.4.1.5 Time Horizon of this study

This study started in October 2016 and was designed using a multiple phase approach to answering the research questions. The actual research process has included three phases of research commencing with a literature review and development of a theoretical model, a qualitative phase of data collection and analysis, followed by a further phase of quantitative data collection and analysis (to show general patterns in behaviours). Such a design is

consistent with a realist pragmatist approach and the diagram below shows the timeline of stages:

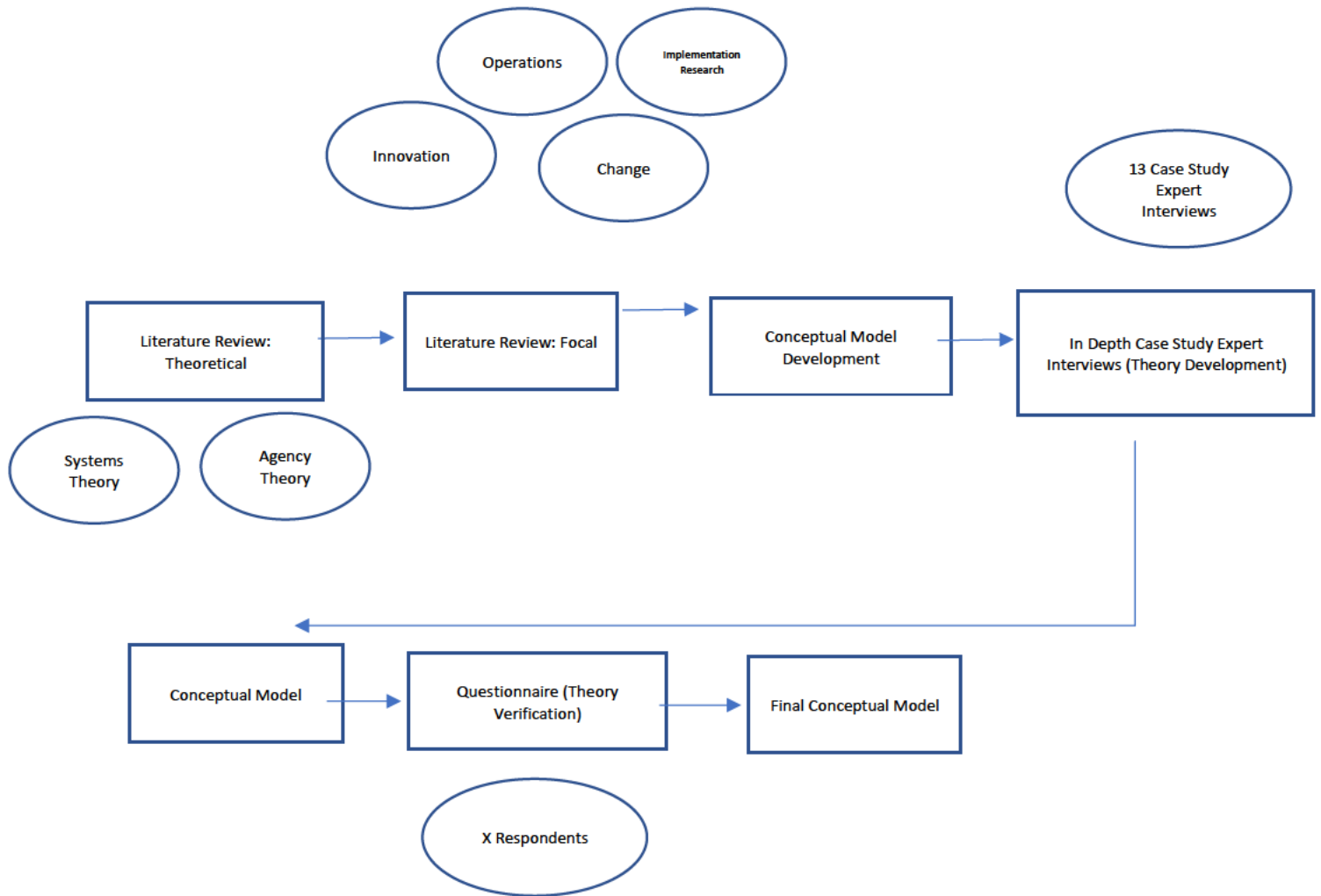


Figure 3.3: The Research Process

Source: The Researcher

The benefits of using a multiple case study approach after the development of the conceptual framework allowed the framework to be tested and additions made to the framework prior to operationalising a questionnaire to collect quantitative information to support the new model and academic contribution.

### 3.5 Multi Phase Mixed Methods Research

An evaluation and selection of different research methodologies and deficiencies with the extant body of knowledge led to taking an informed philosophical position and then evaluating specific methods for suitability and fit. This yielded a research approach consistent with the wider management field where a thorough literature review would first be conducted, followed by the development of a theoretical framework. Data collection could then be undertaken and analysed as the basis for developing a new contribution to knowledge. This approach is well used in many doctoral studies and would be easily defensible. A summary of this overall process is presented in the following diagram:

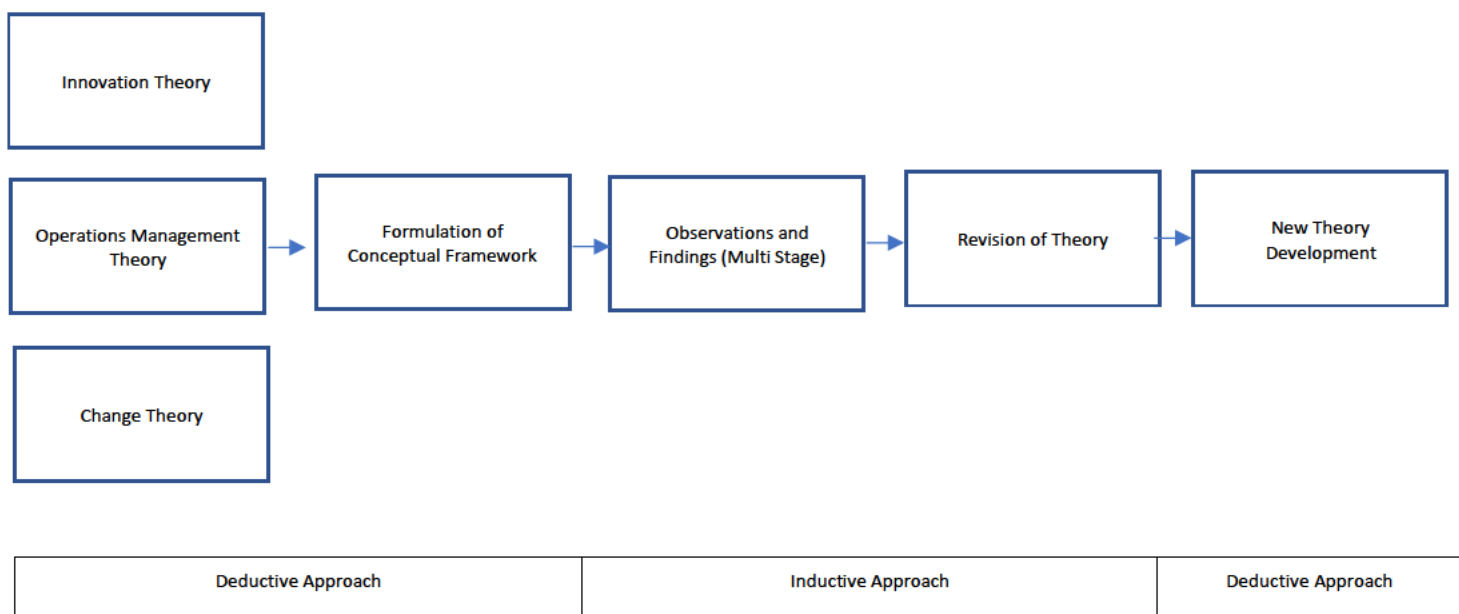


Figure 3.4: Research Journey

Source: The Researcher

The first phase of this research process pathway was to conduct the literature review and this is presented in detail at chapter two. Three broad fields of management literature were consulted; innovation, operations management and change management. This work yielded a framework, presented at the end of that chapter where the ideas relevant to explaining the drivers of strategic improvement and innovation programmes in NHS organisations were drawn together in one theoretical framework. Various repositories were reviewed including

iFind (Swansea University system which includes ProQuest and other proprietary databases) as well as google scholar. The search terms used included a mixture of words and Boolean strings .The review was constrained to the last 10 years of publications drawn from management and medical subject publications.

<b>And</b>	<b>Or</b>			
Innovation	Improvement	Evidence based practice		
Determinants	Enablers	Inhibitors	Factors	variables
Primary care	Healthcare	Secondary care	Service sector	
Model	Framework			

Table 3.4: Search Strings

Source: The Researcher

Two main concepts/variables were identified from that literature as driving successful implementation of innovation, improvement and EBP programmes. These were firstly internal ‘readiness’ factors describing how prepared an organisation is for change and secondly external relationships with outside organisations, including funders, commissioners of services and Government. This model can be found in detail at the end of Chapter 2.

The researcher however could not be sure that these concepts/variables represented the whole picture and there were also gaps in the existing knowledge which would benefit from being developed further. For example, the maturity of the relationships between the organisation and externally appeared to have a potential role in improvement and innovation projects, however literature was void of significant studies in this area. Similarly, nothing could be found on the roles of autonomy and trust and their impact on change despite these being present in more mainstream and established social science studies of organisations. From the very first initial contextual scan, the researcher felt the level of trust between the organisation and commissioners of services might play a role, as well as the sense that the organisation has of being the master of its own destiny in innovating and improving. However, surprisingly, nothing had been written on either subject in these highly powered fields which otherwise explained the enablers and inhibitors of change well.



The next stage of the research design was to select how data would be collected and analysed to explore these variables found in the conceptual model, allow for the development of new ones and then test the resulting theory developed. After careful thought, a mixed methods multi-stage approach was accepted by the researcher. This would have two stages, one qualitative and one quantitative. The first qualitative stage would explore the initial variables presented in the conceptual model but also be flexible enough to allow for development of others. A number of interviews of participants who were change agents in a case study would allow for this.

This initial phase could then be followed by a second phase of quantitative research. This second stage would allow testing of the new theoretical linkages developed in the first stage and triangulation between the two. The diagram below presents the detail of this approach:

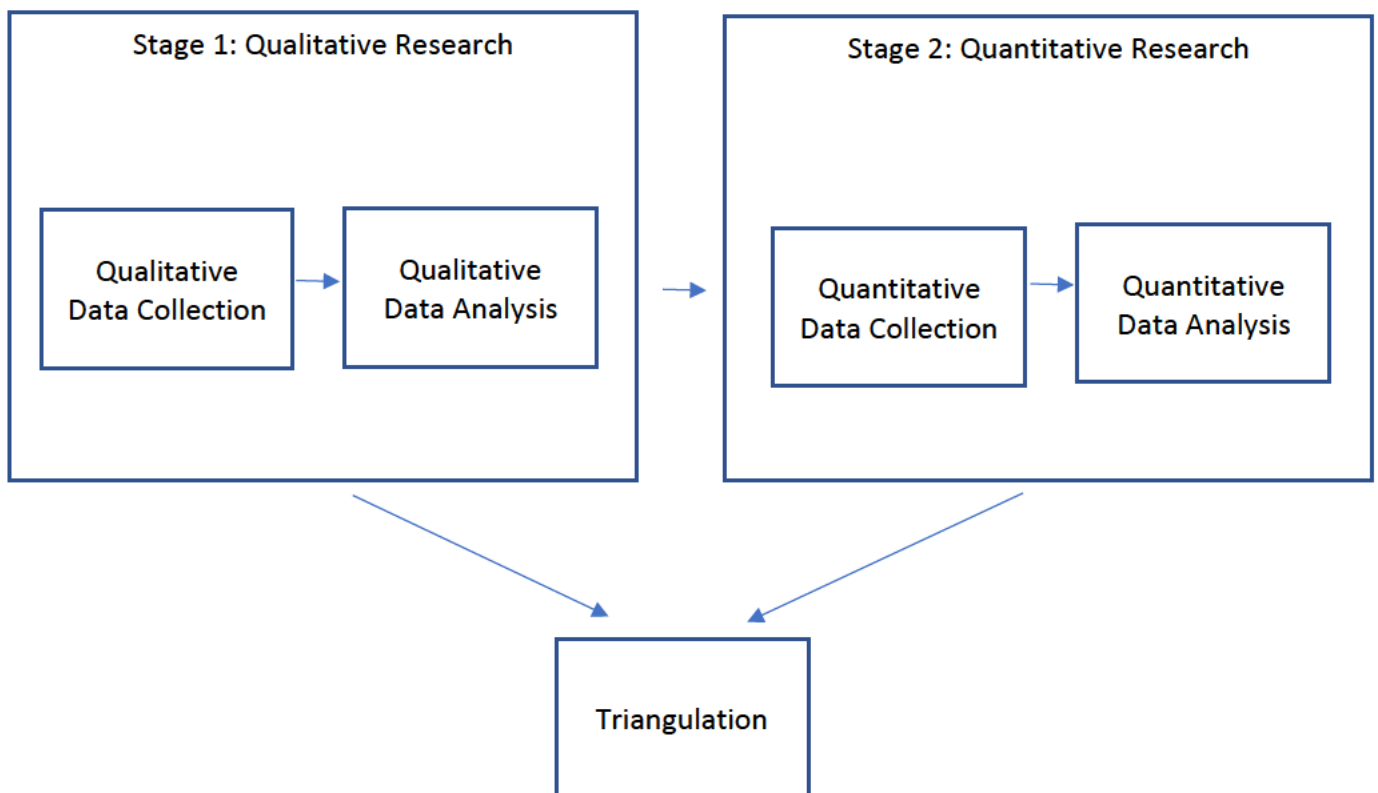


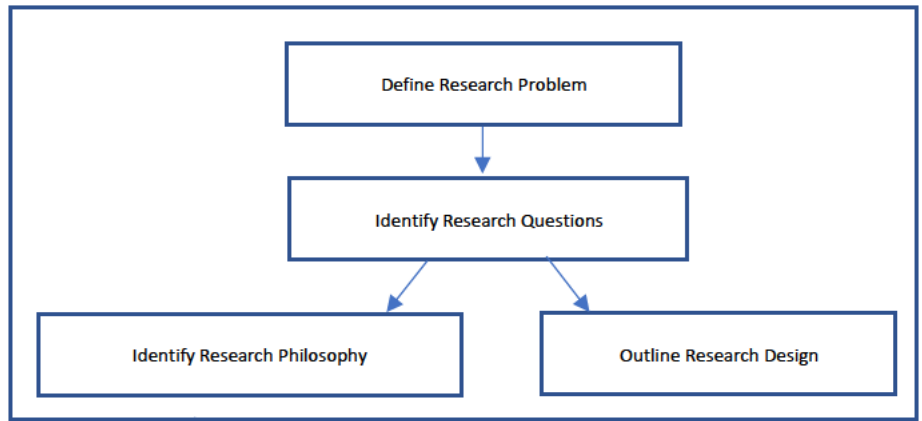
Figure 3.5: Triangulation of the Research

Source: The Researcher

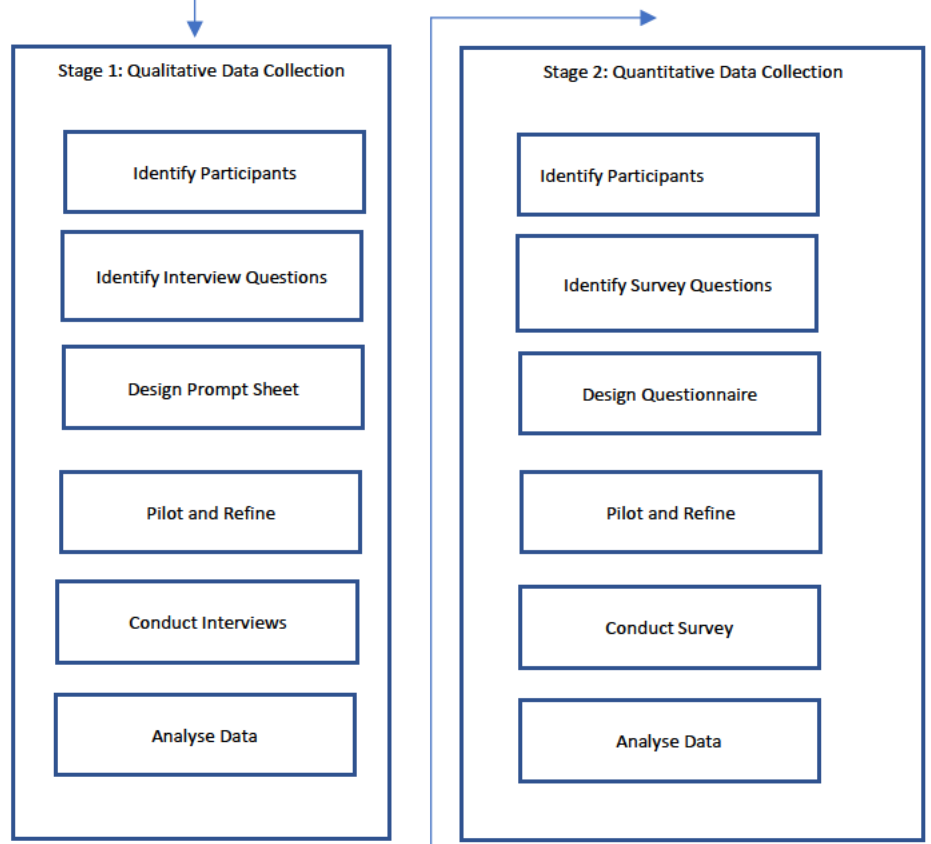
The use of both qualitative and quantitative phases and methods (with periods of reflection) in a mixed methods approach is aligned with many previous studies in the fields of focus and their associated research traditions. Qualitative studies tend to be favoured for theory building

work with quantitative methods used for validation and testing. This is what was accepted by the researcher for this study. The following sections of this chapter will detail these two phases of research in more detail, the rationale for their use and a defence of how they were used to arrive at the contributions made by this study. The following diagram shows in further detail, the phases of research adopted by the researcher:

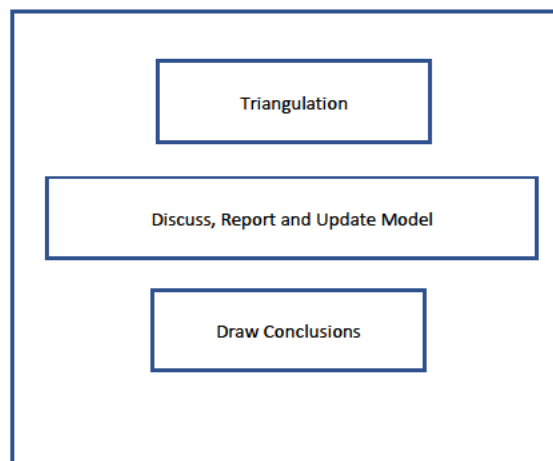
**Phase 1: Literature Review and Theoretical Model**



**Phase 2: Data Collection and Analysis**



**Phase 3: Interpretation of Results**



**Figure 3.6: The Theoretical Model Development**

**Source: The Researcher**

The initial phase of literature review has already been discussed in detail, the next phase of data collection and analysis will now be presented. The first stage (of two) concerns the selection of a small number of cases to a case study design and data collected through interviews with participants who were experts as leaders of service improvement and innovation programmes. This would involve a strategy for identifying suitable participants, designing an appropriate interview structure, piloting with one participant, reviewing and repeating with others. The data collected would be analysed using thematic coding, lead to reflection and updating of the theoretical model produced at the end of the literature review.

A second stage of research and second phase of data collection was determined to require a survey that would be distributed to a wider range of participants. This would involve again identifying suitable participants, though this would be easier as they would not need to be experts and for example may have been members of a team involved in innovation, improvement and EBP projects and not the leader of that team. The resulting data would again be analysed, this time by using quantitative methods which are discussed later in this chapter.

### 3.5.1 Phase 1

The objective of the first phase of research was to explore the enablers and inhibitors of implementation of innovation, improvement and EBP, through 11 qualitative mini case studies with change agents. These were accessed through semi-structured interviews, carried out with 13 participants. This would be followed by a stage of reflection and progress the conceptual model using the analysis of new data collected in this first stage. The purpose of this design is to address the ‘gaps’ in knowledge identified in the literature review and conceptual model. The approach taken where qualitative data is collected from experts who are experienced in leading implementation of innovation, improvement and EBP is consistent with the realist-pragmatist worldview and approach. It has the potential to develop a rich understanding of new theoretical relationships and is appropriate for theory building. This phase of research is about explaining and understanding, resulting in new theory, then reflected in the conceptual model presented.

A second phase would then follow to validate the findings of this first phase in the form of a quantitative survey. Mixed-method multi-phase approaches are recommended for studies where the primary purpose is new theory development (Fillis 2008).

#### 3.5.1.1 Purpose and Methods

A case study strategy, accessed by semi structured interviews, would develop an understanding from multiple angles and perspectives. This was chosen by the researcher for the first phase data collection strategy.

Qualitative data was accessed through semi-structured interviews. This was seen by the researcher as the most suitable method; in terms of sample selection and access to participants. It would yield high-quality in-depth data, where participants have a flexibility to provide accounts and narratives of their own implementation projects. It was expected these narratives would be valuable to explain many of the missing theoretical ideas and relationships not in existing literature (Denzin and Lincoln 2000). The use of semi-structured interviews was chosen as it is appropriate for exploratory research, rather than observation and focus groups for example (Jennings 2005). These would have taken significant time and been difficult to organise given the leadership and professional roles of the participants.

Semi-structured interviews were chosen rather than the two other formats of structured and unstructured.

#### 3.5.1.1 Number of Cases and Interview Participants

The number of cases and subsequent informants to select for participation, was an important issue for the researcher designing the first phase of research. The logical assumption is that as the number of participants rises and more expert opinions feature in the data collected, the greater the quality and robustness of theoretical outcomes harvested from that data.

Single company/Individual case studies are possible but limit the richness of understanding and potential grounds for generalisability of the research outcomes. The results can only be said to be specific to that case. Yin (2014) notes that multiple-case designs are likely to be

stronger than single-case designs. A single case design was unlikely to be suitable for this study. A two-case design provides doubly more informative than a single case study, with multiple case studies being more compelling and robust than two due to the identification of common patterns across those involved (Herriott & Firestone, 1983). The only time where a single case study is preferable is where the case is unique (Yin 2014) however this is unlikely to have outcomes which generalise wider than that case. There is also a situation of diminishing returns where, after a point of “researcher saturation”, further participants add little further information. It is this which is known as theoretical saturation. Case studies are suited to mixed methods studies (Eisenhardt 1989) and further stages of research can be used to validate results.

Two prominent and robust sources were followed in selecting the number of participants for inclusion. The first of these is Yin (2014) where it is suggested that four cases is enough to reach theoretical saturation and develop new theory. For this study, the cases were not unique and plentiful. There are a wealth of implementation programmes which are likely successful or failing for a wide range of reasons. The selection of four cases seemed limited to the researcher and it would take significant time per case so 20 or more would be unrealistic given the time constraints of the PhD journey. There was also the issue of suitable participants being in short supply. Therefore 11 was considered a legitimate number on which to defend the robustness of the findings (Yin, 2014). Searching for further cases was halted at this point due to the researcher reaching a saturation point whereby cases eight, nine, ten and 11 added no new insights and merely repeated the common patterns found at cases one to seven (researcher saturation point). The researcher felt that the data collected was extensive and justifiable as no new knowledge was being created. The point of saturation meant no new ideas had been added and repetition was seen in the data themes and responses.

The second expert methodological source used to inform the design, was Eisenhardt (1989). This author suggests between 4 and 10 cases but also that, in fact, the number of cases is not important. She proposed that the number should be enough to reach theoretical saturation whilst meeting resource constraints of the researcher, as well as by “pragmatic factors like data availability, cognitive limits, and time” (Eisenhardt, 1989). It was decided that 11 cases was enough as repetition started to feature in participant responses and was clear that theoretical saturation had occurred.

### 3.5.1.2 Informant Selection

The mini case studies were operationalised through semi-structured interviews, with participants purposively selected (by the researcher) from a range of primary care organisations and individual roles within the NHS. These were considered by the researcher, to be most likely to generate expert professional insights into implementation of innovation, improvement and EBP programmes in primary care organisations, specifically their enablers and inhibitors. A range of organisations and differing roles would hopefully lead to a range of perspectives.

There was also an element of “snowball sampling” as one participant who met the criteria for selection, would inevitably know other colleagues with similar roles and responsibilities. They would often also know other adjunct roles which added depth and wouldn’t have been accessible otherwise.

The cases offer a diverse selection of primary care organisations and implementation projects, within NHS General Medical Services contracted practices feature most strongly (seven cases and participants). The researcher was also keen to introduce any other potential cases and participants from organisations and roles that might give different perspectives. The remaining six participants therefore, were drawn from the Local Health Board Primary Care Leadership Team, a Local Health Board Analytics specialist responsible for the data underpinning primary care improvement projects, an Out of Hours GP service providing primary care outside of practice opening hours, the Welsh Ambulance Service Trust (WAST) (now responsible for delivering primary care services on an outreach basis in partnership with primary care providers) and Babylon Health, an innovative digital first primary care provider which now delivers NHS contracts.

The seven primary care provider cases and participants were practices mainly located in South West Wales. The majority of these were from the Swansea area with two being from Pontypridd and Maesteg areas in the South Wales Valleys. The six other participants were more broadly spread amongst primary care support services such as Out-of-Hours Primary Care and its All-Wales provision.

The interview informants were experts by the nature of their experience in leading improvement and innovation programmes in the NHS organisation and primary care setting. This type of interview encourages the interviewee to set the content of the discussion, whilst having a loose semi-structure allowing the space for digression and drawing on their expertise (Bogner, Littig, & Menz, 2009).

The specific criteria for selection in the study as a participant was:

1. Part of a mini case study where implementation of innovation, improvement or EBP had formed part of a project they were involved with at a facilitation level
2. Employed or role within healthcare and direct or indirect delivery of primary care (for example Welsh Ambulance Service Trust do not deliver primary care directly but did have a role in the patient journey for all care providers).
3. Experienced in implementation projects and/or primary care management or leadership. No set number of years experience as arbitrary and potentially limiting. One potential participant was part of a high potential leadership development programme and registrar surgeon. He would not have qualified as having 5+ years experience but was currently involved in implementation to an expert level within two organisations and clearly could add value to the research.
4. At least one major implementation innovation, improvement or EBP project completed

Having created the informant selection criteria, the next stage was to create the interview instruments and protocol.

#### 3.5.1.3 Expert Interview as a Method

Expert interview, particularly in exploratory research is a more efficient and concentrated method of gathering data than participatory observation or quantitative surveys (Bogner et al., 2009). The word expert is often used interchangeably with elite (Woods, 1998). Experts are persons who have specialised information about or involvement with any social or political



processes and the researcher “must be willing to let the interviewee teach him what the problem, the question, or the situation is” (Dexter 1970). Ultra-elite is also a descriptor of participants who represent an elite within the elite (Stephens, 2007). Someone is declared as “elite” as a result of their position whereas to be an expert implies that their opinion is held in high esteem. Interviewing experts was considered the best fit for this study by the researcher. General Practitioners were an obvious starting point, however there were other experts who could also be included to give multiple angles to view primary care and provide depth in data collected.

Silverman (2001) has provided insight used by other similar studies (Diedrich 2014) where expert interview has been a primary method. This includes guidance, as adopted by that study, that:

- Research often does not have to reveal hidden detail but instead collates what is normal to those taking part in research.
- Interesting insight is often not considered interesting by participants, to who the information provided might seem obvious.
- It is best to avoid making preconceptions or to compare data to what we perceive participants do or describe.
- There is no distinction which can be made in authenticity, different participants may describe aspects differently.

The expert interview approach was followed and adopted to exploit a context-rich semi-structured interview methodology. Participants led the discussions with the issues which they felt were relevant with the researcher purposefully allowing this. There was a high degree of specialist knowledge and experience among respondents. This approach featured within the overall semi structured interview design, to access the mini case studies.

#### 3.5.1.4 Interview Structure

The researcher reviewed the quality assurance methods needed to meet the theory-building considerations when using the expert interviews. These conditions are summarised as follows:

##### 1. Rapport

Rapport and creating a good working relationship with informants involved gaining trust is important in the first instance when selecting and engaging an informant. Gaining trust was an important consideration in deploying this method as it would be difficult to collect data of use unless participants trusted the researcher. Liu (2018) reports in the context of a doctoral researcher how this may be built and asserts that the method of access is often a first stage to building trust, in this research many participants in turn became introducers themselves. There was no formal sampling method other than that the participant should be considered an 'expert' by their experience leading improvement or innovation programmes in primary care organisations. In the case of the data analyst, this was not a leadership role but nonetheless a specialist expert role. As the number of participants increased it became clear that experts were not necessarily General Practitioners. These participants added different dimensions which could be combined to create a rich and holistic picture of the dynamics of change in primary care improvement and innovation projects.

##### 2. Recording or not

The researcher reviewed the means of data collection during this stage and there was an option to either record discussions fully or take detailed notes. The benefits of electronic recording outweighed the technical issues of using the method. Electronic transcribing would enable the researcher to transcribe and code meaning as advised by most methodologists as a robust approach at a later stage so as to concentrate on what was being said. The approach allowed full detailed speech to be captured and analysed/coded without any detriment to the sentiment expressed by the informant. Qualitative analysis concerns the ways people perceive the world around them and how they express this perception, this is only possible if detailed words are present to analyse and the researcher favoured the use of electronic recording. Therefore, wherever possible recording was the norm.

### 3. Interview Structure

There are three basic possible structures; structured, open or semi-structured. Semi-structured was chosen, combining open and closed questions to introduce themes and let the participant build on themes in ways important to them. It was felt discussion should develop like conversation in ways suggested by them. This is a key feature of expert interviewing as opposed to normal interviewing of research participants, letting the interviewee introduce what they regard as relevant (Bogner & Menz 2009). Expert knowledge has its own traits and needs its own methodology, though the mechanics compared to standard interviews are similar.

#### 1. Duration

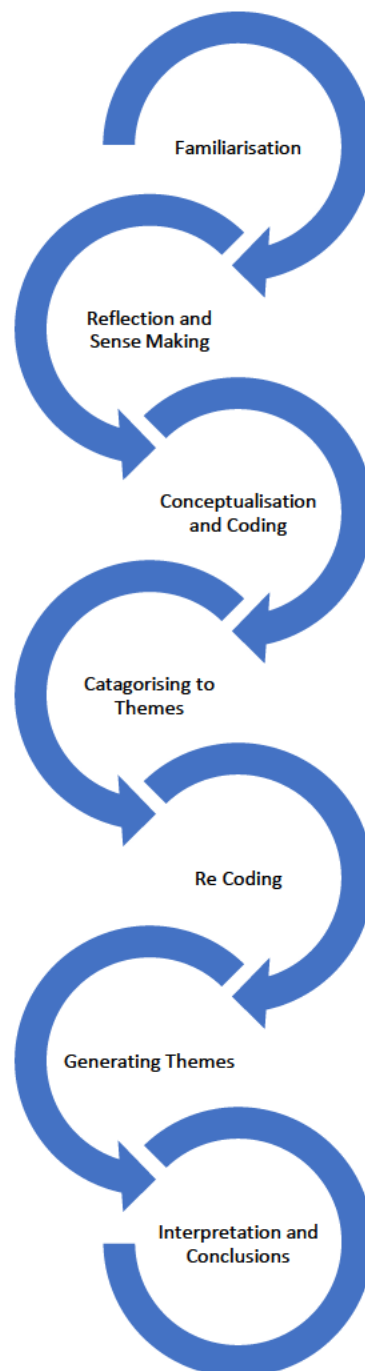
Interviews of expert participants may take less or more time dependent on the discussion itself (which is determined by the informant) and availability (Bogner et al., 2009). It was found that the most knowledgeable participants were often the most highly committed in workload. There appeared to be a balance between length of duration planned and willingness to commit. Therefore 40-60 minutes was suggested, with the lowest being 28 minutes and highest one hour plus. The shorter interview was perhaps one of the most interesting but could not offer any more time.

#### 1. Telephone or face to face

Originally it was proposed that all participants would take part on a face to face basis. This had implications in terms on travel and limited participants to those in travel distance. It also became clear that telephone discussions were equal or better quality as well as more convenient for participants. Therefore a mix of modes ensued where at the preference of the participant they could either be seen or discussion via telephone.

### 3.5.2.5 Phase 1 Analysis

To interpret the data collected an analytical process of moving from raw data to new theory is needed. The researcher used the robust approach of thematic analysis to do this and the detail is presented in this chapter. To interpret the data collected a process of moving from raw data to new theory is needed. The researcher used the robust approach of thematic analysis to analyse the qualitative data collected in phase 1. Thematic analysis as a procedure and its supporting justification is presented as follows:



## Figure 3.7: Thematic Analysis

Source: The Researcher

### **Step 1: Familiarisation**

The recordings taken were transcribed into word documents which was read multiple times for accuracy. A full conversation could be analysed for all but two participants. This allowed the transcriptions to be coded so that a thematic content analysis could take place. The data was then reviewed focusing on the research aim and objectives.

### **Step 2: Reflection and Sense Making**

The second step was to make sense of the data in the context of the literature reviewed. There were some *a priori* codes from the thematic framework and further reflection also gave a feel for if current knowledge was consistent to data collected. It also may show differences or gaps for exploration. In the literature, it was clear various determinants were featured relative to implementation of innovation, improvement and EBP, where improvement to existing frameworks could be made for primary care. It was assessed if the data could fill this gap. It was also kept in mind if this data were unique compared to other studies which appeared to be the case.

### **Step 3 Coding**

The coding and reduction stage involved taking data and organising into some form of order. A label is attached where similarity occurs (Easterby-Smith 2011; Symon and Cassell 2011). In practical terms, the researcher highlights parts of the text that it is thought are relevant to the research question and a label or code is assigned. Others can then be coded with the same code. The themes and concepts then come from grouping these codes, categories and sub categories.

Open or initial coding (Strauss and Corbin 1998) involves text that is read 'line by line' and codes assigned by the researcher. This is, in practice, a messy exercise and codes are often provisional descriptions. It does however allow flexibility and free thought. The codes

assigned can change merge or be grouped later, the closeness of the codes to the raw data increases the reliability of the analysis (Thomas 2006)

A coding guide was created (as per the recommendations of Saldana 2009) for consistency and was refined many times as new codes were added as well as existing ones evolving. An example for two themes can be seen in the appendices.

#### **Step 4: Categorising to themes**

The purpose of open coding was to develop core themes (Miles and Huberman 1994). The data is highlighted to bring together the ideas which “systematically interrelate” to develop theory (Corbin and Strauss 2009). These could be identical and reinforcing of one another, or opposing ideas of the same theme as we see between General Practitioners and policymakers. After initial coding, the second process then involved moving to higher level ideas by grouping basic codes and batching into higher-level codes (Corbin and Strauss 2008) sometimes called tree coding (Bryman and Bell 2011) or pattern coding (Miles and Huberman 1994)

In doing this the researcher is interpreting what is happening from different perspectives in the data. Particularly in this study it was interesting to see the different descriptions of determinants affecting successful implementation of innovation, improvement and EBP within the delivery of primary care and how these tensions interact within in primary care systems. More prominent themes are moved to higher level codes.

#### **Step 5: Re Coding**

The coding process was iterative and continuous as more expert interviews were collected and ideas generalised. Therefore there was a progressive and sometimes haphazard refinement of codes. (Saldana 2009) provided most of the guidance to the researcher and stresses it being continuous and evolving, comparing data and codes (Corbin and Strauss 2008). Both the Guidance of what should be coded into each category and the transcripts for coding were revisited several times.

## **Step 6: Generalising Themes and Mini Theories**

Step 6 took the sliced data and looked for concepts through patterns and relationships which could be seen. These can be seen in the results chapters and forms much of the results. These are split into six themes.

## **Step 7: Interpretation and Conclusions**

The objective of thematic coding is to explore meaning in the data collected to arrive at a conceptual framework or theory which is perhaps applicable more widely. This research proposes conceptual outcomes based on a thematic analysis where inductive reasoning is the main driver. This coupled with an increasing feel for the data as the research progressed, familiarity with the context and experience of the research area (Lincoln and Guba 1985). The result is a framework based on auditable data trail blended with contextual understanding and framing.

The coding exercise led to categories and themes resulting in the structure of this thesis. Each transcription was read and reread with codes being assigned. These were aggregated to categories and these aggregated to themes. The diagram below shows this:

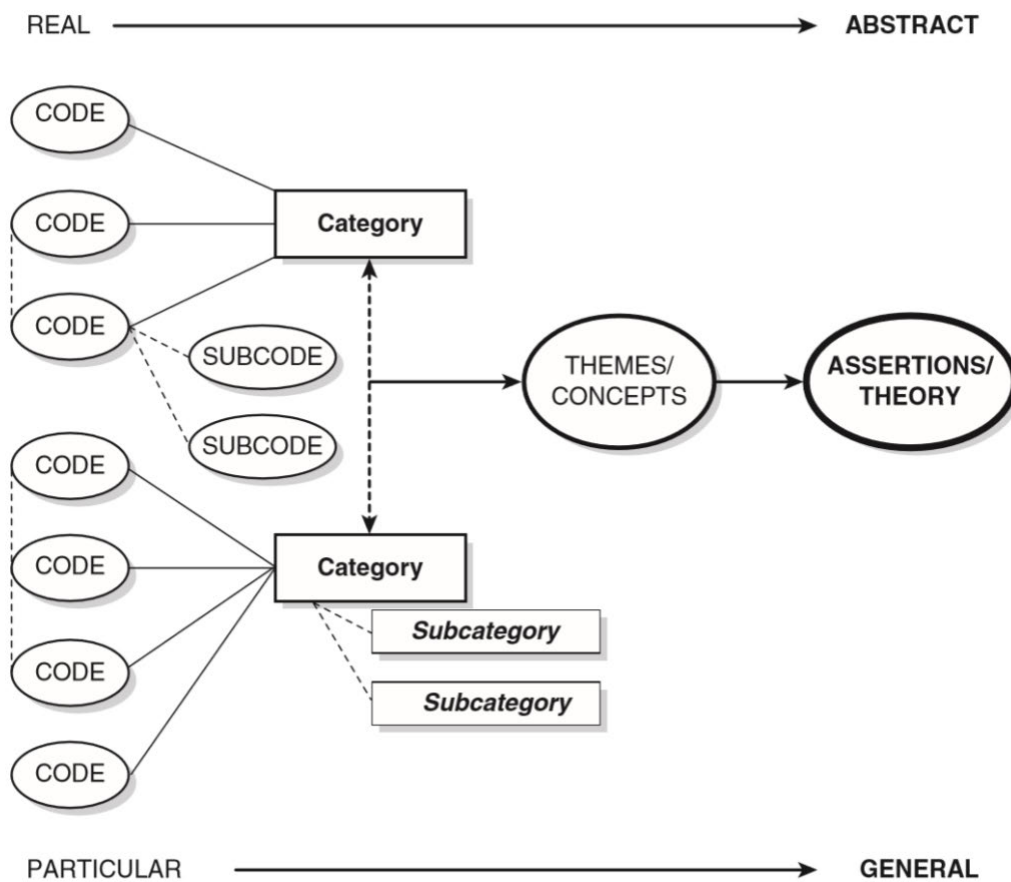


Figure 3.8: Process of coding to generating theory

Source: (Saldana 2009)

### 3.5.2.6 Validity and reliability

The researcher, at each stage of the operationalised research methodology and in its design ensured that data was reliable and validity to ensure the quality of the research and its findings. To achieve this the researcher was highly disciplined in asking questions and collecting data in a consistent manner and ensuring informants knew the definitions of vague concepts. The validity of any concepts used was tested for accuracy by comparing transcripts which defined the same or similar concepts. The use of validity and reliability were also enhanced by a transparent description of the methods, questions and validation of interview by the informants themselves. The full declaration of the methods used throughout this chapter also increases the replicability of this study by future researchers conducting data collection in the same or a similar setting.



### 3.5.3 Phase 2

After significant reflection on the learnings from Phase one and also from what the literature predicted would be found, the researcher designed and executed phase two of the research. The objective of the second phase of research was to test and validate the results of the updated theoretical model, produced in the first phase. A questionnaire was developed and administered to potential participants and Y responses received. Responses were analysed and led to validation of the proposed model of implementation of innovation, improvement and EBP in primary care.

Adopting a survey design was appealing to the researcher as a second phase method as it is one of the most scalable options available. The Qualtrics software could be used to design a questionnaire and send to many participants electronically. These could be prompted and followed up to improve response rate by email, which the researcher expected may improve the response rate. The questionnaire method would also address the so-called interviewer effect (Bryman 2011), where the responses given by participants are potentially influenced by the interviewer. This phase of research also took place during the Covid 19 pandemic and being able to send out and receive responses to questionnaires meant the research could continue unhindered where it otherwise might have had to pause.

The rationale for including the survey design can be found at section 3.4.1.4.2, this section now details how the method was operationalised, to deliver a robust set of contributions to knowledge.

#### 3.5.3.2 Questionnaire design and purpose

The design process used to develop a questionnaire for this second stage of research is as follows:

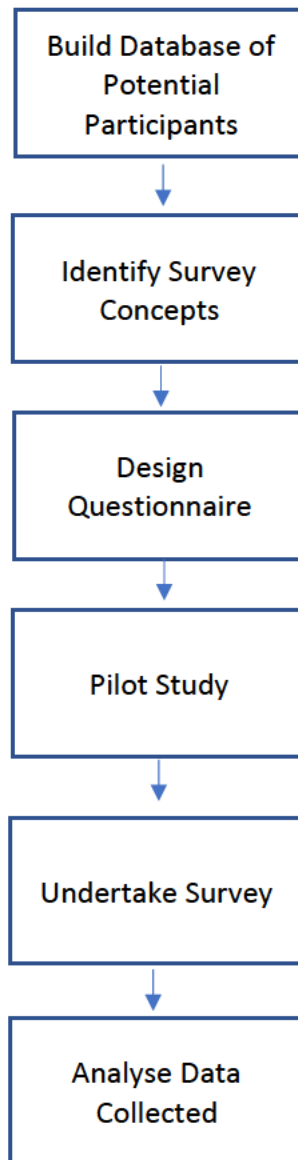


Figure 3.9: Stage 2 Survey Design

Source: The Researcher

### 3.5.3.3 Respondent selection

The first stage was to build a database of potential respondents. In practice this was to assess the number of viable practices in Wales and set eligibility criteria. The eligibility criteria, set for respondents, were:

1. Experience of a successful or unsuccessful implementation of innovation, improvement or EBP programme.
2. Role in primary care- including medical, dentistry, optometry, pharmacy and any job role. This would provide a diversity in perspectives within organisations about the enablers and inhibitors of successful innovation.
3. Participant or leader of a change team

This criteria for participation were chosen to maximise the number of viable responses. The number of potential respondents was quite small. There are some 370 general practices in Wales and realistically only one implementation programme per practice. This would therefore mean a potential unique response rate of around 370. The researcher felt that if more than 50 were received, this would be success given workloads and pandemic.

The three areas of dentistry, pharmacy and optometry were added as these were felt by the Welsh Strategic Primary Care Programme to be equally important as medical services. In practice this did not provide maybe additional responses, maybe because there are organisational structure differences. Medical and Dentistry contracts are usually held by small providers. Optometry and Pharmacy are often provided by regional and national private organisations, which does not preclude implementation in similar ways to medical at the local level but will inevitably have some potential differences as a result of the corporate structures.

A number of respondents were drawn from attendees at two conferences hosted by the Swansea School of Management in the year 2021. The respondents attended conferences concerning service improvement and primary care. The researcher has no relationship with these informants. The questionnaire link was provided to attendees and completion was

voluntary for each informant. Informants were offered no inducement to complete the questionnaire. All informants were anonymised and there was no option to input the informants name nor receive a copy of the final report.

#### 3.5.3.4 Improving Response Rate

The purpose of the questionnaire is to gather data from participants in a scalable way. The key factors in the success of collecting that data are selecting the most appropriate participants for inclusion and improving the rate of response. The first is to gather high quality data from participants who meet a pre-set criteria for inclusion, which the researcher believes makes their opinions and perceptions reflective of reality. The second factor is taking steps to ensure as many participants who meet the inclusion criteria are reached and of these, as many as possible respond. The inclusion criteria and sampling structure for this study can be found above, this section looks at the measures taken by the researcher to improve the response rate. Bryman (2011) suggests a number of measures which can be taken to improve the response rate of a questionnaire. These are as follows:

1. A questionnaire should include a covering letter explaining the aims of the research, the criteria for inclusion of participants and how it should be completed (Easterby-Smith et al 2002). In this study an email was sent to participants with a standard introduction and this repeated at the top of the questionnaire in Qualtrics. This would ensure the same message reached participants where the questionnaire might be sent by one a participant to another, who they identify as meeting the inclusion criteria. The questionnaire distributed and its introductory text can be found at the appendices.
2. Returning the questionnaire has traditionally been a potential barrier to receiving responses where a stamped addressed envelope would be needed and therefore it was suggested to always supply one of these with questionnaires. Now the majority of questionnaires are produced using software such as Qualtrics the process of sending and receiving responses is instantaneous. The researcher also made a link available so that if one participant identified other colleagues who were suitable, they could forward them the link so they too could participate.

3. Reminders and follow-ups by email and calls to non-responders is the next measure Bryman (2011) suggests to improve response rate. This study followed up each non respondent twice by email to those who needed a nudge.
4. Bulky questionnaires which look insurmountable to the respondent may also have a barrier effect to responses according to Bryman (2011). The Qualtrics software has a score to predict how user friendly the questionnaire is, this uses their own specialist understanding of questionnaire development and was adopted by the researcher as a proxy for how user friendly the questionnaire is.
5. Including open questions can yield rich data but also be an impediment to responses. This questionnaire did include open responses but only where the quality of the data would be improved as a result and to a minimum. Instead scaled responses made selection of answers easy and questions involving many statements allowed for a large volume of data to be collected whilst still being manageable for the respondent.
6. Monetary incentives are an option to improve response rates. However, though this improves response rate it is not without ethical issues; it may also influence the data collected and the researcher decided not to offer any monetary incentive.

All the considerations were reviewed and monetary incentivisation was eliminated as unfeasible and undesirable. With this exception, all other propositions were used to ensure a good response rate.

#### 3.5.3.5 Identify Survey Concepts

The concepts to be tested in the survey, were a natural progression of the theoretical model designed in the first stage of research. This can be seen at the end of chapter 5. The concepts were therefore pre-loaded from these two earlier phases of work. Firstly the literature review, then refined by the first phase of qualitative research was used to ensure any concept or construct was tested in the questionnaire (with multiple questions relating to any concept so as to expose any variances in understanding and consistency).

### 3.5.3.6 Questionnaire Design

The survey as a research method is usually part of a deductive research design and positivist (Saunders 2016). This is consistent with this thesis, which takes a realist-pragmatist stance. The first phase of research was an exploratory and inductive one, theory building. The purpose of the second phase was to test the model with a more positivist, deductive approach. It is also relatively easy to operationalise, design and scale to collect large volumes of data (Bryman and Bell 2015).

The first design choice was to select the type of survey, of which there are three (Forza 2002). These are:

1. **Exploratory:** Used for developing initial insight into a new area of study. This was not the case for this research design, as there had already been a first phase of theory building using 11 case studies accessed through semi structured interview. This had produced a conceptual model which had the main groupings of themes being organisational readiness, the innovation, improvement or EBP itself, relationships between the facilitator and external stakeholders and the external environment. As these had been established, the purpose of the survey was to test these; does the model achieve its objective of explaining the enablers and inhibitors of implementation.
2. **Descriptive:** Used for theory building and refining, this type of survey is used to generate descriptive statistics which develop understanding (Malhotra and Grover, 1998). The purpose of this survey was to develop and test a model and so parts of this type of design were relevant.
3. **Explanatory:** This type of survey is used to test causal relationships between known variables. Where there are predefined constructs and relationships between them are hypothesised (Saunders et al., 2016; Forza, 2002). The purpose of the survey is to prove or disprove causal relationships. The model created in the first phase of research follows a type of model which has emerged in the implementation science literature, known as a deterministic model. This does not suggest implementation is a process but recognises the very complex environment and interrelated causality between known factors and the chaotic and complex contexts in which

implementation occurs. Therefore this type of survey has some relevance also. Its purpose is to prove causal relationships between each of the innovation, improvement and EBP.

	<b>Exploratory</b>	<b>Descriptive</b>	<b>Explanatory</b>
<b>Unit (s) of analysis</b>	Clearly defined	Clearly defined	Clearly defined
<b>Participants</b>	Representative of the unit of analysis	Representative of the unit of analysis	Representative of the unit of analysis
<b>Hypothesis</b>	Not needed	Questions to be stated	Hypothesis to test from literature or model
<b>Sample representativeness of the population</b>	Not a criterion as attempt is to develop understanding and not to show causality	Sampling method can be systematic, purposive or random selection	Sampling method can be systematic, purposive or random selection
<b>Sample size</b>	Sufficient to include the range of the interest phenomena	Sufficient to represent the population and conduct statistical analysis	Sufficient to test categories in the theoretical framework with statistical power

Table 3.9: Comparison of three types of survey

Source: (Adapted from Forza 2002)

The researcher determined the best option was to design the survey would be descriptive-explanatory, with features of both of these types of survey. In the main, it would be an explanatory survey, looking to test the causal link or presence in the model of the concepts and variables identified in the first phase of research. It is testing the causal links between the theoretical constructs in the model produced using the literature and first phase of theory building, leading to the model presented at the end of chapter 5. The explanatory survey achieves this in a way which is easily operationalisable and realises the time pressures and workloads of participants working in primary care.

The sample composition is the respondent representation as a proportion of the population. The sample should provide an accurate representation of the underlying population, this is known as statistical validity (Bryman and Bell 2015, Saunders 2016). The researcher could have used each of the types of sampling suggested in the table above for explanatory research; systematic, purposive or random. Purposive is non-random and was the selected method for this survey, as the criteria for selection was limited. It would not be possible to select at random. The total population of staff who complied with the selection criteria and this is declared as limitation of this phase but does not devalue the contribution of this phase which was to add greater insight from phase 1 and to understand the strengths of enabling and inhibiting factors for successful innovations.

There were three approaches used to recruit participants:

1. **National Strategic Programme for Primary Care:** A national strategic programme with access to each primary care cluster and practice in Wales was consulted.
2. **Bevan Commission:** Swansea University School of Management facilitates the Bevan Commission and the network of stakeholders, exemplars and conference attendees had many eligible participants.
3. **Snowball from case study practice colleagues:** participants from the first phase of research had colleagues who met the eligibility criteria and suggested forwarding the survey to them

A range of questionnaire distribution options were available to the researcher. These included post, telephone, face to face and online. The post option is now outdated and was discounted as it would be less likely to achieve responses and have the added cost of postage. Telephone and face to face would have time costs and be difficult to scale. The Qualtrics online survey system was available to the researcher using a Swansea University licence. This specialist software allowed for the electronic design, distribution and export of data in a scalable way. This was chosen as the preferred method as it was easy to send a link to the survey electronically and allow participants to forward to other eligible participants.



There were five key aspects of the model to test from the literature review theoretical model as adapted and amended to the conceptual model after the first stage of research. These were:

1. The innovation, improvement or EBP itself: 9 variables of extent of innovation, usability, adaptability, complexity, innovation source, relative advantage, evidence strength and quality, trialability and cost.
2. The organisations readiness for implementation: 14 variables across 2 sub-categories of motivation and capability. The motivation category made up of 7 variables of engagement, motivation, culture, attitude to risk, leadership commitment, power dynamics and authority, collaboration and teamwork and past experiences of successful implementation. These are variables which impact the organisational motivation to engage in implementation. The capability theme was made up of the themes of planning, resources, skills and learning, monitoring and evaluation, structure and systems and mechanisms for embedding change. These are variables which impact the ability of the organisation to engage in implementation where there is a motivation to. These two themes together make up the overall readiness of the organisation to implement innovation, improvement and EBP.
3. The relationship between facilitator or organisation and external stakeholders: two variables, trust and participation.
4. The external environment: six variables of policy priorities, incentives and mandates, regulation, commercial contracts, political context and evolving requirements. These are external context variables with a low ability to influence and instead for facilitators to be aware of and respond to.
5. Successful implementation: the dependent variable impacted by each of these themes above.

For each of the variables, one item was created in the survey. This was so that each could be measured and a regression analysis set up. The Qualtrics proprietary software package was used to create 'blocks' of questions where items about the same theme could be grouped. The

only exception was the questions about successfulness, where five questions asked about the different dimensions and perceptions of success of implementation.

A five point scale was used as a measurement instrument. This ranged from 1- strongly disagree, 2- disagree, 3- neither agree or disagree, 4- agree, 5- strongly disagree. This was a scale suggested by the Qualtrics software and commonly used.

The first question was about participation and required participants to answer affirmatively to move to the rest of the survey. This was followed by collection of demographic data, to allow the researcher to analyse responses using demographics. For example, age or experience might impact perceptions. This was followed by four further sections, one for each of the themes above.

#### 3.5.3.7 Pilot Study

A small pilot was conducted, to test the survey. This involved 15 participants, who were known to the researcher through professional networks. The survey link was sent out and participants used this to access the questionnaire. It worked well as a testing process, showing the link to be a quick and easy way to distribute the survey.

One participant from the National Strategic Programme for Primary Care provided detailed feedback about the layout and presentation of the questionnaire. Over successive emails, a number of amendments were made to the format and presentation. These included further checking to see if validated scales existed and where not, amending the wording if needed so that that target audience would understand meaning.

The specific points updated in the questionnaire as part of this exercise were:

1. Reconsidering and updating a question about average age in the demographics. This might be better structured to address the core point of if age profile of facilitators impacts perceptions of implementation
2. Updating the positioning of blocks of questions and flow of questions within blocks

3. Rewording five questions to improve meaning, where clarity could be improved
4. Grammatical errors corrected in various questions

#### 3.5.3.8 Deploy and Disseminate the Questionnaire

The Qualtrics software was used to distribute the questionnaire using a link. This was sent by email and makes for a short explanatory section. Participants would click the link to access the survey, cutting out the need to post or undertake by phone or in person. This approach was scalable and easy for the researcher to organise. It had the added advantage of being easily scalable, with eligible participants forwarding to colleagues. This informal “snowball recruitment” complimented the researcher recruitment of participants using the three channels suggested above.

#### 1. Phase 2 Analysis

The analytical methods used to refine the data from this phase included regression analysis and the use of the following tests of the data collected. These tests included:

- **Descriptive Statistics:** Highlighting features of the data using tables and graphically to show and explain the data. This was employed within this study to understand, for example, the demographic of respondents and to summarise the distribution of responses.
- **Correlation Analysis:** explores if a relationship exists between two variables and if so, if the strength of the relationship. This is useful as a tool of analysis as it shows the researcher how one variable is moving relative to another and if variables are too closely related they may be interlinked.
- **Regression Analysis:** This was the main analysis and is used to validate the framework developed in the literature review and explore the NHS Wales Primary Care ecosystem. The regressions are presented in detail with output tables and assumptions at chapter six for the reader to review in detail.

These tests were advocated as the most suitable to determine patterns in the data which would result in a more robust and tested final model (contribution of the total study).

### 3.6 Quality and Claims to Knowledge

There are a number of quality considerations when undertaking both qualitative interview and quantitative survey research, driven by the need for the results to be an accurate representation of reality. The two parameters of importance when thinking about this quality of survey research are validity and reliability.

In terms of the qualitative phase of research, this “as a whole has been constantly critiqued, if not disparaged, by the lack of consensus for assessing its quality and robustness.” (Leung, 2015) If the results of this study were to be of sufficient quality to be regarded as new claims to knowledge; criteria by which the quality of such results can be assessed would need to be known. This section presents such a discussion as well as the resulting procedural steps built into the research design, to ensure the research could be presented as new knowledge.

This section details traditional measures of research quality, which have been associated with quantitative research (Bryman & Bell, 2011): internal validity, external validity, reliability and objectivity. However, there is a “discussion among qualitative researchers concerning their relevance for qualitative research”. Each of these concepts, when explored, can be developed to be more appropriate to qualitative research.

Noble & Smith (2015) compare concepts “such as reliability, validity and generalisability typically associated with quantitative research”. Using this study and others within (Alan. Bryman & Bell, 2011), the following details traditional terminology, provides an alternative more commonly used in qualitative and then describes how that concept has been adopted in this study.

It is either suggested to transfer quantitative terminology and adopt to better fit qualitative research or use entirely different terminology specifically for qualitative research. In this

section the traditional quantitative concepts and qualitative counterparts are presented together.

### *3.6.1 Phase 1*

#### *3.6.1.1 Credibility*

Research Credibility is a factor most closely related to internal validity and concerns the “*match between researchers observations and the theoretical ideas they develop*” (Saunders et al., 2014). . Research credibility is the extent to which the output was driven by what was seen and observed (Saunders et al., 2014). Researchers inevitably have biases and preconceptions which drive their view of what is being observed. This may result in an output based not on the data collected and analysed. Therefore, in this study, two steps could be incorporated to ensure a level of internal validity or credibility. “*There can be several possible accounts of an aspect of social reality*” (Bryman & Bell, 2011). Therefore it is the “*feasibility or credibility of the account that a researcher arrives at that is going to determine its acceptability to others*”. Reliability is the extent to which the researcher has correctly understood the issues presented by those providing descriptions of social reality.

To achieve this within this study, two commonly used techniques were used. These were:

- Respondent Validation: Each participant in the research was given a copy of their transcription. This allowed an opportunity to clarify meaning directly. This proved to be more of a procedural technicality and no participant made any amendments in terms of meaning or found any inaccuracies to correct.

A more time-consuming part of respondent validation was the summary of themes given to each participant after transcription and coding. This gave ability to clarify meaning that had been conveyed compared to what had been understood. This opportunity was taken frequently, to either simplify or expand on what had been said.

Triangulation is often used as a quality assurance method and control and triangulation is defined as the “*comprehensive approach to conducting research using multiple data and methods*” (Kitto, Chesters, & Grbich, 2009). In this study, triangulation took two forms.

Firstly, responses between participants were compared to overlap same themes from differing, rich descriptions. This is achieved by thematic coding and varying code profiles: in essence a form of triangulation, using the same data with different code profiles until the data made sense. This intrinsic form of triangulation was informal.

Triangulation also in its main form, involves the use of different forms of data to corroborate. Where similar outcomes can be found from independent sources of data, collected by different means, the results are considered more credible. The main source of data in my research is the recorded transcriptions, thematically coded. Supplementary to this were focus group, document and journal data.

There is a limit in qualitative research as to what can be achieved by triangulation and some have argued it has no purpose (Mason & Spring, 2011). If the view is taken that reality is the respondents' perception of it, and these have been correctly understood, then the need to triangulate this to anything else is irrelevant. The general trends achieved by coding the aggregate of their views, however, in the authors opinion would benefit from being triangulated with other sources.

### *3.6.1.2 Transferability*

External validity is another control mechanism and is defined as the “degree to which findings can be generalised across social settings” (Alan. Bryman & Bell, 2011). The counterpart most commonly associated with qualitative research is transferability. Kitto et al. (2009) define two questions which can be applied to demonstrate transferability. These questions are:

- Has a critical evaluation of findings to other similar contexts been made?
- Has the relevance of these findings to current knowledge, policy and practice or to current research been discussed?

The first question relates to the transferability of the output to others, with similar context. In this study, participants have been selected on the basis of their medical professional practice, in an environment which is contextually repeated across NHS Wales. Therefore, the most

likely comparison, to which the results of this study may be relevant and transferable, is primary care within NHS Wales, which was the focus of the study and from where the majority of the data was collected. At a systems level above this, it may also be transferrable to NHS General Practice, within the remainder of the United Kingdom. There are differences in context, such as funding arrangements between Wales and the rest of the UK, but many similarities, suggesting there may be a high level of transferability; though less so than directly within Wales.

The final level of transferability is to all primary care internationally. This is more challenging as formats of primary care vary greatly and the context in which the data has been collected in this study may be different to those in the context to which it is being transferred. Transferability to other formats and fields of healthcare is more hazardous territory again and no such suggestion is made. The data collected from participants in this study, is relevant to primary care as a service and whilst some features may be transferable it was not intended when designing the study, to make such assertions from its results.

Transferability, however can be explicitly made the responsibility of the reader (Bryman & Bell, 2011) and this is the position taken by this author. The context of the research is given through the organisational and participant biographies and the procedures followed leading to the results presented are described in detail. It is therefore the responsibility of the reader, to decide, if the outcomes of this research should be transferred. Most sensible would be to make this decision on similarity.

### *3.6.2 Phase 2*

For the second phase, the same quality objectives applied. These were addressed also for the quantitative survey research, by taking the steps shown in the table below:

Quality Criteria	Definition	Operationalising in this study
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<b>Internal Validity</b>	The extent to which the items included in the summated scale is a fair representation of the concept the test seeks to measure	<ul style="list-style-type: none"> <li>• Literature review to create a theoretical model prior to developing items in questionnaire</li> <li>• Pilot study to refine items and understanding</li> </ul>
<b>Construct Validity</b>	The extent to which the measurement items used actually test the theoretical model	<ul style="list-style-type: none"> <li>• Potentiality using factor analysis if appropriate to validate</li> </ul>
<b>External Validity</b>	The extent to which the scale representing variables measure the dependent variable	1. Structured Equation modelling result shows the model fit
<b>Reliability</b>	The extent to which the results can be reproduced a different survey is repeated under the same conditions.	<ul style="list-style-type: none"> <li>• Cronbach's alpha values for each latent variable has value above the threshold of 0.7 (Cronbach, 1951; Nunnally and Bernstein, 1994)</li> </ul>

Table 3.9: Quality Criteria and Researcher Responses in Survey Research  
(Sources: Forza, 2002; Malhotra and Grover, 1998; Easterby- Smith et al., 2013; Saunders et al., 2016)

The chapter has presented and defended the major design considerations for this study and provided a transparent and replicable approach to the study. The researcher will now reflect upon the design limitations as a consequence of the scope and method employed.

### 3.7 Limitations of the study



Any research study has deliberate limitations at the design stage. This study focuses on Wales as its context and therefore is limited in geography and population. The study also acknowledges that the first phase of research involved purposive selection of experts. The study was also conducted as a 'snapshot in time' because it was not practical nor desirable to conduct the study as a longitudinal series of cases which implies the researcher did not undertake a temporal review of the sequence in which successful projects were conducted. The limitations of the study will be addressed in the conclusion chapter where these will be remedied in terms of the next logical phases to continue this research.

### 3.8 Ethical Considerations

Every research programme must take into account ethical considerations. These include the moral and professional interactions of the research on others and the environment. Research ethics relates to how the researcher prepares a research topic and designs a programme of data collection and analysis in a morally acceptable way. What is acceptable is subjective and the result of wider social norms (Zikmund 2000).

The research integrity is also related to the extent to which it follows commonly accepted professional codes and norms. This includes identifying potential ethical issues, mitigating these and following procedures set by the institution and organisations relevant to the field of study.

For this research ethical approval was sought from Swansea University School of Management, the researcher considered the ethical risks of the research in the context of the universities research ethics policy.

The main features relevant to this study for the first phase of research are to ensure that participants are anonymised and their information provided is treated sensitively. Similarly, that an opportunity is given for participants to retract any information provided at a later point and to confirm the accuracy of what is collected by the researcher.

The second phase of research involved participants being forwarded a link to a questionnaire prepared using and managed via the Qualtrics software. This ensured that data was stored

safely, no participant had access to the responses of others and auditable information was given to each participant.

These procedures met the university ethics policy but also improved the likelihood of collecting high quality unbiased data (Denscombe 2002). Having provided the review of limitations and ethical considerations, the next section of the chapter will conclude the research methodology discussion and defence.

### 3.9 Conclusions

This chapter has transparently presented the options available when designing and executing this study, the options selected and a rationale for the choices made have been defended. The chapter began with a discussion of the philosophy, ontology and epistemology, then leading to two phase theory building and testing design. This uses a case study accessed by interview method for a qualitative first stage, followed by a questionnaire-based methodology for the second quantitative testing phase. This is a well-used approach for theory building, easily defensible as shown and often used in implementation research. The intention of the study is to build and test a theoretical model, taking what is existing on the literature and building on this originally. The next chapter will provide the reader with an overview of the context of this research.

## 4.1 Introduction

The Implementation of innovation and improvement programmes is a task relevant to a range of public and private organisations in Wales. The academic literature to which this study contributes, is wide-ranging and draws from innovation, change management and operations fields; but also its main focus is the healthcare-specific implementation research literature. Innovation and improvement projects can be applicable to all organisations, however the data for this research, and its context, is the provision of primary care in NHS Wales.

Introduced in the first chapter of this thesis, the research aim is to identify enablers and inhibitors to implementation of innovation and improvement projects in a specific context; primary care provision as part of the services commissioned and delivered by NHS Wales. This research objective makes for a novel contribution because no such model can be found which has focused on Wales nor focused on primary care. The results of the study could also be very important to the working practices of small organisations (General Practices), as well as policymakers and commissioners who pay for and manage these services, who appear to be struggling to implement programmes successfully. It is however important to explain to the reader the specifics of the Welsh healthcare ‘landscape’ in which the data for this study has been collected and to which the conceptual framework model from the literature review will be applied. By applying the conceptual framework, it can be left to others to judge the wider applicability to, perhaps other publicly funded services or other business and organisational contexts.

The chapter begins with an overview of the NHS and then NHS Wales. This is the high-level context and followed by a more detailed discussion of innovation and change projects which have been seen at NHS Wales level, then the specifics of how primary care is delivered in Wales and some important contextual issues which impact implementation of innovation and change in this specific context of primary care provision in NHS Wales.

There are four issues covered, these are:

1. The modern context of increasing demand for primary care and its associated challenges for healthcare provision at all levels.

2. The General Medical Services (GMS) contract, the framework through which all primary care services are delivered and therefore any implementation of innovation and improvement is subject to this document. The GMS contract is also reflective of the wider relationship between practitioners and those who pay for and manage services.
3. Access standards describe the expectations policymakers have about how and when patients should be seen. Linked to the challenge of increasing demand, practices have struggled to supply the number of consultations to meet the demand from patients. The difference is known as latent demand, the number of patients who want to be seen but are unable to successfully make an appointment for a consultation, to be seen in the way they would like.
4. Indemnity arrangements- Hospital doctors working in the NHS are insured by the NHS, if they make an error resulting in a claim for damages. General Practitioners as part of their own private businesses who have a contract with NHS Wales to deliver primary care, have had to arrange their own insurance. Since 2019 a Welsh Risk Pool has been created where the NHS holds the risk of each practitioner. This has received a mixed response among practitioners and changes the context of improvement and innovation programmes- commissioners of services now have an incentive to introduce and participate in improvement initiatives and in their success. Practitioners are responsible not to their insurers, but to those who commission services.

#### 4.2 The National Health Service (NHS)

The vast majority of healthcare in the UK is delivered through the NHS. This was formed on 5th July 1948 with the promise of healthcare being free to all at the point of need. It was the first such system of its kind in the world and even today offers healthcare to all regardless of

income or ability to pay not seen in many other countries. The NHS is funded from general taxation and has three main principles:

1. Meets the needs healthcare of everyone
2. Free at the point of delivery
3. Based on clinical need, not ability to pay

In 1948 the NHS had three strands; Primary Care, Community Service and Hospital Service. This was called the Tripartite System ([www.wales.nhs.uk](http://www.wales.nhs.uk)). Primary Care being medical professionals including General Practitioners (GP) and other community services, who were previously private contractors. Under the NHS system, they were not salaried but would be paid on the number of patients they would see. Local authorities controlled Community Services including maternity services and child health, including vaccinations and immunisations (Welch, 2018). This format is broadly the same today, with primary care being subcontracted to practices, hospital care being delivered centrally and social care being the responsibility of local authorities.

The aim of the NHS in 1948 was "the establishment of a comprehensive health service designed to secure improvement in the physical and mental health of the people of England and Wales and the prevention, diagnosis and treatment of illness" (1946 NHS Act). Since this time, the NHS has evolved- it has become an example of an organisation where continual change has taken place, often with mixed success (Cohen, 2020).

Since its inception the NHS has seen ever increasing demand for its services. This is the driver of innovation and improvement projects in the NHS- to meet the ever-increasing demand, or otherwise proactively reduce it by keeping people well, in a safe way. This challenge is not new, or limited to primary care within the NHS.

Today, the NHS a group of four organisations; one for each of the devolved nations of the United Kingdom. The main features are identical however politically each is controlled by its own devolved government. The NHS is a politically influenced service (Welch, 2018) and we see now differences in each of the four nations as a result of political ideas about how the NHS should be run. In England for example, Clinical Commissioning Groups (CCGs) are local organisations responsible for commissioning and managing services. Market dynamics

are seen as the ‘guiding hand’ through which these organisations can contract manage services provided by internal and external organisations (Robertson et al, 2016; Naylor et al 2013). The structures and arrangements in England are opposed by some however, seen as a means to privatise aspects of the NHS. By contrast, NHS Wales often manages and oversees services centrally with a higher degree of accountability of Local Health Boards and commissioners of primary care to the Health Minister in Cardiff. The arrangements through which primary care practices operate, which arise from these structures, affect the ability of primary care providers to implement innovation and improvement programmes.

There is broadly two strands of NHS provided care today, primary care delivered in the community and secondary care in hospital. The landscape and context of implementing innovation and improvement is different for hospital delivered healthcare and primary care. This is likely to have an impact relevant to this research.

#### 4.3 NHS Wales

Healthcare in Wales is devolved to the Welsh Government. NHS Wales is the organisation which delivers healthcare to some 3.15 million people, with a Minister for Health and Social Care and one Chief Executive. There are then seven Local Health Boards who each are responsible to the Chief Executive of NHS Wales and Minister.

NHS Wales comprises of seven University Health Boards (UHB’s) and two NHS Trusts. The seven Local Health Boards (LHBs) that deliver healthcare to the people of Wales are:

1. Aneurin Bevan University Health Board is responsible for NHS services in the area of Blaenau Gwent, Caerphilly, Monmouthshire, Newport, Torfaen and South Powys. It employs over 14000 staff (<http://www.aneurinbevanprimarycare.co.uk/>).

2. Swansea Bay University Health Board looks after the population of Neath, Port Talbot and Swansea. The Health Board has three major hospitals: Morriston and Singleton in Swansea and Neath Port Talbot Hospital in Port Talbot. It employs over 12500 staff (<https://sbuhb.nhs.wales/>).

3. Cardiff & Vale University Health Board provides the healthcare services in Cardiff and Vale of Glamorgan. It employs around 14500 staff (<https://cavuhb.nhs.wales/>)

4. Hywel Dda Health Board is responsible for NHS services in Carmarthenshire, Ceredigion and Pembrokeshire. It employs over 11,000 staff (20018/19). (<http://www.wales.nhs.uk/>)

5. Cwm Taf Morgannwg University Health Board provides services to the people living in Bridgend, Merthyr Tydfil and Rhondda Cynon Taf. It employs around 12,000 staff (<https://cwmtafmorgannwg.wales/> ).

6. Betsi Cadwaladr University Health Board is the largest health board in Wales. It is responsible for NHS services in Anglesey, Gwynedd, Conwy, Denbighshire, Flintshire and Wrexham. It employs over 17,000 staff (<https://bcuhb.nhs.wales/> )

7. Powys Teaching Health Board was established in 2003 and is responsible for NHS services in Powys. It employs around 12,000 staff.



**Figure 4.1: Location of Health Boards in Wales**

**Source:** <http://www.wales.nhs.uk/>

There are 3 specialist NHS Trusts in Wales. These are the Welsh Ambulance Services Trust for emergency services, Velindre NHS Trust offering cancer care and Public Health Wales Trust responsible for public health (<https://gov.wales/nhs-wales> ).

Within this framework all primary care services are delivered and the centralised management across Wales means that initiatives from Government can be consistently implemented across Wales.



#### 4.4 Modern Context of Providing Primary Care

*The problems faced by people who pay for or manage health services in the 21st century are many and complex. Not only are resources limited, but there is a widening gap between the need and demand for healthcare... There has been a reliance on targets, despite the repeated common response to their imposition, which is usually to fiddle the figures, fiddle the work, or fail to meet them... The economic crisis has provided the burning platform from which people need to jump from institutions, such as hospitals, to systems of care. Systems of care will be the dominant paradigm for 21st Century healthcare.*

*(J.A. Muir Gray, 2011)*

The quotation above captures a range of issues, illustrating why primary healthcare services today – and healthcare services in general – are so different from those that society has experienced at any point previously. These issues reflect the modern context of providing primary care. The challenges that innovation and improvement programmes often seek to address and context in which implementation is taking place:

##### 4.4.1 The level of demand for primary healthcare

The demand for primary healthcare services is rising, more rapidly than the NHS capacity to deliver these services. A key contributing factor to this problem of high demand, is the issue of latent demand: those who want to be seen by a GP but are unable to within a reasonable timeframe, in the way they would prefer, to address their particular medical problem.

The numbers of – and impacts on – those who have been affected remain largely unmeasured. Commissioners and service providers alike know just how many appointments and other forms of contact are provided as a result of their services. However, neither party is aware of how many people have wanted and intended to make contact but have either been unable to do so or simply gave up while trying to do so. Some high-level data exists in the form of patient surveys. The Welsh Government estimates that 38% of patients find the process of trying to book an appointment with a GP to be “difficult or very difficult” (Welsh

Government, 2018). This report does not, though, provide any details or recommendations regarding which kinds of improvements could be implemented to address or, at least, to alleviate such problems in the future.

With the demand for care rising while the provision for such care fails to increase adequately – if at all – people’s perceptions about the legitimacy of claims regarding readily-available access to care are changing. The concept of “inappropriate demand” has been explored by Ehrich (2003) who defines it as “the ways in which judgements are made about legitimate access”. In instances where demand is rising exponentially, what is seen as being an appropriate request for care – for example, a GP consultation – narrows. An alternative view is that that all healthcare concerns are valid and the rise of the Patient Reported Outcome Measures (“PROMS”) programme supports this view. A key challenge for leaders in the sector is, therefore, to widen the range of ways in which healthcare services may be offered. By providing a range of ways in which patients can access the services that are most appropriate to them – in terms of catering most effectively to their reported reason for engaging – meaningful, patient-reported outcomes can be achieved while preventing any suggestion that such methods of contact are in any way “inappropriate”.

#### **4.4.2 Changing patient expectations**

The levels of functional democratisation – that is, the power asymmetries between different social groups of doctors and patients – have declined in recent decades while people’s expectations of the quality of compassionate care that ought to be provided have risen (Flores, 2018). In other words, the willingness of patients to be passive participants in their programmes of care has decreased. Patients expect clinicians to explain the ways in which their conditions can be most effectively managed – and why.

#### **4.4.3 Shift to chronic disease**

Chronic diseases are long-term conditions for which there are currently no cures; they are typically managed through the use of drugs and other forms of treatment. The numbers of well-known examples of chronic diseases have increased in recent years: diabetes, chronic obstructive pulmonary disease, arthritis and hypertension, as well other less serious but nonetheless chronic conditions, such as gout, that are often exhibited by individuals who live

sedentary lifestyles (Kingsfund 2019) (Kuo et al. 2015). Up to 50% of all appointments with general practitioners tend to relate to chronic diseases.

Factors such as increasing levels of alcohol consumption, modern pressures on mental health, and the significant numbers of those who choose or are compelled to live sedentary lifestyles have been cited as being the drivers behind this increase. Individuals who come from deprived communities are the most greatly affected. Many chronic diseases are preventable; such illnesses frequently stem from people’s lifestyle choices, with the exception of the members of the population who are simply getting older (Barnett et al., 2015).

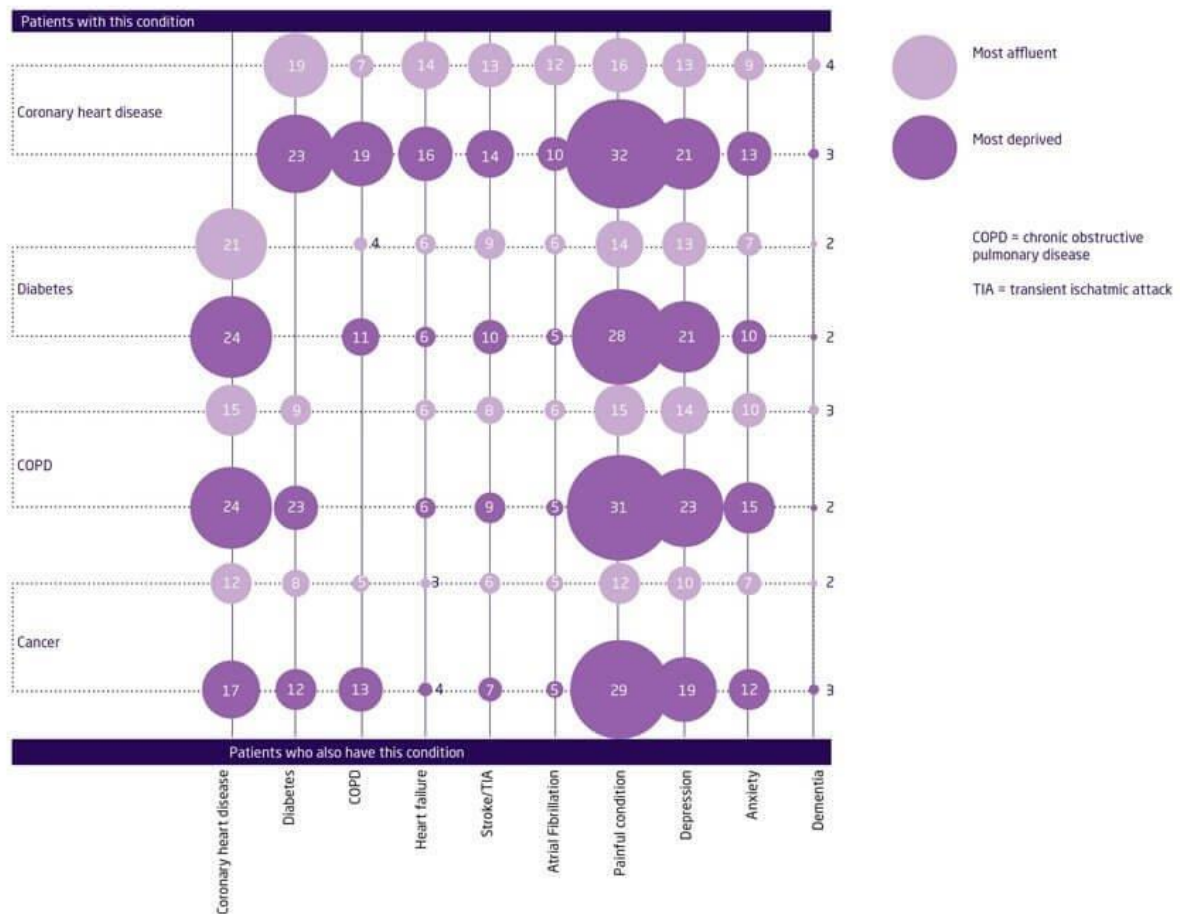


Figure 4.2: Patterns of Chronic Disease Between Most Affluent and Most Deprived

Source: Barnett et al. (2016)

One might seek to address these challenges through the transformation of primary healthcare systems. However, the role that external factors play in affecting these systems should not be underestimated. There is likely to be a limit to that with which any healthcare system can cope. Therefore, the establishment of branches of preventative medicine and an increasing focus on wellness – as opposed to illness – have become popular concepts for policymakers. The role of primary healthcare systems in this context is an emergent field that warrants further study in itself. While it is largely outside the scope of this study, I recognise that it is likely to become of increasing importance to healthcare systems in the future. The concept of both the design and implementation of healthcare systems being used as a mechanism through which transformation might be effected is not intended to be static. Rather, it is inevitable that – as new challenges and opportunities emerge – redesigns and changes will be required.

#### 4.4.4 Funding and Austerity

The funding needed to deliver NHS healthcare is ever rising in the context of the growing demands for NHS services (National Audit Office 2016). The lack of adequate funding for the NHS has an impact on the quality of the care that may be provided, as well as upon the ability of a professional and skilled workforce to meet patients' rising expectations. For example, there is a clear correlation between austerity and mortality (Green et al., 2017). Without adequate levels of funding, the quality of available healthcare is affected at all levels.

Budgetary pressures have been evident and increasing since the global financial crash:

*“Austerity conditions have in particular created a climate in which public service providers’ demands for increased funding will be received with government scepticism; instead, these bodies can more realistically expect to receive instruction to eliminate “waste”, seek “efficiency savings”, and be “more effective” with what scarce resources they already have.”*

(Murphy, 2019)

Therefore, we must find a balance between achieving performance improvements through transformative processes and being realistic about the levels of funding that are required to

develop and to operate healthcare systems effectively (National Audit Office, 2016; Ferry & Gebreiter, 2016).

The paradigm of improving healthcare provision by implementing change programmes is one that predates the most recent austerity measures. Though austerity is now, in turn, contributing to the need for transformation, there are also a host of other reasons to undertake change. For example, it is important to draw upon the new forms of technology that have become available so as to improve the quality and performance of healthcare services and resources (Ferry & Scarparo, 2015).

#### **4.4.5 General Practitioner Workload: Burnout**

General practitioners' workloads have increased: "Neoliberal work policies, austerity, NHS restructuring, and increased GP consultation rates provide the backdrop against increasing reports of GP burnout and an impending shortage of GPs" (Cheshire et al., 2017).

Nonetheless, many practitioners are driven by the moral value of their work, despite what has been described in scholarship as being "unprecedented" pressure. Such perspectives have been corroborated by the findings of Goldacre et al. (2016) who have charted this same pattern of increasing levels of pressure on GPs. Many individuals now find that working as a GP is too stressful; they report that "work-related stress led to mood changes, sleep disruption, increases in anxiety, and tensions with loved ones".

Some GPs have found ways to decrease their clinical workloads – namely, by decreasing their working time. Others, meanwhile, plan to exit the profession – or have already done so. Transformation may not, therefore, only be necessary from the perspective of patients; it is, perhaps, equally as important to GPs and other healthcare staff so as to ensure that primary healthcare systems are sustainable for the professionals who operate them as well as doing so for the sake of the patients who use them. This concept of "coping" is one which features in the data that I have collected over the course of this study. Many practitioners are as concerned about patients' experiences and the quality of the care that they receive as they are about their own ability to deliver that care (Biard et al., 2017; Hobbs, 2017).

#### 4.5.1 General Medical Services (GMS) Contract

The GMS contract is negotiated between the British Medical Association (BMA) and NHS Wales and sets out the contractual payments to be made to primary care practices and the services delivered by practices in exchange. The first GMS contract became live in 2004 and has been negotiated periodically thereafter. Prior to this, the previous contract paid individual General Practitioners for fees and allowances, known as “the Red Book”. The GMS contract changed this to pay practices not individuals through three main funding streams: the global sum (a set fee for each patient); the Quality and Outcomes Framework (QOF) (quality-based payments); and enhanced service payments (Primary Care One, 2021). Other key changes included the central provision of out of hours care, meaning GPs no longer had to provide services outside practice opening hours.

This means practices operate as small business financially in their own right and are responsible for their own income and risks. They are often partnerships or limited liability partnerships in their corporate structure. They have a single source of income often, the GMS contract which specifies what is to be delivered and the income practices receive for providing these services to a patient population.

The British Medical Association has a team of negotiators who represent practices negotiating with policymakers. The structure of negotiating, where a professional team coordinate and collectively there is a single position for practices has reduced competition and improved the ability of practices to negotiate. The result is that the contract lacks features which many similar commissioning contracts issued by government have. Policymakers have one potential supplier for the delivery of primary care.

The first result of this setup is the impact on the ability of Local Health Boards to manage the services they commission. The contract as written presents them with a number of challenges and, in their perception, what is not specified is as important as what is. The maturity of the relationship, meaning the level at which that relationship is, could range from one where contractual obligation defines the relationship to the other end of the scale, characterised by trust and collaboration. In this way, the relationship between practices through the contract and commissioners is immature. General practices do what has been contractually specified and

has been negotiated, yet not engage or allow management, which could be positive for both parties, on many issues. One example of this is access, where practices have no contractual obligation to provide it other than opening at set times and delivering care to those who do access.

The language in the contract has been specifically agreed with the intention of limiting oversight. Negotiators have used a strong position to create a scenario where little information is shared and the leavers available to Local Health Boards are low. There are two ways in which this may be improved:

- 7 Improve the level of maturity, moving away from a relationship of contract to a trusting and collaborative one. This may be challenging to achieve but would lead to outcomes in future contracts which improve patient outcomes. For example, focussing on patient experience more widely is not a contractual outcome. Though feedback processes and procedures to resolve these are requirements, they are not often used and do not illustrate patient positive satisfaction. To create a mature and collaborative relationship where the contract is a formality and the culture is collaborative, is a step change away.
- 8 Understand the motivations which may be common to practices and commissioners alike. For example, communicating access improvement transformation which too delivers improvement in efficiency, financial surplus and work life balance. The introduction of issues cannot be contractually mandated, therefore a win-win or pareto efficient motivation for transformation needs to be presented by the part seeking the improvement.

It is the implementation of initiatives which are a problem in the practitioner perception. The overarching political impact on both the contract and wider relationship is a similar issue which was found by the researcher when looking at the context of the study

This section has briefly looked at the implementation of innovation and improvement in the context of the General Medical Services Contract. This contract is the framework through which primary care is delivered and has political and practical implications for innovation and improvement implementation- for example impacting the motivation for transformation and

the relationship between primary care providers and those who pay for these services. Policymakers, practitioners and health boards are each driven by the contract.

#### 4.5.2 Access Standards Changes

Access to primary care is essentially the extent to which patients receive care when they request it. In the context of primary care, this traditionally has meant patients calling the practice where they are registered and requesting a face-to-face consultation with a doctor or nurse or other healthcare professional.

As demand for care has risen, the ability of providers to keep pace with the provision of care has been challenging, especially to provide that care in the same ways, where face to face consultations are the norm. Innovations used in other industries are beginning to be implemented in primary care provision. Online shopping is now the norm for many people and banking services mainly delivered online or app.

Understanding the opportunities provided by innovation in other sectors and the improvements possible as a result is at the core of this research from a contextual point of view. One of the cases used in the first stage of research, Babylon Health, was entirely different to all other 'standard' NHS primary care providers. Their model is a digital first one, where the whole patient journey is online and by exception a physical appointment made. This provider has a younger demographic patient population who are more likely to also prefer digital services in other sectors, such as banking. They are usually less risky from a provision of primary care point of view also, with the prospect of for example, missing a cancer diagnosis, being less so in the young.

In the Welsh and other UK NHS, the issue of access has become a political 'hot topic'. On one hand, patients and politicians are demanding that face to face consultations remain the norm. The practitioner viewpoint however is that the patients who do need to be seen usually are, the problem is with patients who do not need to be seen or could resolve their need in other ways, is the result of lack of investment by government or a rising 'tide' of demand they are unable to continue to meet.



The response to access issues in Wales has been a standard practices are being asked to implement with a financial impact. The standard makes seeing more patients the objective. However, there is not shared initiative on this project and many practitioners feel disconnected from policymakers and that this policy is irrational.

The motivation of stakeholders to deliver improvement in access standards is unequal. Though practitioners show compassion and skill there is clearly a latent demand not being met. This is not helped by the scenario of Local Health Boards having no information on this latent demand or levers to improve.

#### 4.5.3 Welsh Risk Pool

Hospital doctors working in the NHS are covered for medical negligence directly by the NHS. They do not need to arrange insurance cover for their professional indemnity. General Practitioners by contrast do need to insure themselves and their practice. This difference has been seen as an unfair burden on General Practitioners and in 2019 the Welsh Government introduced a new central scheme where General Practitioners would be covered by a central insurance mechanism.

At first glance this was seen as a technical matter of little relevance. However, it is an example of an issue which affects the ways in which primary healthcare systems are arranged as well as the ways in which Local Health Board commissioners manage delivery of services.

#### 4.6 Chapter Summary

This chapter has presented the context of this study. This is a theory building study and therefore context is important and also for the readers understanding. The chapter has established a need for innovation and an appetite for improvement of performance in Wales and it has also outlined a complicated ecosystem of actors who combine to create the NHS Wales primary care innovation ecosystem. However, little is known and little has been reported about what enables or inhibits the meaningful exchange of innovative ideas, national strategies and the adoption/adaptation of practices in Welsh primary healthcare delivery. The

next chapter will present the first phase of the findings of this study and the operationalisation of the research methods.

## Chapter 5: Phase One Qualitative Results

### 5.1 Introduction

This chapter is the first of two presenting data collected and its analysis by the researcher. The first results chapter presents data collected from the first qualitative phase of research; this is followed by a further chapter showing quantitative results from the second phase.

The phases are sequential, with the output of this chapter being a theoretical model-developed from literature and furthered by the data collected. Some elements are taken from literature, some adapted from it and others entirely original. For example, the reader will see components of the model that define the role of the innovation, improvement or EBP itself in implementation are mostly grafted into the model from a well-established existing research base. Other aspects such as the role of the external environment and both capability and motivation have some sub themes which are new, however also feature in literature. The role of trust between managers of primary care services and providers of those services is entirely original, as is the role of provider participation in service level implementation agendas.

This chapter introduces ten mini case studies, through which expert participants were accessed and data collected. A thematic map then summarises each of the key themes and sub themes arising from this phase of research. The remainder of the chapter presents the systematic analysis of the data using the final themes and sub themes as the most systematic and logical format of presentation (Santana 2008). This effectively is ‘showing the workings’ of that analysis to any reader.

A final theoretical model is then presented at the end of the chapter as the output of this phase of research.

## 5.2 The Cases

To collect data as explained in the methodology chapter, expert participants were sought to undertake semi structured interviews discussing their experience and perceptions of implementing innovation, improvement or EBP in primary care services. Naturally, this would involve talking about specific projects where they had had a leadership role in implementation. These have been termed by the researcher in this study as mini cases and are the context and instances to which a qualitative analysis can be applied. The output is a rich and theoretically underpinned thematic analysis of the data collected from the expert participants about these cases. The cases are a means of accessing the wider themes and arriving at a systematic output of new theoretical knowledge.

Case	Project or Case Description	Participant Interview(s)
1	Introduction of 'Telephone First' to Neath primary care practice	P1, P4
2	Implementation of telephone delivery and new operation at Swansea primary care practice	P13
3	Introduction of E Consult system in Pontypridd primary care practice	P6
4	Overcoming internal resistance to implementation of telephone based delivery at Swansea primary care practice over two sites	P3
5	Local Health Board approach to managing practice improvement and innovation projects	P5, P9
6	Modernisation of primary care practice in Brackla, Bridgend, responding to increased demand for care	P7
7	Introduction and design of Babylon Health digital primary care service to UK market	P8, P2

8	Merging of three primary care practices into one 'super practice' in Swansea Vale	P10
9	Out of Hours redesign project at Swansea Bay University Health Board	P11
10	Welsh Ambulance Service NHS Trust redesign of Primary Care relationship	P12

**Table 5.1: Summary of Study Participants**

**Source: The Researcher**

As a few brief points of note to the reader:

1. The majority of these cases relate to projects from Wales and specifically South Wales. Six are projects implementing an innovation, improvement or EBP in South West Wales and the Swansea Bay University Local Health Board, two are implementation projects in South East Wales. One is a pan Wales implementation for the Welsh Ambulance Service and one is a London based provider of primary care.
2. Nine of the ten cases are implementation of innovation, improvement or EBP projects relate to NHS Wales primary care delivery. The remaining case is a provider of primary care which has delivered mostly privately funded services by digital first provision blending an online portal and video consultations. This provider more recently has started to deliver an NHS GMS contact in the London region.
3. Nine of the ten cases relate to implementation of innovation, improvement or EBP in an existing system of care delivery. This is the standard scenario for practitioners who have an existing complex and potentially chaotic operating environment to which the implementation is intended to improve either quality or performance outcomes. There was one case, the private provider based in London, who had not implemented into a new system but instead been able to design a new digital first approach. This allowed the researcher to consider

additional aspects of implementation which could be transferred to the cases where an existing system was being developed.

### 5.3 Explanation of Themes

Each of the five themes and thirty one sub themes is detailed below. This is accompanied by a classification of relative level for each. Practitioners and users of the resulting model can then assess on a comparative basis, the level of each sub theme to the scenario and context to which the model is being applied.

Theme	Sub-Theme	Levels		
<b>Theme 1: Innovation, Improvement and Evidence Based Practice</b>	Relative Advantage	Low	Medium	High
	Extent of Innovation	Low	Medium	High
	Adaptability	Low	Medium	High
	Trialability	Low	Medium	High
	Usability	Low	Medium	High
	Complexity	Low	Medium	High
	Evidence Strength and Quality	Low	Medium	High
	Innovation Source	Low	Medium	High
	Cost	Low	Medium	High
<b>Theme 2: Facilitator Internal Context: Capability (Can Do)</b>	Planning	Low	Medium	High
	Resources	Low	Medium	High
	Skills and Learning	Low	Medium	High
	Monitoring and Evaluation	Low	Medium	High
	Structure and Systems	Low	Medium	High

	Mechanisms for Embedding Change	Low	Medium	High
<b>Theme 3: Facilitator Internal Context: Motivation (Want To)</b>	Engagement	Low	Medium	High
	Motivation	Low	Medium	High
	Culture	Low	Medium	High
	Attitude to Risk	Low	Medium	High
	Leadership Commitment	Low	Medium	High
	Power Dynamics and Authority	Low	Medium	High
	Collaboration and Teamwork	Low	Medium	High
	Past experience of successful implementation	Low	Medium	High
<b>Theme 4: Facilitator Relationship with External Stakeholders</b>	Participation, Engagement and Autonomy	Transactional	Cooperating/ Coordinating	Collaborative and Open
	Trust	Transactional	Cooperating/ Coordinating	Collaborative and Open
<b>Theme 5: External Context</b>	Policy Priorities	Low	Medium	High
	Incentives and Mandates	Low	Medium	High
	Regulation	Low	Medium	High
	Commercial Contracts	Low	Medium	High
	Political Context	Low	Medium	High
	Evolving Requirements	Low	Medium	High

**Table 5.2: Summary of Determinants in Framework of Innovation, Improvement and EBP in Primary Care and Indicator Levels Source: The Researcher**

The remainder of this chapter takes each determinant and presents the output of the thematic analysis undertaken by the researcher. This leads at the end of the chapter, to an original theoretical framework for the implementation of innovation, improvement and EBP for primary care services- improving what existing literature has to offer using collected data and the output of its analysis, presented throughout the remainder of this chapter.

### 5.3.1 Innovation, Improvement and Evidence Based Practice

This section looks at the theme of the innovation, improvement or EBP itself. There were established concepts found in the literature for this theme where Damschroder, Gustafson, Greenhalgh, Harvey and Kitson provide established definitions and applications. These of course are not directly applied to the application of implementation of innovation, improvement and EBP in primary care. These established concepts were therefore used as a literature informed framework to explore the data collected from implementation in primary care settings.

There are nine themes presented below; relative advantage, extent of innovation, adaptability, trialability, usability, complexity, evidence strength and quality, innovation source and cost. The results of the data collection could be analysed using these concepts and updated to reflect the insight provided by the expert participants, for the context of implementation of innovation, improvement and EBP in primary care.



### 5.3.1.1 Relative Advantage

<b>Concept Definition:</b>		
"Stakeholder perception of the advantage or disadvantage of implementing the innovation versus an alternative solution or the status quo" Damschroder (2021)		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	There is a perception that the innovation, improvement or EBP has little advantage over an alternative solution or the status quo	P6, P7
Medium	There is a perception that the innovation, improvement or EBP has some advantage over an alternative solution or the status quo	P10,P11, P3
High	There is a perception that the innovation, improvement or EBP has a strong advantage over an alternative solution or the status quo	P1,P4, P8, P2
<b>Examples of Cross Reference or Support in Literature:</b>		
Damschroder (2021), Gustafson et al., 2003		
<b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b>		
<p>Relative advantage is the advantage that may result from implementation of an innovation, improvement or EBP, comparative with the starting performance of that system or the status quo methods of delivering services. For example, it may be that a totally new innovation is implemented which revolutionises how care can be delivered, like adopting a completely digital first approach. This may have a high level of comparative advantage to the standard approach of each patient receiving a 10 minute appointment in series, with no prior triage or prioritisation. Many practices have not taken this fully digital approach however and have introduced a ‘Telephone First’ implementation. This still has an advantage relative to the starting position of traditional methods of seeing each patient for</p>		

10 minutes each in series, but is unlikely to have the full range of benefits as realised by the first example. The advantage of a particular innovation depends on the existing system and its performance and other potential innovations, improvements or EBPs available.

Many participants felt that face to face consultations are still the ideal and preferred method of delivering services; however the advantages of using digital first, telephone first or some other method of improving management of demand for care, remote outweighed the drawbacks for most patients and delivered an overall improvement in service delivery:

*"It's difficult, face to face is the ultimate gold standard. And I would say at least it's not a clinical outcome, I can't claim that it has got any positive sort of clinical outcome but it's more a case of convenience and avoiding sort of cutting out some unnecessary steps. P3*

The internal debate participants had with themselves and colleagues was to assess the comparative advantages of delivery using telephone or video, relative to the status quo or existing model of delivery for that practice, the specific demographics of that practice in terms of demand for care and type of care (for example prevalence of chronic disease management) and the alternative options available:

*I didn't really realise this until you started doing it but it sort of alters the dynamic of the consultation, whereas as I was saying earlier, before we were allowing patients to determine how much resources they were taking up, I can't think of any other profession that does that. Hospital consultants don't do that, they advise when a follow up is going to be but we just opened it up so people could, and we did have some people who are seen, or who were taking up appointments three times a week. A vast amount of resources. But when you speak to somebody on the phone, I find it far more direct. You get people coming into the surgery, feel embarrassed sometimes about what they want to talk about and then come in with a cover story about something else which takes a long time, to get to the bottom of. They send you down this track where you're asking them about certain questions about a problem they're not interested in really and when you eventually get to the problem, they may need a prescription and they need it now and there's no means of them getting it for a couple of days. So, but people get straight to the point on the phone. There's no hidden agendas. I don't think patients feel guilty taking up a doctors time on an*

*appointment, a good thing for them, so there's less barriers. They're perhaps keener to ring up and have a chat about something because they know it's going to be relatively brief, they can ask a question and then move on. So I think it breaks down some of those barriers where you can get straight onto the matter immediately. P3"*

### 5.3.1.2 Extent of Innovation

<b>Concept Definition:</b>		
Extent to which the innovation is likely to disrupt the status quo, or result in a high level of change		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Innovation, improvement or EBP is unlikely to disrupt the status quo, or result in a high level of change	P6, P7
Medium	Innovation, improvement or EBP may disrupt the status quo, or result in a high level of change, or has had mixed success in previous implementations.	P11, P5, P9, P3, P1, P4, P13
High	Innovation, improvement or EBP is likely to disrupt the status quo, or result in a high level of change	P12, P8, P2,
<b>Examples of Cross Reference or Support in Literature:</b>		
Damschroder (2021), Gustafson et al (2003), Christensen et al (2000), Christensen, C.M. (2003)		
<b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b>		
<p>Extent of innovation is a concept similar to relative advantage; describing potential for magnitude of change. It is more absolute than relative however and wider industry level of analysis. The assumption is that the more innovative or disruptive the innovation, improvement or EBP. At the heart of this concept is this assumption; to achieve a step change requires a new technology or way of doing things (Christensen et al 2000).</p> <p>In this study of primary care delivery within NHS Wales, there was one notable exception of the London based provider which also delivered private primary care services on a digital first basis. This provided the researcher with an opportunity for a comparison</p>		

between these two distinct providers. Many of the projects described by participants, were potentially not as innovative as they might have been. Many involved the introduction of telephone based delivery- a now old technology. Though this does represent a new way of doing things, which is service innovation and can lead to a step change also if disruptive, this did not seem to be the case with some projects either. The innovations were primarily relatively minor in terms of their originality.

The private London provider showed a very high level of extent of innovation, delivering services in totally new ways. These included using Artificial Intelligence to manage inbound contact and improve quality of care and reduce errors:

*“So, we started from the premise that accessible and affordable health care is possible if one can bring together the power of machines and potentially the power to learn and use artificial intelligence alongside the ability to not need the clinician to be in the same room as the person receiving the service. So, the virtualisation side of technology. If we can bring those two aspects of tech together with clinical expertise, then we thought it would be possible to bring accessible global health care to everyone.” P8*

This participant as a CEO level leader of this organisation, went on to detail the specifics of the extent of innovation and its strategic relevance:

*“Most of the technologies that get brought into health care services get brought in when there is a pre-existing relationship between the organisation and the patients. So, we have surgeries that have got a patient, and they decide to bring in some tech. That is fundamentally different to the way that we operate. If I take an example in the NHS. Rather than us saying, here, we have got a pre-existing, physical relationship, normal kind of clinical relationship, and now we want to take it in a more digital way.*

*We start a relationship digitally and that is really, really important because of the mindset that it brings. A little bit like Google and Amazon didn't start physically and then move online. They are fundamentally online propositions and therefore people's first interactions with them were because the individual had made a choice, they wanted to do something digital with those organisations. In fact, they want to do something digital with*

*Babylon. That is usually valuable for the person, because there is no previous “contract”. People can make the conscious choice to receive their healthcare in a digital-first way. So, they are more switched on to wanting to do that.” P8*

This participant makes the point in this excerpt that they are able to form an expectation of digital first care as they are a new provider, whereas existing practices are starting from an existing system with existing patient expectations about how those services will be delivered. This may be one reason why there is less extent of innovation seen in more local NHS Wales practices.

### 5.3.1.3 Adaptability

#### **Concept Definition:**

"Adaptability is stakeholder perception of the degree to which an innovation can be adapted, tailored, refined or reinvented to meet local needs." Damschroder (2021)

<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Stakeholder perception is that it is difficult or not possible for an innovation to be adapted, tailored, refined or reinvented to meet local needs	P6, P8,
Medium	Stakeholder perception is that it is possible for an innovation to be adapted, tailored, refined or reinvented to meet local needs, with some update of either the innovation or the system it is to be introduced to.	P5, P9, P11, P7
High	Stakeholder perception is that it is easily possible for an innovation to be adapted, tailored, refined or reinvented to meet local needs.	P1, P3, P12, P13, P4

#### **Examples of Cross Reference or Support in Literature:**

Damschroder (2021), (Greenhalgh et al., 2004), (Feldstein and Glasgow, 2008)

### **Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

Innovations, improvements and EBPs are developed either in research and development environment, or arise from a practice setting pragmatically and are then transposed or replicated to others informally or formally.

The problem with both is that the destination environments may be different from the ones where the intervention was created.

The concept of adaptability is the extent to which the innovation, improvement or EBP is versatile, in its ability to deliver expected improvements where local demographics and operating environments differ.

The biggest driver of operating environment variability is the demographic of patient population and the existing systems which have evolved to meet those demands for care. P1 described how the telephone first system had been adapted at their practice to reflect the existing system of care. For them, this involved integrating with a newly created primary care hub, where local practices shared the cost of a site with a range of services such as blood test provision and physiotherapy:

*They book the appointment down in the hub and tell the patient to oil their ears ready to go, so that's the beginning. And in other practices they are even more robust, if the patient says oh I've got a really sore knee, they'll book the physiotherapy for the patient, the patient won't talk to the GP. At this practice, we've decided not to do that because there are some conditions which could be what's called 'red flag'. So has that person got a septic arthritis, just what's going on? Have they got cord compression in their back? What sort of back pain is it? We can't possibly ask our receptionists to ask those questions because those people can't wait two to three weeks to see that clinician if they have seriously got an infection or a cord compression they need to be in now. And that's why we've sort of retained that sort of gatekeeping role ourselves P1*

Adaptability is partly a feature of the innovation, improvement or EBP itself, but also is impacted by the implementers ability to be creative in its application (Damschroder 2021). The process of adapting is therefore closely related and covered in the later sections of planning and structure and systems. There is also a cross reference to skills and learning, as the implementers ability to identify, propose and implement required modifications to an innovation, improvement or EBP is impactful on the implementation outcome.

#### 5.3.1.4 Trialability

##### **Concept Definition:**

“Stakeholder perception about the ability to test the innovation on a small scale in the organization (Greenhalgh et al 2004). It is the ability to reverse course or undo implementation if required (Feldstein and Glasgow 2008) (Damschroder 2021).

<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Little or no ability to test the innovation on a small scale in the organization prior to full scale implementation and/or unable to reverse course or undo implementation if required.	P8, P2, P12,
Medium	Some limited ability to test the innovation on a small scale in the organization prior to full scale implementation and able to reverse course or undo most aspects of implementation if required.	P1, P4, P11, P7, P13
High	There is an ability to test the innovation on a small scale in the organization prior to full scale implementation and an ability to reverse course or undo implementation if required.	P5, P9, P3, P6,

##### **Examples of Cross Reference or Support in Literature:**

(Greenhalgh et al 2004), (Feldstein and Glasgow 2008) (Damschroder 2021).



### **Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

This theme was integrated from existing literature however new meaning not found in existing literature was also found. In the main sources of literature where this concept is found, listed above, it is defined as an ability to test the innovation, improvement or EBP prior to implementation. It is also explained as the ability to undo if the effects are not as planned or should unexpected issues arise.

In this study, the data collected from respondents confirmed these perceptions but participants extended reasoning, to imply the assumption of a link between an ability to reverse an implementation or mitigate its effects if not effective, and risk.

There is a tension or choice practitioners must make when selecting the innovation, improvement or EBP to implement; more ambitious projects with the potential to have greater potential to improve performance and quality, also tended to be more difficult to reverse by their very nature.

Taking the Welsh Ambulance Service implementation of a service redesign, this was a Wales Wide implementation and it was recognised that realistically it would be difficult to reverse any implementation once it had taken place. In this instance however, leaders looked to other ways to reduce risk- such as testing parts of a wide system first as a whole implementation trail would be impractical.

*“It was a huge piece of work which culminated in October 2015 where we completely transformed the way the Welsh Ambulance Services responded to calls. We were the first ambulance service to use, to do this transformation in the world.....so what we did in terms of the case study for a system redesign, is we actually designed the system for an advanced paramedic to work with GPs, no one had ever done it before and they weren't quite sure how it was going to work, so we went through a model of, of improvement, we did some, we met with GPs, we identified the problems through all the data analysis, showed them all the data, then we did a process mapping event, exercise then, process mapped it all, we came up with an ease benefit matrix, what was easiest to do with the biggest benefits.”*

If it is clear that practitioners associate trialability with reduced risk and ultimately as enabling implementation of an innovation, improvement or EBP, then finding ways to make test before full scale implementation may be very important. In some participant responses this manifested itself as a means to an end, where at a primary care practice one or more partners were motivated to implement an innovation, improvement or EBP, however were told by resistant colleagues to present the results of a small stage testing phase, to enable further support for full scale implementation. This was the case for P3 who described Case 4. P3 was a keen moderniser at a practice where he felt many of his colleagues who were approaching retirement and less keen to support change, used this as a tactic to avoid change.

A further approach employed by some participants was to trail part of an implementation or deploy in stages. P6 described in his discussion of Case 3, the introduction of the E Consult system to his primary care practice in Pontypridd in South Wales, as a testing phase in itself. Therefore, some practitioners are implementing in a phased way to produce the result of trialability.

There is clearly a link between trialability and perception of risk. Finding new ways to test implementation of an innovation, improvement or EBP where any unexpected effects can be reversed or further implementation be halted, then finding ways to make test before full scale implementation may be very important.

### 5.3.1.5 Usability

<b>Concept Definition:</b>		
Extent to which an innovation can be introduced into the existing operation. Often thought of in terms of stakeholder perceptions of learnability, efficiency, memorability, minimum errors when using and satisfaction		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	The innovation, improvement or EBP is likely to be difficult to introduce into the existing operation in terms of learnability, efficiency, memorability and minimum errors	P8, P2
Medium	The innovation, improvement or EBP is likely to be able to be introduced into the existing operation, in terms of learnability, efficiency, memorability and minimum errors, with some amendments to existing systems	P5, P9, P11, P7
High	The innovation, improvement or EBP is likely to be easy to introduce into the existing operation, in terms of learnability, efficiency, memorability and minimum errors, with little amendments to existing operations	P1, P3, P12, P13, P4
<b>Examples of Cross Reference or Support in Literature:</b>		
Nielsen (2021), (Damschroder 2009), Greenhalgh (2004)		
<b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b>		

This concept describes how an innovation, improvement or EBP can be integrated into an existing system. It was a theme found in existing secondary care models, however was also reported and confirmed by participants in this study:

*“One of the limiting factors has been our telephone system in that we only had something like five or six lines to each surgery, and with over ten doctors and receptionists a lot of GPs were concerned. They would have to use their mobile phones and things weren’t going to be recorded and it’s a good back up to have a recording from a medico-legal point of view” P3*

*The IT system we just adapted what we had and that was quite straightforward so that wasn’t a problem, but the phone system within the first six months died. It was clearly inadequate. Half the time you couldn’t call the patient back because it was engaged and we started to use our mobile phones which was not a good idea because of course they’re not recorded and what you say on the phone is legally binding P1*

These responses suggests that usability is not reserved for new or technical innovations. In this example, a simple improvement project introducing telephone triage meant that the existing resource was not usable for the new system.

### 5.3.1.6 Complexity

<p><b>Concept Definition:</b></p> <p>"Stakeholder perception of the level of complexity of the innovation. One way to determine complexity is by assessing 'length' (the number of sequential subprocesses or steps for using an intervention) and 'breadth' (the number of choices presented at decision points)" (Kochevar and Yano, 2006).</p>		
Level	Description	Experienced By
Low	Stakeholder perception is that the innovation is complex, i.e. many sequential subprocesses or steps to use and/or many choices presented at decision points	P8, P2
Medium	Stakeholder perception is that the innovation is somewhat complex, i.e. some sequential subprocesses or steps to use and/or some choices presented at decision points	P12, P6
High	Stakeholder perception is that the innovation is not complex, i.e. few sequential subprocesses or steps to use and/or few choices presented at decision points	P1, P4, P10, P5, P9, P3,
<p><b>Examples of Cross Reference or Support in Literature:</b></p> <p>Kochevar and Yano (2006), Damschroder (2009), Damschroder (2021)</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>Complexity refers to the number of sequential stages needed to implement an innovation, improvement or EBP and the number of decisions practitioners need to navigate at each stage.</p> <p>The more complex the intervention, the more effort is likely to be needed to implement.</p>		

This is perhaps one reason why many of the interventions participants described were not especially complex. The most common implementation was of variants of telephone based delivery. One Local Health Board had created a standard called ‘Telephone First’ which practices could use as a framework to implement telephone led delivery. This still though was correctly identified by P3 as being an implementation of low complexity.

*“It’s relatively mainstream now and you don’t have to go through this specific procedure. And the other thing is, we’ve had an element of telephone conversation for years now, it’s not, we’re not suddenly just started speaking to patients on the phone, we’ve been speaking to them for some time.” P3*

Higher complexity appears to be perceived by participants as a barrier to implementation of innovation, improvement and EBP. This may be why low complexity interventions featured strongly in responses from the NHS Wales primary care landscape. The easier and less complex an intervention, the better from the perspective of project success. This was conveyed most acutely by P11, who was responsible for an out of hours service redesign for a local health board:

*“I mean essentially what we look for is ease of use, so the fact that people can pick up and use the system. That it’s consistent, i.e. especially in general practice where, not so much now, but where your income was directly based on consistency of input. That was important. The fact that the system can display things quickly and easily, i.e. in terms of past medical histories, photos and all that. But then, also, that it does have a complexity, especially around the searching aspect of it because a lot of work in terms of chasing up stuff, finding patients who slipped through the net, relies on the ability to interrogate the system. So that’s been fairly easy and accessible to use, but also complex enough that you can get done fairly complicated tasks really.” P11*

### 5.3.1.7 Evidence Strength and Quality

<b>Concept Definition:</b>		
<p>"Stakeholder perception of the quality and validity of the evidence that the innovation will be effective. Sources of evidence may include published literature, guidelines, anecdotal stories from colleagues, information from a competitor, patient experiences, results from a local pilot, and other sources" (Damschroder 2009)</p>		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Stakeholder perception that the quality and validity of the evidence that the innovation will be effective, is weak or not present, or evidence is not used when looking at innovation improvement or EBP. Sources of evidence may include published literature, guidelines, anecdotal stories from colleagues, information from a competitor, patient experiences, results from a local pilot, and other sources	P13, P1, P10
Medium	Stakeholders seek and use evidence the quality and validity of the evidence that the innovation will be effective, is present but not as strong as others or needs more evidence. Sources of evidence may include published literature, guidelines, anecdotal stories from colleagues, information from a competitor, patient experiences, results from a local pilot, and other sources	P6
High	Stakeholders seek and use evidence and the quality and validity of the evidence that the innovation will be effective, is high. Sources of evidence may include published literature,	P3, P12, P5, P9

	<p>guidelines, anecdotal stories from colleagues, information from a competitor, patient experiences, results from a local pilot, and other sources</p>	
<p><b>Examples of Cross Reference or Support in Literature:</b>  (Damschroder 2009), Nilsen (2021), Gustafson (2003), Rycroft-Malone (2002), Rycroft-Malone and Bucknall (2010), Nay and Fetherstonhaugh (2007)</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>The literature said that the trend in healthcare delivery has shifted to interventions in clinical and wider service delivery which are evidence-based and demonstrably effective (Gustafson 2003). This thesis and the evolving field of implementation research, exists to implement evidence-based interventions into systems of care.</p> <p>Successful implementation of evidence into practice is a function of three elements: the nature of the evidence; the context in which the change is to take place; and the way the process is managed (Rycroft-Malone 2002, Rycroft-Malone et al 2004). What is being implemented is a significant enabler or barrier to improvements expected from an implementation of innovation, improvement or EBP. The process of looking at research about an intervention is; to establish firstly if it is itself effective for the improvement sought and secondly that it is appropriate to the context of the system to which it might be applied. This concept and theme is best summarised in this way.</p> <p>Respondents sometimes suggested that they had researched a possible intervention to establish if it was likely to be successful or had been successful to colleagues:</p> <p>One respondent said she had specifically had not sought out academic evidence before implementing, though this was also directed at academic management theory as well as evidence base for the intervention, in this case a practice service redesign to include telephone first:</p>		



*“I have to say, there was no, we didn’t use any management techniques, change management techniques, we just looked at what we thought we needed and we did it.” P10*

Evidence of success was not always formally obtained from academic journals, professional magazines or textbooks; seeing other practices and colleagues having success with a similar intervention was described with enthusiasm by some participants and treated with less scepticism than when reading academic journals. P3 described how his practice inspired others with evidence of success, particularly one practice in West Wales:

*“We had a locum, a long term locum working here, who used to go off and work on cruise ships and travel a lot. It was interesting how she would go down to work in West Wales and she couldn’t believe some of the ways they were working. She recommended the system to them. One day, she arranged for this GP in the practice down in Milford Haven to come up with his nurse and admin staff and we showed them the system, they couldn’t believe what we were doing.” P3*

### 5.3.1.8 Innovation Source

#### **Concept Definition:**

"Stakeholder perception about whether the innovation is externally or internally developed and the validity of the source (Greenhalgh et al., 2004). An innovation may be internally developed as a good idea, solution to a problem, or other grass-roots effort, or may be developed by an external entity (for example, vendor or research group) (Greenhalgh et al., 2004)."

<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Internal	Stakeholder perception is that the innovation, improvement or EBP is internally developed	P12, P11, P10, P13, P5, P9, P8, P2

External	Stakeholder perception is that the innovation, improvement or EBP is externally developed	P6, P12, P1, P4, P3
<p><b>Examples of Cross Reference or Support in Literature:</b></p> <p>Damschroder (2021), (Greenhalgh et al., 2004)</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>An innovation, improvement or EBP may either be designed internally, or transposed from another external source- Greenhalgh et al suggest this might be from a commercial vendor of a solution (such as the E Consult product implemented by P6) or a research group.</p> <p>There was less of an obvious distinction between this concept being an enabler or inhibitor <i>per se</i>. It was not a theme where the high, medium or low classification could be applied either. It is not the case that externally developed innovations, improvements or EBPs are more or less likely to lead to implementation success themselves; there was a cross section of implementations and no pattern to suggest either internally or externally developed was any preferable or enabling than the other. Of the mini case study projects described by the expert participants, most (8 of 11) had some externally developed elements. P3 described that the intervention he implemented had come from local colleagues:</p> <p><i>“Some of the practices such as Clydach have been pioneering it, and King’s Road Surgery moved over to it. X works for King’s Road Surgery who is the chair of the BMA in Wales. So that gives us a certain amount of reassurance that you know if someone who is chair of the BMA is doing and the fact that ABMU have been encouraging it. I think we saw somebody else who was, a company who was facilitating looking at telephone triage as well.” P3</i></p> <p>There are two aspects of this response from the external development of the intervention. Firstly the participant has had the detail of the intervention to be implemented, secondly there is a confidence from others successful implementation of it.</p>		

Other externally developed interventions were treated with more scepticism by participants. Interventions developed or involving the national NHS Wales IT service NWIS were one such example:

*“In Wales we have, a body called NWIS, which is based in Cardiff and they bring all their IT systems but, they’re often criticised, I find in meetings that, it’s taken them a long time, to get things, working and active in Wales, whereas England seems to progress a lot quicker.”P6*

#### 5.3.1.9 Cost

##### **Concept Definition:**

"Stakeholder perception of the cost of the intervention, including investment, supply and opportunity costs." Damschroder (2021)

<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	The cost of the intervention, including investment, supply and opportunity costs, is high, relative to other options or the status quo	
Medium	The cost of the intervention, including investment, supply and opportunity costs, is roughly equal to other options or the status quo	P6
High	The cost of the intervention, including investment, supply and opportunity costs, is low, relative to other options or the status quo	P12, P11, P7, P10, P1, P4

##### **Examples of Cross Reference or Support in Literature:**

Damschroder (2021), Greenhalgh (2004)

### **Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

The cost of an intervention reflects its viability. As noted at the introduction and context chapters of this thesis, primary care providers are private businesses with one contracted customer. There is a profit maximising surplus agenda for partners, who keep retained profits.

The literature introduced this concept however it featured relatively sparsely in the participant responses. Only one reference to this concept was made:

*“We’re trying to secure extra building space via the landlord and the health board, but that is a very long and protracted process and we have that issue that the council has given planning permission for 10,000 houses in our catchment area with no increased provision of primary care services. It’s an ongoing difficult issue. So, we’re trying to expand and increase the amount of square footage but that’s depending on it being signed off by the health board. Not just only in terms of capital expenditure, which will probably be borne by the landlord, but it’s the ongoing rent that attracts as well, so they’re not always keen to do that.”P11*

Perhaps participants are less comfortable communicating financial aspects of their business, when the NHS landscape is one of public taxpayer funding. Many aspects of cost and viability however were implicitly made by participants in their choice of intervention. Of the implementations in this study, none were significantly needing high levels of investment in terms of capital expenditure. Where this was needed, there was an expectation among participants in primary care practices that if capital expenditure is needed in implementation of an innovation, improvement or EBP this should be partly or fully met by government as it is not covered in the fees practices receive as part of their contract to deliver services.

This section has presented the sub themes of the innovation, improvement or EBP itself. There was a high level of discussion from participants in the interview responses for this theme as has been detailed above. Some participant did not mention these sub themes, as can be seen from their absence in the relevant tables. This is the nature of specific case studies where some themes and sub themes happened to be more relevant to contextual factors of some projects than others. Overall, the level of participant views on these sub themes was high and added the understanding of these sub themes to the specific context of implementation of innovation, improvement and EBP in primary care.

### 5.3.2 Facilitator Internal Context

This section presents the second main theme, of which there are two sub-themes of capability and motivation and within each of these a further set of sub themes. Participant responses are presented below and mapped within relevant tables to the concept presented. In this way, the reader can map the initial conceptual model, through the data presented and to the resultant updated model at the end of this chapter.

#### 5.3.2.1 Capability (Can Do)

##### 5.3.2.1.1 *Planning*

<b>Concept Definition:</b>		
<p>“Stakeholder perception of the degree to which a scheme or method of behaviour and tasks for implementing an innovation are developed in advance and the quality of those schemes or methods. Planning includes a variety of processes, such as completing a context/needs assessment, developing action items and an implementation timeline, and setting implementation goals.” (Damschroder 2021)</p>		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	There are few schemes or methods of behaviour and tasks for implementing an innovation	P6, P7

	developed in advance and the quality of those schemes or methods are poor	
Medium	There are some schemes or methods of behaviour and tasks for implementing an innovation developed in advance and the quality of those schemes or methods are reasonable	P10, P13, P3, P11
High	There are extensive schemes or methods of behaviour and tasks for implementing an innovation developed in advance and the quality of those schemes or methods is high	P1, P4, P5, P9, P8, P2

**Examples of Cross Reference or Support in Literature:**

(Damschroder 2011,2021), (Colquhoun et al 2010), (Davies et al 2010), (Liang et al 2017) (Powell et al 2014), ( Grol et al 2005, 2007), (Mendel et al 2008), (Glisson 2005), (Estabrooks 2006, 2009), (Pronovost 2008)

**Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

Planning is the process of forming a scheme to implement an innovation, improvement or EBP (Damschroder 2011,2021). In this study, participants described a range of planning activities.

Planning ranged from informal and ad-hoc activities among participants of this study, to more formalised and thorough strategies. The literature suggested that planning is a key enabler of successful implementation of innovation, improvement and EBP (eg (Damschroder 2011,2021; Grol et al 2007; Mendel et al 2008; Grol 2005; Glisson 2005; Estabrooks 2006; Pronovost 2009). Participant responses confirm this view; respondents who had a positive perception of their implementation, tended to plan more- with more defined schemes of implementation and a greater understanding of the aspects of delivery model they were trying to improve (P12, P5, P9, P8,P2). Those who reported dissatisfaction, also lacked a thorough description of any planning process (P7, P6). In these cases, there was a follow up directing blame at either the government, or to suggest planning was either not useful or would have little effect. Both P7 and P6 used an identical

phrase in their responses- they were “rearranging the deckchairs on the Titanic.” This suggested to the researcher, a participant perception of planning being useless; the result of implementation was seen by them as a *fait accompli*, that demand for care cannot be stemmed or service delivery improved.

On the less formal side was P13 who had only a loose plan in place before attempting to implement:

*“We felt that we weren’t using our resources to the best availability. So, we changed quite rapidly, we were one of the first in the area to do it. One Practice had got a company in to do it for them and I went and had a look what they did and we just came up with our own system and discussed it with our staff and we implemented it. I have to say, there was no, we didn’t use any management techniques, change management techniques, we just looked at what we thought we needed and we did it.” P13*

By contrast the Welsh Ambulance Service Trust redesign was one of the most thoroughly planned implementations. This had multiple stages and matched to assessment of demand:

*“Once we put, we’d designed our operational model, we then had to look to see in terms of the demands on the operational model, so that we could identify priorities for improvement and it’s, it came as a surprise to some colleagues at trust board level, but not to me, that our main user of the ambulance services are general practitioners”. P12*

One aspect of planning found to be deficient in the responses from participants was the use of implementation theory in that planning process. Logically, theory is best used at this stage. Birkin (2021) notes that though there are well established benefits to using theories, models and frameworks to inform the planning process-“ these are often underused, superficially used or misused” Birkin (2021) (Colquhoun et al., 2010; Davies et al., 2010; Liang et al., 2017; Powell et al., 2014). In this study, this suggestion from the literature was replicated strongly. Not one participant referenced any implementation science theory, model or framework. Some (P6,P7,P11,P13), went as far as to actively avoid such theory. This is a major challenge to the industry and from the data collected in this study, the Welsh NHS Primary Care delivery.

### 5.3.1.1.2 Resources

<p><b>Concept Definition:</b></p> <p>"Stakeholder perception of the level of resources dedicated for implementation and ongoing operation of the innovation, including money, training, education, physical space, time, as well as technical, electronic and material resources"(Damschroder 2021)</p> <p>"The resources available to support the implementation process; for example, time and/or financial support for new skills development, new equipment, expert support and advice." (Harvey and Kitson 2016)</p>		
Level	Description	Experienced By
Low	There are insufficient resources dedicated for implementation and ongoing operation of the innovation	P7, P6
Medium	There are some resources dedicated for implementation and ongoing operation of the innovation	P11, P5, P9, P10, P3, P13,
High	Resources dedicated for implementation and ongoing operation of the innovation are likely to meet project requirements	P12, P8, P2, P4, P1
<p><b>Examples of Cross Reference or Support in Literature:</b></p> <p>Edmondson et al. (2001); Fitzgerald et al. (2002); Greenhalgh et al. (2004); Gustafson et al. (2003); Simpson and Dansereau (2007); Weiner et al. (2004), Aarons et al. (2011)</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>Resources were split into two main categories; physical and technological resources and human resources. These can each be split into those resources needed to implement an innovation, improvement or EBP, for example a project team; or that the new system of delivery will require to operate:</p>		



Human Resources	
Required for Implementation Project	Business as Usual System Requirements
Physical or Technological Resources	
Required for Implementation Project	Business as Usual System Requirements

### Human Resources

Primary care delivery is a service system and the efforts of implementation of an innovation, improvement or EBP are to improve that system. Its core component is human resource, all performance and quality outcomes are delivered by people. Technological advances and new ways of operating are evolving, but in the short to medium term, primary care is a function of human resource. Participants linked increased demand for services and implementation of innovation, improvement and EBP; with impact or effect on human resources (P1,P2,P3,P5,P6,P7,P8,P9,P10,P11,P12,P13).

When planning and implementing an innovation, a repeat issue considered was having a suitable level of human resource to run the new system:

*“Basically you’ve only got the staff that you’ve got and you can only offer appointments up to the capacity of those staff. We knew that we were over-whelmed with demand, we knew that we were seeing the wrong people, so we basically just said, ‘This is the service we want to provide, how many, what is our capacity with our current staff?’. So, we didn’t look at demand, we looked at what we could offer and that’s where we started and we over-estimated our ability to offer so it nearly killed us, so we then had to reduce the number of slots.” P13*

Incorporating holidays and other issues was a practical issue when considering human resource requirements.

*At the moment we have so much sickness, we have about three partners, one on permanent holiday always because there's seven of us, and then there are two that are off sick at the moment. P1*

This operational issue demonstrates the role of the human resources theme as an enabler or inhibitor of successful implementation of innovation, improvement and EBP in primary care. Practitioners need to consider human resource capacity and availability in what they implement, if it is to be a success.

The digital first provider (P2,P8) , Babylon Health, introduced a new approach to human resource planning which the Out of Hours service redesign case (P11) also partly incorporated. These participants were incorporating more flexible working for General Practitioners. This had a significant impact on availability of resource- more staff were willing to work and engage when the work could fit around their lifestyles and be less overwhelming. Remote working for these projects was easier to implement as they were not the standard community practice, however other participants were interested to modernise resourcing of their practice also (P3) :

*“With Babylon, you see a lot of people saying well actually this week I'm just going to do 10 – 1 on a Tuesday because my mother in law can have them for a few hours that week and the next week I'll do a little bit more and you know, it just means that it's much more on your own terms. Which if you think about it, autonomy in your work is just so valuable.”*

*P2*

*“The vast majority of GPs work from home. They have a set up in their office where they do consultations, they have flexibility to choose when they do days. We see that a huge number of sort of GPs who are new mums or whatever who have come back to work and in a way that they wouldn't have otherwise done.” P2*

Incorporating flexible working is no longer an isolated human resources issue, it is a direct enabler or inhibitor of success for the participant projects.

## Physical and technological resources

The second element of the human resources theme are non-human resources, the physical and technical resources needed to implement a project. There was a diversity among projects and participants in the resources required. The enabling feature, similarly to human resources, was that the likely requirements of the resulting operational delivery system and care journey were assessed and the physical and technological resources assigned met these needs.

Physical resources comprised the buildings and premises needed to deliver primary care. There was a trend towards centralising everything other than the consultation itself into hubs (P1,P3,P6,P7,P11,P12,P13). The uses of these centralised delivery points are varied but have the impact of reducing the need for physical resource within the practice:

*“We’ve got a new service now which is based in our hub, which we triage into, just this last month we’ve had a new audiology service there which is a health care assistant who is capable of suctioning ear wax which is the new NICE guidance recommended way to remove ear wax. So now, all our practice nurse syringing has stopped. I don’t get involved in that, the girls here, oh my ears are blocked I need them syringing, oh we don’t syringe any more.”P1*

Video delivery was a technology implemented in some cases. The best implementations used this resource to impact the workload or stress on human resource requirements of the primary care delivery system for their practice:

*“So we’re seeing a far higher sort of resolution rate from video than I think anyone has sort of dealt with telephone first consultations. Which changes the [human resource] capacity requirements in physical practices. So if you’re saying you’re only putting 15% of your requests for care into face to face consultations, then you can start really looking again into your supply and demand in those physical practices. It is particularly interesting in places like Wales, Hwyl Dda; places where there are chronic difficulties in recruitment and retention. Lots of you know, GP practices have gone down to sort of single practice*

*GPs and are sort of hanging on by a thread, a lot of them are closing. This could improve that situation.” P2*

There were commonly teething problems with new technology or well used technology such as phone systems, but used in a new way or to higher capacity as a result of the project:

*“The IT system we just adapted what we had and that was quite straightforward so that wasn’t a problem, but the phone system within the first six months died. It was clearly inadequate. Half the time you couldn’t call the patient back because it was engaged and we started to use our mobile phones which was not a good idea because of course they’re not recorded and what you say on the phone is legally binding and medically indefensible.” P1*

#### 5.3.2.1.3 Skills and Learning

##### **Concept Definition:**

"Skills of the facilitator to undertake that role including understanding of (Damschroder 2021):

- Organisation or organisations they are working with
- Awareness of competing tensions and how to manage these in relation to implementing innovation and change
- In depth understanding of individual and team motivation, team dynamics and productivity
- Experienced and knowledgeable in local context evaluation
- Able to assess system-wide activities and influence actions
- Aware of wider contextual issues and confident in terms of negotiating boundaries and political tensions"

Level	Description	Experienced By
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Low	Skills of the facilitator to undertake facilitation of implementation of innovation, improvement or EBP are inadequate and likely to be a barrier to successful implementation	P6, P7
Medium	Skills of the facilitator to undertake facilitation of implementation of innovation, improvement or EBP are adequate and not a barrier to implementation, however further training would lead to a more successful outcome	P3, P11
High	Skills of the facilitator to undertake facilitation of implementation of innovation, improvement or EBP are more than adequate and likely to lead to successful implementation	P12, P1, P4, P13, P8, P2
<p><b>Examples of Cross Reference or Support in Literature:</b>  Damschroder (2021), Klein (1996; 2001), Templeton et al (2002), (Beidas et al. 2012) (Birken et al. 2013)</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>The facilitator or leader of the implementation of an innovation, improvement or EBP is effectively the catalyst and enabler of the project. Both logically as well as in literature is seen as a key role in successful implementation (Damschroder 2009, 2021).</p> <p>The environment for reflection and learning to take place is known as the ‘learning climate’ of the organisation. It reflects the degree to which leaders express their own fallibility and need for team members' assistance and input. Where there is a positive learning climate; team members feel valued, knowledgeable and partners in the change process and safe to try new methods. There is also sufficient time and space for reflective thinking and evaluation (Damschroder 2021). Therefore, learning is linked to culture and collaboration themes, according to the literature. Responses of participants agreed with the literature in that where there was a perception of successful implementation of an</p>		

innovation, improvement or EBP, it was accompanied by a skilful project leader and positive learning climate within that organisation (P5, P9, P12, P1, P13)

#### 5.4.2.1.4 Monitoring and Evaluation

##### **Concept Definition:**

Understanding the extent to which improvement has been achieved. This can be formative to steer a live project or summative to understand how well a project met its aims.

Monitoring and evaluation is 'stakeholder perception of the degree to which quantitative and qualitative feedback about the progress and quality of implementation, accompanied by regular personal and team debriefing about progress and experience, is provided.

(Damschroder 2021)

<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	No structures in place to measure or respond to stakeholder perception, through quantitative and qualitative feedback, about the progress and quality of implementation	P11
Medium	Some structures in place to measure or respond to stakeholder perception, through quantitative and qualitative feedback, about the progress and quality of implementation	P10, P13, P5, P9, P1, P4,
High	Established structures in place to measure or respond to stakeholder perception, through quantitative and qualitative feedback, about the progress and quality of implementation	P8, P2,

##### **Examples of Cross Reference or Support in Literature:**

Proctor et al (2011, 2021), Damschroder (2009;2021), Brach (2008), Keith et al (2017), (Rosen and Proctor, 1981), (Powell et al. 2016), (Aarons 2014), (Glasgow et al 1999)

### **Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

Implementation outcomes in healthcare and primary care service delivery are “the effects of deliberate and purposive actions to implement new treatments, practices and services” (Proctor et al. 2011). This theme incorporates the identification of specific indicators of implementation success for a project, which may be formative or summative (Rosen and Proctor, 1981).

Distinguishing implementation effectiveness from innovation, improvement or EBP effectiveness itself is important for translating interventions from research to practice. If implementations are not as expected, it is important for project leaders to know if the failure occurred because the intervention was ineffective (intervention failure) or whether a good intervention was deployed poorly (implementation failure) (Proctor 2011).

Proctor et al (2011) proposes a taxonomy of eight generic outcomes, implementers can use to evaluate the success of the implementation. These are detailed in the literature review section, however briefly comprise of eight constructs: acceptability, adoption, appropriateness, cost, feasibility, fidelity, penetration, sustainability.

In this study, participant perceptions and understanding of evaluation of implementation fell into four sub categories:

1. **Evaluation not present-** participants who did not evaluate (P6, P7)
2. **Evaluation a box to tick-** participants who either had external evaluation or felt that it was only a formality for funding or to show success whatever the actual outcome (P3, P1, P4)
3. **Evaluation informal-** where evaluation was informal, perhaps by internal meeting but not written down (P10, P13)
4. **Evaluation formal-** evaluation was formal and extensive (P12, P11, P8, P2, P5, P9)

Participants 6 and 7 did not evaluate their project implementations. This may be as they reported dissatisfaction with many of the outcomes.

Participant 3 did some evaluation which became the subject of internal politics to meet a second phase of implementation and participant 1 outsourced evaluation to participant 4, a health board specialist analyst as part of a Welsh Government example programme.

Informal evaluation often comprised of internal meetings and where smaller practices perhaps lacked the resources or time to write extensive reports, which they said would also lack an audience. The informality was not as a trade off with quality of evaluation by those participants but explained as being more efficient:

*"We had loads of meetings and feedback but, as I say, we're a small practice so we sit in reception and we're quite informal and we chat all the time anyway." P13*

Formal evaluation took many forms and was individualistic. No participants echoed the evaluative criteria found in the literature, but the process of reflection and assessing improvement was clearly present:

*"Babylon is acknowledging the fact, it's about total contacts. Which you could argue need to include the secondary care contacts as well. There's no point; you could sort it one call if you told everybody to go to A&E. So, it has to be total health contacts. And it's interesting the Martin Rowland paper on advance access that came out a couple of years ago did take into account ED total service contacts when they were comparing GP, and nurse practitioner-led telephone triage. So, they did actually do that calculation. So, it is in the literature." P5*

*"Okay. So, if your using PROMS and CROMS, the argument is that you can't say a problems resolved until the patient says its resolved. As opposed to a GP deciding, your cured. And that can be done at the individual basis, or it can be done at the population basis. So, for example, you arbitrarily set a standard and say that, yeah, when ninety per cent of our patients are reporting that their problems have been resolved then we'll take that as being a successful system. So is there a PROM tool that can be created or does it*



*already exist too, that you can get practices to routinely do on a daily, weekly, basis so that they can test their system? Or is there something that can be adapted?” P5*

*“So ambulance services gather both clinical and performance data through their own systems, ED, emergency departments. So to get a measure that helped us understand the effectiveness of this model across the whole system was extremely difficult, so we agreed with GPs that their measure would be, a fundamental one, increase capacity of GP time, so rather than going out and spending a lot of time on home visits, how did it increase GP’s time. That’s what the GPs gathered but unfortunately they didn’t follow that through, so we had to do some sort of retrospective analysis. We talked about patient satisfaction, staff satisfaction, the primary qualitative pieces of data. We had ninety eight percent of staff, patient satisfaction and I think we had high nineties staff satisfaction. In terms of performance or process measures, they quantitative stuff, what we would, our driver for this, primary care’s driver is to increase capacity of their most senior clinicians to see patients and to coordinate and run multiple disciplinary teams, our primary driver is to retain emergency ambulances for emergency calls so that the GPs through, because otherwise by default, if the GPs aren’t seeing the patients, they will self select to dial 999.”P12*

### 5.3.2.1.5 Structure and Systems

#### **Concept Definition:**

Ways in which the patient journey is structured as a system, through which resources are utilised to deliver primary care.

<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	There is a poorly structured patient journey, either not reflective of a system, or one which is poorly designed, where no operations	

	management principles can be seen in that design.	
Medium	There is a structured patient journey, reflective of a system, where some operations management principles can be seen in that design.	P3, P1, P4, P5, P9, P13, P6, P7, P10
High	There is a well-structured patient journey, reflective of a system where operations management principles can be seen in that design.	P12, P8,

**Examples of Cross Reference or Support in Literature:**

Hunter (2006), Daft (2015), (Aarons 2014), Greenhalgh (2004), slack et al (2016), Johnson et al (2016), Silvestro et al (1994)

**Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

This was an a priori theme from literature (Aarons 2014; Greenhalgh, 2004), however was muddled within various related concepts such as; system antecedents, structure, maturity, size, system readiness, structure and others.

The respondents of this study were able to describe, in most cases, a complex system of care primary care delivery through which a patient flows to receive care. This system is the means and mechanism by which change made to it, results in the implementation.

Therefore, it is an important determinant. This concept is about how ‘ready’ that system is for change and the ways in which participants attempted to apply those improvements.

There were many of the ideas within the operations management literature found; such as managing demand as well as streaming and batching like work. The application, into a complex system, was often variable.

One common system change to the care journey was shifting the proportion of triage or consultations to telephone:

*So principally, [most contacts are resolved by] advice on the phone. I would say 50%, ballpark figure, I would just advise. They don't need anything more than that, they need a chat and that's it. The second outcome is to investigate before seeing them. As long as they're not acutely ill, I ask them to get blood tests done, ECG, very useful to get a pregnancy test done sometimes because they are at risk with abdominal pain and may be pregnant. What would have taken a 15 minutes appointment by the time they've got their coat off and gone and done a urine specimen, I've actually asked them to bring it in, it's their own time that they do the sample in, it's somebody else dipping it for me and giving a result. So the efficiencies are huge and that's just UTIs. P1*

'Flipping' the consultation was another common system feature incorporated as part of implementations (P1,P3,P5,P8,P9,P11,P13). P5 gave a detailed description of how it featured in his care journey:

*My old practice we used, in Newport, when you were on the phones you regularly would flip the consultation. You'd say, well there's no point in coming to see somebody today, go and get these tests done and come back with the results. That was a regular way of coping. And on the whole, patients were satisfied because they felt heard. They felt that action was being taken in response to their concerns and they knew that actually when they did turn up it would be a more meaningful consultation."P5*

The outcome of this system change was a reported improvement in demand management and customer (patient) satisfaction. This system change is generic in its applicability to most primary care patient journeys. Therefore, though each primary care system is unique, features are often generic.

### 5.3.2.1.6 Mechanisms for Embedding Change

<b>Concept Definition:</b>		
Understanding the modifications that will be needed to routine practice and patient journey, to embed innovation and improvement into business-as-usual		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	There is little or no understanding of the modifications that will be needed to integrate or embed the innovation, improvement or EBP into business-as-usual, routine practice and patient journey.	P6, P7
Medium	There is some understanding of the modifications that will be needed to integrate or embed the innovation, improvement or EBP into business-as-usual, routine practice and patient journey.	P11, P10, P5, P9, P13
High	There is extensive understanding of the modifications that will be needed to integrate or embed the innovation, improvement or EBP into business-as-usual, routine practice and patient journey.	P12, P8, P2
<b>Examples of Cross Reference or Support in Literature:</b>		
Willging et al. (2016), Stirman et al. (2012), Bowman (2008), Massatti (2008), Maher (2007), Scheirer (2011), Feldstein (2008)		
<b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b>		
Implementing innovation, improvement and EBP is focused primarily on an initial implementation, however there is a phase after this where its use is what realises the		

improvements. This is called either embedding implementation or sustaining implementation in literature and used interchangeably. It has been the subject of an increasing amount of research in recent years (Stirman et al. 2012). There is increasing recognition that embedding implementations is influenced by many variables. More research is needed to understand what these factors are and how they interact.

For this study, this theme is relevant as one determinant of a wider framework. It was an a priori theme for implementation in healthcare and responses of participants in this study showed that it should be included as a determinant in a framework for primary care implementation of innovation, improvement and EBP.

There is tension in the literature between interventions as designed or prescribed by a originator, researcher or funder and the need to adapt them for use in a primary care system with a different context, need or demographic population Maher (2007).

There are two main conceptualizations of sustainability in the literature, it would be interesting to see which were present in participant responses and if any other perspectives were present. In some models, the intervention rather than the system is the focus; factors that increase the likelihood of sustainability present in an intervention. The other approach is effectively the reverse, to conceptualise sustainability as being the result of features of a complex system; where sustainability depends on internal and external environment, context and the intervention itself.

In this study, participants saw sustainability both in terms of the innovation, improvement or EBP itself and as a systemic issue. Some also linked this theme with further or continuous improvement in a later stage.

Participants sometimes spoke about sustainment in terms of further improvements that would be needed as system needs evolved:

*“If I had all that planning time and a fairly unlimited fund of money, what I would do is I would just completely keep developing the team. So why not have that minor illness nurse, why not have that mental health nurse able to deal with stress related illness, crisis*

*management and some psychotherapy training, CBT training? You know, that maybe I'd need an army of those. I would have other team members, there's no limit. I have had two A4 sides written of all the people that would be good." P1*

#### 5.4.2.2 Motivation (Want To)

##### 5.3.2.2.1 Engagement

#### **Concept Definition:**

Inspiring stakeholders to support the outcomes of and participate in the process of implementation of innovation, improvement or EBP. This includes staff within the organisation who will be customers of the system the innovation, improvement or EBP improves, as well as patients and operational external stakeholders.

<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Stakeholders are uninspired by the outcomes of implementation and/or do not participate in the process of its implementation.	P6, P7,
Medium	Stakeholders are partly inspired by some of the outcomes of implementation and/or participate in the process of its implementation.	P11, P5, P9,
High	Stakeholders are inspired by the outcomes of implementation and/or participate in the process of its implementation.	P12, P8, P2

#### **Examples of Cross Reference or Support in Literature:**

Damschroder( 2009;2021), Pronovost (2008), Greenhalgh (2004), Rogers (2003)

## **Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

Engagement is about “attracting and involving appropriate individuals in the implementation and use of the intervention” (Damschroder 2009;2021). There are various aspects of this in the literature including; social marketing, communicating the need for change, education, training, and other activities. It is the process of recruiting the support of those tasked with implementing or using an innovation, improvement or EBP, as well as all other stakeholders of the intervention.

Damschroder (2021) proposes four methods of engagement: opinion leaders, formally appointed implementation leaders, change champions and external change agents. From this base in the literature, engagement was established *a priori* theme as a theme likely to feature in the framework. In this study, confirmation of the presence of an engagement was found consistent with the literature. It also established that engagement exists as an enabler of implementation and builds understanding; showing the ways in which engagement is approached by practitioners in the Welsh NHS primary care delivery setting.

Engagement as a theme covered all stakeholders, from the perspective of an implementer. This included partner colleagues, staff, juniors, external services (eg blood testing services and physiotherapy) and patients as the ultimate users of the system and customers. Engagement can be seen as a function of recruiting early adopters synonymous with the Rogers Curve (Rogers 2003).

For some participants, engagement focused on user experience and communicating the subsequent benefits of an improved system of delivery:

*So if you talk about Amazon metrics, it's all about user experiences. It's user is king, user experience is everything. Health care is all about clinical outcomes. Even if it's the worst experience ever, if you've got a good cancer target rate, then that's all that kind of matters [right now]. So, I expect the new models of primary care to be somewhere in between, just because I think it's kind of what consumers are increasingly expecting. And you know, I*

*think the other bit that I think we need to put at the top of the agenda is actually the clinicians experience of it all. P2*

For the WAST system redesign project described by P12, this engagement was more formal with a matrix of needs and benefits for each stakeholder. This makes communicating and achieving buy in easier for the implementer. Internal and external stakeholders have a reason to get involved and support the intervention:

*“We did in terms of the case study for a system redesign, is we actually designed the system for an advanced paramedic to work with GPs, no one had ever done it before and they weren’t quite sure how it was going to work, so we went through a model of, of improvement, we did some, we met with GPs, we identified the problems through all the data analysis, showed them all the data, then we did a process mapping event, exercise then, process mapped it all, we came up with an ease benefit matrix, what was easiest to do with the biggest benefits”. P12*

#### 5.3.2.2.2 Motivation

##### **Concept Definition:**

Motivation among facilitators and stakeholders act as enablers of innovation and improvement programmes, whereas where motivation is unclear or not present this inhibits successful facilitation. For example, motivation may be to improve patient outcomes or to improve profitability. (Harvey & Kitson 2015)

Level	Description	Experienced By
Low	There is no clear motivation for implementation of innovation, improvement or EBP, or is not present.	P6
Medium	There is some motivation for implementation of innovation, improvement or EBP, though this	P3, P7,



	may lack clarity. There may be a motivation however not shared throughout the organisation.	
High	There is a clear motivation for implementation of innovation, improvement or EBP, that is communicated and across the organisation	P12, P10, P8, P2, P1, P4, P5, P9
<p><b>Examples of Cross Reference or Support in Literature:</b> (Damschroder 2009;2021), (Waltz et al 2019)</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>What motivates implementers to embark on an implementation project. It is the ‘why’ of implementation. In this study, responses indicated that there were both internal and external motivations. External motivations are detailed as a theme of its own later in this chapter, of which there were several variants. Internal motivations at the organisational and individual levels for implementing innovation, improvement or EBP projects had traditionally been explained in literature as being for patient improvement or efficiency reasons (Damschroder 2009;2021; Waltz et al 2019). This study identified differing internal motivations, which supported those motivations found in literature- but suggesting a new dynamic of motivation the specific context of primary care- the ability to cope with demand and workload:</p> <p><i>“I think its often forgotten that everybody works for different reasons. The motivations for getting up in the morning and going into work are different. And so, you may get some partners who are genuinely system orientated, process orientated and patient-focused. Partners may want to control their workload, they may be feeling stressed and actually will not relish the idea that they are going to have more contacts and maybe work longer hours. The partner leading the change maybe more concerned about smoothing out the unpredictability and may not cope with the sudden jerky change of everyday practice life. So, they may have very different reasons, motivations.” P5</i></p>		

This motivation does not suggest that specific benefits are always sought by participants as motivating factors for implementing innovation, improvement or EBP in primary care in the Welsh NHS. Participants specifically stated it was to prevent worsening of the existing levels of work and stress, or to prevent colleagues and junior staff leaving the profession:

*“The service is so over-whelmed that we generally deal with urgent and semi urgent and chronic disease management have always been put into Chronic Disease Management Clinic in our nurse-led clinic. Long-term conditions have been pretty much forgotten because we don’t have capacity and so they dealt on an urgent basis, which is quite bad because prevention is probably one of the best things we can do but we’re fire-fighting now most of the time.” P13*

*P3 explained that retaining good staff and managing or ‘coping’ with the workloads was the main motivator of their implementation programme:*

*“It is a very pressurised stressful system, so then what better way to switch off a young GP than to say, it’s hell here, I’d stay in hospital if I were you. GPs dried up and they stayed in secondary care. There you have it, a perfect storm, massive demand, poorer capacity, so we knew that our advanced access system would not work any more. We just couldn’t provide enough appointments.” P3*

### 5.3.2.2.3 Culture

**Concept Definition:**

"The way that 'we do things' in our organizations and work units" (Gershon et al., 2004).

“Stakeholder perception of norms, values and basic assumptions of a given organization”(Gershon et al., 2004).

A culture of improvement, collaboration, openness and innovation is an enabler of implementation of innovation and improvement. A culture of innovation and improvement being futile is a barrier to successful innovation (Damschroder 2021).

Level	Description	Experienced By
Low	Stakeholder perception of norms, values and basic assumptions is that innovation and improvement is futile	P6, P7
Medium	Stakeholder perception of norms, values and basic assumptions is mainly one of improvement, collaboration, openness and innovation. This may not be shared across the organisation.	P3, P13, P11, P10, P1, P4
High	Stakeholder perception of norms, values and basic assumptions of a given organization is of improvement, collaboration, openness and innovation.	P5, P9, P8, P2

**Examples of Cross Reference or Support in Literature:**

Estabrooks (2009), Provan and Milward (1991), Birken et al. (2017), Shortell (2016), Shearer et al. (2014), (Aarons 2014)

**Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

*“Yeah, to be honest, we’re very lucky, we work very, very well as a Practice, we always have, we meet up a few times during the day every day, not as much as we used to (laugh). Before we started this system we would have coffee in the morning at quarter past eight, we’d meet for lunch and then we’d meet for coffee before evening Surgery. That had to go because the phones open and you have to ring back by eight and with the paperwork being more digital but we still will sit down at least once a day every single day and we always work very, very well and as we’re small, with four people, we’ve changed but not loads over the years and yeah, we all agree and then we just go for it and do it. Primary Care, when you get people to talk together and get on, it’s incredibly agile and, you know, we can decide something and next week’s it done.” P13*

*“In terms of my side of things, my work/life balance is better because I can get through my work in a fairly efficient fashion so I’m not waiting around hours on end for patients who are there asking for a sick note, or whatever. It’s dealt with efficiently. It’s more rewarding for the fact you know that at least you are dealing with the people who actually need to be seen.”P11*

There is a wider culture of coping:

*“I think a lot of issues around risk for us are around access; so, making systems accessible and around making sure that the people working the system aren't under too much strain and stress because that's when you'll tend to find errors will occur, if you like. So, it's trying to depressurise the system and if I had the answer to that i'd be a lot less stressed than I am at times.”P7*

*“It's interesting how some people will be largely influenced by how they feel and the stress of everyday working and coping with what they perceive as an ever increasing demand.”P5*

#### 5.3.2.2.4 Attitude to Risk

<b>Concept Definition:</b>		
<p>Stakeholder perception of the degree to which leaders express their own willingness to try new innovations and facilitators feel able to explore new methods. Accepted that innovation is a risk and often will not work as planned. Risks are understood and managed but innovation is encouraged. There is sufficient time and space for reflective thinking and evaluation. (Harvey and Kitson 2015)</p>		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Stakeholder perception is that leaders express are unwilling to try new innovations and facilitators feel unable to explore new methods. Risks are poorly understood or managed and so innovation, improvement and EBP is discouraged. Where there is implementation, there is insufficient time and space for reflective thinking and evaluation.	P6, P7
Medium	Stakeholder perception is that leaders oftentimes express their own willingness to try new innovations and facilitators feel on the whole able to explore new methods, but sometimes lack confidence within the organisation. Risks are generally understood and managed and innovation is often encouraged. There is generally sufficient time and space for reflective thinking and evaluation.	P11, P13
High	Stakeholder perception is that leaders express their own willingness to try new innovations and facilitators feel able to explore new methods. Risks are understood and managed but innovation is encouraged. There is sufficient	P12, P5, P9, P3, P1, P4

	time and space for reflective thinking and evaluation.	
<p><b>Examples of Cross Reference or Support in Literature:</b>  Klein and Sorra, 1996; Klein et al., 2001; Nembhard and Edmonson, 2006; Greenhalgh et al., 2004; Nembhard and Edmonson 2006; Harvey and Kitson 2015; Damschroder 2009</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>This theme is about the ways in which participants perceived risk, the different types of risk they perceived and how this impacts the implementation of innovation, improvement or EBP. This translates to a willingness to try new things in a way which accepts not everything will be a success and minimises disruption in those events.</p> <p>This theme is partly linked with the external environment sub theme of regulation and contract and commercial issues, as these make explicit the ways in which risk must be contractually managed. This theme looks within those parameters at the organisational perception of risk.</p> <p>There was financial dynamic for P13, who did a cost benefit analysis when planning what services to offer. To him, the expected extra income relative to insurance costs was the main driver in the choice:</p> <p><i>“There is difficulty over what they’re calling high risk work, that is joint injections, minor surgeries, for our own registered patients. They’ve put that into another category and then if you’re a partner who works a larger number of sessions, the amount that we get paid for doing that extra work, doesn’t cover the increased premiums. So, it’s actually caused us now to, well myself, not offer joint injections and minor surgeries that I’ve just done for the last twenty years and my partner as well, so as a Practice we won’t offer that anymore.”</i></p> <p style="text-align: center;"><i>P13</i></p> <p>For Local Health Boards managing primary care services, the balance is between encouraging innovation and improvement whilst demonstrating patient safety is maintained:</p>		

*Proactively monitoring services and promoting a culture of continual improvement to ensure that they are actively risk assessing and making changes as they go along to ensure that patients continue to experience a better system. Inherent in any quality improvement process there is always the risk that things will get worse and practitioners need to be allowed to make mistakes and need to be allowed to try things out. And within safety parameters need to be allowed to say, we tried this out because we thought it would be better, but it hasn't and stop it or change it. P5"*

At the individual practitioner level, there were varied attitudes to risk influencing the willingness to try out new approaches to consultations. Some practitioners would support implementation and try different ways of consulting only if the medicolegal risk they felt was low relative to face to face practice:

*I've created my own emergency list. I always see mental health, as far as I can, I'm not perfect, but if they are bursting into tears on the phone, I don't know how close to suicide they are so they're in and I can do that much better face to face. Second, are kids under 5. I don't like hot kids, you have no idea what's going on there and if I'm honest, if they develop meningitis and drop dead, if you've not seen them you're up a gumtree big time. So even if you see them and you check them over, your defence is still massively greater than if you haven't and you just relied on advice. P1*

### 5.3.2.2.5 Leadership Commitment

<b>Concept Definition:</b>		
<p>“Stakeholder perception of commitment, involvement and accountability of leaders and managers with the implementation. The term ‘leadership’ can refer to leaders at any level of the organization, including executive leaders, middle management, front-line supervisors and team leaders, who have a direct or indirect influence on the implementation. Leadership engagement can be captured by subconstructs based on the level of leadership.” (Damschroder, 2019; Lukas et al., 2007)</p>		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Stakeholder perception is that leaders have little or no commitment, involvement or accountability of the implementation.	P6, P7
Medium	Stakeholder perception is that leaders have some commitment, involvement and accountability of the implementation.	
High	Stakeholder perception is that leaders have a strong commitment, involvement and accountability of the implementation.	P12, P10, P8, P2, P5, P9, P1, P4
<b>Examples of Cross Reference or Support in Literature:</b>		
Damschroder (2009, 2019, 2021), (Lukas et al. 2007), (Aarons et al. 2012, 2014)		
<b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b>		
<p>This theme was also referred to as leadership engagement in the literature (eg Damschroder 2009; VanDeusen et al 2007) and describes the levels of commitment, involvement, and accountability of leaders of the implementation (Damschroder 2009). Leadership in this context refers to any level of the organization, who influence on the implementation.</p>		



This was the theme with least quotes to choose to present, perhaps as participants prefer not to talk about or self-critique their own leadership. The researcher however picked up from talking around the implementation project, a sense of the commitment, involvement and accountability of that leader from what they were saying. Commitment can be seen by the attitudes toward and value placed on the intervention by a project leader, as well as their familiarity with facts and detail related to it (Rogers 2003).

Of the participants who were involved in a direct leadership role, those who reported perceived success in implementation of their innovation, improvement or EBP; made references to being highly committed to the implementation (P12, P10, P8, P2, P5, P9, P1, P4). This could sometimes be seen by the researcher through the enthusiasm and body language of the respondent. Particularly for P1 and P2, the projects had been a significant part of their recent professional life. The enthusiasm they showed was visible along with detailed accounts showing a high level of involvement.

Some participants, by contrast, were clearly less committed themselves to the implementation and digressed to highlighting negatives, or reasons out of their control why implementation could not be a success. P7 was an example who did not appear to show high levels of commitment and perceived the implementation to be limited. It is likely that this outcome could have been improved, as many similar implementations were found to be successful in similar contexts and for similar demographics. The level of commitment shown by leaders can be an enabler when present or inhibitor to successful implementation when less driven by the leader:

*“I think it will come, the difficulty is with all of this remote access is managing expectation and we don’t expect emails from patients just because it’s not secure, you can’t guarantee that you will be able to respond and I think, you know, it will come, Skype, face time what have you and it may be useful but we have quite an elderly population as well, so sort of IT things, I include myself in that, are not so good, so it will be the way to go but all of it, one of the main things with this telephone triage is the loss of the face-to-face contact. I find that very difficult” P7*

One important dimension of organizational commitment is managerial patience (Damschroder 2009). This means taking a long-term view rather than short-term one. There are always teething problems and these leaders were able to allow time for an inevitable reduction in productivity until the intervention becomes effective and shows improvements.

#### 5.3.2.2.6 Power Dynamics and Authority

##### **Concept Definition:**

Understanding who has the necessary authority to enable or inhibit proposed projects. This may be different to the facilitator. Primary care practices with a partnership structure may have internal differences in skill level to understand and implement innovation and improvement projects, but where those with a low understanding or hesitance can have a high degree of power to inhibit or veto projects.

Level	Description	Experienced By
Low	Stakeholder perception is that those implementing innovation, improvement or EBP are different to those with necessary authority to enable or inhibit proposed projects. There is not common support for implementation between the two	P3
Medium	Stakeholder perception is that those implementing innovation, improvement or EBP may be different to those with necessary authority to enable or inhibit proposed projects. There is mostly common support for implementation between the two, if they are different.	P6, P7

High	Stakeholder perception is that those implementing innovation, improvement or EBP may be different to those with necessary authority to enable or inhibit proposed projects. There is common support for implementation between the two, if they are different.	P8, P2, P12, P10
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**Examples of Cross Reference or Support in Literature:**

Damschroder(2009;2021), Greenhalgh (2004), Rogers (2003), Harvey and Kitson (2015), Pronovost (2008), (Aarons and Sommerfeld, 2012)

**Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

This theme arose from the data, the closest concept in the literature which could be found was an implementer having to engage colleagues to enlist their support. This concept did not adequately describe what participants explained in their responses about their experiences for their projects. There was often a dynamic within the practice, where some partners or colleagues informally held more power to veto or champion an implementation.

Primary care practices are unique in their business structure. They are unlike a limited company involved in any other sector, closer to a professional services partnership such as a legal or architectural practice. There are professional informal levels of seniority depending on experience and status, despite having equal right to cashflows and technically voting rights for decisions made.

The dynamic of how decisions are made therefore, is an enabler or inhibitor specific to primary care as a context of implementation of innovation, improvement and EBP. P7 referenced this decision making process in primary care practices:

*“I mean, you need to choose your partners more than you choose your own partner really, because you probably spend more time with them. I'm in quite a large practice which can*

*cause issues of difficulty in terms of how the decision-making is, with so many people being involved. I think the key to a well-functioning practice is always to be open and honest and have good, frank discussion about this change and we do that. We meet weekly, as a practice, just to discuss these sorts of things; just every week to make sure that we have a handle on our service and where we're going with it." P7*

*"Before we introduced it on every afternoon, one of the more senior GPs who objected to everything, telephone triage, retired. That was another factor there" P3*

*"When I've looked and actually read those studies, they're very inconclusive really. They don't, and they come with lots of caveats" P3*

Power dynamics are not always with the most senior partners. It was suggested that sometimes, locum doctors, driven by such an undersupply of labour in some areas, could effectively dictate how they wanted to work. There was a situation where partners at a practice would have to amend a system or elements of it in implementation, if locum doctors were unwilling to work to the new system:

*"At the moment we have so much sickness.....we now have a paid locum, but the locum doesn't want to triage. He says he can triage, but there's no point because I don't know the patients..... so that means that he acts as what I call the 'bucket doctor' [seeing patients without an ongoing need]."*

### 5.3.2.2.7 Collaboration and Teamwork

<b>Concept Definition:</b>		
<p>The extent to which the organisation is able to work together to a common aim internally, within teams and between teams. Where there are high levels of collaboration and teamwork, implementation teams as well as those teams using the innovation, improvement or EBP are working in partnership to a common aim. This also means feedback can be shared, lessons learned and new ideas shared.</p>		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Individuals and teams have different aims, with low levels of communication, collaboration or teamwork. Organisation is characterised by silos and complex formal and informal relationships.	P3
Medium	Individuals and teams have mostly shared aims, though maybe silos still exist with low levels of communication, collaboration or teamwork. Silos may still exist but with common objective.	P6, P7, P10, P12
High	Individuals and teams have different aims, with high levels of communication, collaboration or teamwork.	P1,P4, P8, P2
<b>Examples of Cross Reference or Support in Literature:</b>		
Powell et al. (2016), Raghavan et al. (2007, 2008), Aarons (2014), Greenhalgh (2004)		
<b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b>		
<p>This theme relates to the dynamic between employees within the delivery organisation.</p> <p>This determinant presented as an enabler where respondents observed a collaborative working norm with common agenda. Leaders realise in these cases that to implement innovation, improvement and EBP requires the effort of others.</p>		

This was most strongly apparent for P1 and P12, where crucially, the leaders managed and developed this dynamic within the team. Therefore, the concept of engagement was closely linked with this determinant.

For P1, there was a clear description of how the admin staff role impacted the success of the implementation. The participant spent considerable time and effort in an engagement capacity. However, this concept embodied a wider teamwork and willingness to work together within the practice.

For P3, there were different agendas within the practice. The large number of partners and differing views made finding consensus challenging. This was usually the result of poor understanding about how system changes would impact them, leading to resistance.

There were clear differences between these two practices in the level of teamwork and collaboration, resulting in the perception of enabling successful implementation.

### 5.3.2.2.8 Past experience of successful implementation

<p><b>Concept Definition:</b></p> <p>Stakeholder perception of if previous projects at the organisation have been a success. If previous projects have been a success, this is likely to mean a skill level and learning from previous projects, enabling future ones.</p>		
Level	Description	Experienced By
Low	Projects at the organisation have not been a success. There is an established hesitance for change and learning from previous projects may be negative, inhibiting future ones.	P6,P7
Medium	Projects at the organisation have been partly successful. There is some organisational skill and learning from previous projects. This would benefit from further development or may be more mature as further projects are undertaken	P3
High	Projects at the organisation have been a success. There is an established organisational skill level and learning from previous projects, enabling future ones.	P1,P12
<p><b>Examples of Cross Reference or Support in Literature:</b></p> <p>Lewin (1947), Kotter (1996), Van der Ven and Poole (1995)</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>Where participants and their organisation had previous successes, several sub themes were identified accompanying this. These ideas were prevalent in change theory in the literature search but appeared to be missed in existing models of implementation. The researcher found four such sub themes from the data:</p>		

1. Increased confidence: past successes gave implementors confidence that outcomes were achievable
2. Increased organisational skill level: the systems within the organisation are likely to be easier to change if this has happened before recently
3. Staff have an experience of similar projects and the idea of change projects is not new. They are likely to have developed individual skills in their technical role learning from previous change projects.
4. Organisational memory: the organisational has a shared positive experience of implementation which has a motivating effect

These observations were most prevalent in the data collected from P2 and P8. The private digital provider had almost continuous implementation projects within the organisation. This led to a culture of positive implementation, but also specifically the learning and confidence from previous implementations.

If the opposite had occurred and participants had a previous negative experience of change, the reverse seemed to occur. P6 and P7 for example had reported almost futility that all implementation projects were destined to fail in the context of managing demand. This appeared to act as an inhibitor to successful implementation, with the reverse of the four sub themes above. The organisation had a negative perception of implementation based on past experience and low levels of skill as learning had not been undertaken since those projects.

### 5.3.3 Facilitator Relationship with External Stakeholders

This section presents the data derived theme of facilitator relationship with the external environment. The tables below show the concept definition and its origins in the data collected. There are two sub themes as presented below.



### 5.3.3.1 Joint Participation

<b>Concept Definition:</b>		
<p>Implementing organisation perception of the level of involvement and shared values implementer has in relation to government and commissioner of services. This characterises the level of participation the implementing organisation has in designing the innovation, improvement or EBP to be implemented, as well as the belief that implementing organisation has that the implementation is in its interest.</p>		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Transactional	Relationship between facilitator organisation and external organisations, government and commissioner of services is immature; each party only meeting contractual obligations, working to rule, low collaboration. Facilitator organisation understands innovation and improvement project objectives to originate from commissioner or government and has no participation in its development only a contractual obligation to implement.	P6, P7, P13, P3
Co-Operative	Relationship between facilitator organisation and external organisations, government and commissioner of services is immature with each party only meeting contractual obligations, however facilitator organisation cooperates and supports innovation and improvement project but does not participate in its development.	P10
Co-Ordinating	Higher level of maturity between facilitator organisation, government and commissioner of services. Higher degree of participation such that there is not just joint cooperation but an active	P8, P2

	participation by both parties on a common agenda.	
Collaborative and Open	Relationship between facilitator organisation and external organisations, government and commissioners of services is mature with contract setting out a start point for collaboration and working together characterised by shared objectives.	P12, P11, P7, P5, P9
<p><b>Examples of Cross Reference or Support in Literature:</b></p> <p>Not featuring in existing frameworks of implementation. Aarons (2014) is closest concept of collaboration.</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>The concept of collaboration between provider and external organisations including government funders featured in existing frameworks (Aarons 2014). This was either present or not and did not explain, for the complex dynamic of primary care, the full nature of the relationship.</p> <p>If collaboration was too simplistic, the respondents of this study reported they felt a joint participation in the wider innovation agenda was missing. Leading to poor relationships between provider and government. The result ranges from active resistance, to that collaboration with stages in between.</p> <p>Participation as a concept describes the extent to which providers they feel they have an active role in the innovation, improvement and EBP agenda; or if it is prescribed or mandated for them to do. The implication where providers are not participating actively, is that they feel government do not understand their challenges:</p>		

*“Mark Drakeford came in when we had our new building and opened and said, ‘Oh this is great, you know, and we can fill it with Nurses and Paramedics and, you know, Pharmacists’, and, yes, we need those but if you don’t have somebody directing services you’re just going to get squashed and so you need more GPs in Primary Care alongside the team.” P13*

This quote is from a participant who felt innovation programmes were specified by government, which did not understand their challenges as they were not been asked to participate and share that information. As a result the programmes were generic and not specific, missing aspects they felt were important.

#### 5.3.3.2 Trust

**Concept Definition:**

Implementing organisations perception of the reliability, truth, or ability of the government or commissioning organisation. It is the implementing organisations perceptions of the motivations of government and commissioners.

Level	Description	Experienced By
Transactional	Relationship between facilitator organisation and external organisations, government and commissioner of services is immature; each party only meeting contractual obligations, working to rule, low collaboration. Facilitator organisation understands motivations of government and commissioner to be insincere. Result is implementation only to meet contractual obligations.	P6, P7
Co-Operative	Relationship between facilitator organisation and external organisations, government and	P3, P13

	commissioner of services is immature with each party only meeting contractual obligations, however facilitator organisation cooperates and supports innovation and improvement project but does not participate in its development.	
Co-Ordinating	Higher level of maturity between facilitator organisation, government and commissioner of services. Higher degree of trust such that there is not just joint cooperation but still elements of distrust, though an active participation by both parties on a common agenda.	P8, P2, P1, P4
Collaborative and Open	Relationship between facilitator organisation and external organisations, government and commissioners of services is mature with contract setting out a start point for collaboration and working together characterised by high levels of trust and shared objectives.	P5, P9, P12, P11
<p><b>Examples of Cross Reference or Support in Literature:</b></p> <p>Not featuring in existing frameworks of implementation. Closest concept is ‘collaboration’ (Aarons 2014) or ‘influence’ (Greenhalgh 2004)</p>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>The literature described the external relationship with government and commissioners as either being collaborative, or not. Respondents in this study suggested another dynamic may be at play. They were often resistant to the wider innovation agenda, because they distrusted the motives of the government.</p> <p>The responses below are just some, of what was a universal distrust among respondents. P13 described an anger towards government about access standards changes she felt were motivated in no ones interest:</p>		

*“I’m incredibly angry and disappointed with the Welsh Government for doing this, so once I get passed that I’ll get my head round to decide can we afford not to do it because I think the rationale behind it is flawed, I don’t agree with it, I think it’s political and I think that’s a big disgrace.” P13*

Similarly, P7 described how the government could not be trusted in its agenda, that what was seeming on the surface as an innovation agenda would transpire, in his view be about pushing costs back on his practice. This results in a low level of trust:

*“This is the government’s, you know, basically forcing us to work as a, like a confederation of GPs then, you know, our services are all separate, they’re not sort of joined…… they’re trying to push the cost back on to us for the future” P7*

P11 talked about trust in terms of ‘jumping through hoops’, feeling that again the innovation agenda was not sincere and the government could not be trusted to act in their interests only ‘pandering to certain patient groups’:

*“If that is the way the government want to make us jump through hoops again then we won’t have much choice but to do it, but it is a step backwards just because they want to pander to certain patient groups really.” P11*

P6 described the relationship between provider and government as a submissive one, where providers were expected to ‘toe the line’ and do as the government instruct. Again, this points to distrust between the parties and results in resistance from the practice:

*“It may seem appealing from a governmental level, to have everybody toeing the line and doing the same thing but actually, like I said, it doesn’t quite work that.” P6*

This section has presented the two sub themes within the facilitator relationship with external environment concept. The original framework derived by the researcher from the literature did not feature this theme. The data collected suggested this was a relevant theme for implementation of innovation, improvement and EBP for the specific context of primary care.

The reader will see its resultant inclusion in the final framework and its inclusion is supported by participant responses as presented above.

### 5.3.4 External Context

The final theme presented in this chapter is that of external context. This theme has six sub themes as presented below. The reader can map the initial framework produced from the literature, through the tables below, to the final model presented at the end of this chapter.

#### 5.3.1 Policy Priorities

<b>Concept Definition:</b>		
Is the policy overarching which impacts primary care delivery, driven by political factors. For example, access to care is a political priority of Welsh Government who have taken policy actions to change the external environment		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Implementation is competing with a policy priority	
Medium	Implementation is independent of policy priority	P6, P10, P7, P13
High	Implementation has a shared objective with a policy priority	P12, P11, P5, P9, P1, P4
<b>Examples of Cross Reference or Support in Literature:</b>		
Damschroder (2021), (Mendel et al., 2008), Pressman and Wildavsky (1973), (Cairney, 2012), Hanf and Scharpf (1978), Hjern (1982) and Hull and Hjern (1987), Bucknall and Rycroft-Malone (2010); Damschroder (2009,2021); Greenhalgh (2005); Grol (2005); Kitson et al (2008); Nilsen (2010); Nutley (2007), Watson et al (2018)		

## **Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

The first example of implementation research specifically for policy implementation is from Pressman and Wildavsky (1973). This studied an labour and employment programme in the US and like many follow up studies of that time focused on barriers to implementation and their removal. Modern frameworks of policy implementation focus equally on models and frameworks from top-down (set by government and implemented) and bottom-up (taking into account frontline staff perspectives when forming policy) perspectives (Cairney, 2012).

Bottom-up researchers focused on the role of the frontline staff and those affected by the policy as a means to implementing (Hanf and Scharpf 1978; Hjern 1982; Hull and Hjern 1987). By contrast, top-down research suggested successful implementation would flow from generalizable policy and prescribing this to delivery organisations delivering services on behalf of government (Cairney, 2012)

In this study, political influence and policy manifestations from Government were a key theme. Participants overwhelmingly reported a perception of the top-down approach of government prescribing change to practices with little thought of the effects on their individual delivery models (P6,P7,P3,P1,P11,P13). The most common response of this theme was in the context of access standard changes imposed by Welsh Government on primary care practices.

P13 commented on access standards and being at the whim of politicians, suggesting this was the latest of a series of instalments of prescribed access standards changes by government:

*“It’s about to become very difficult with the new access standards, we’re at the whim of politicians. We don’t have access to pre booked appointments [with the new approach], so that would completely change our system. If you go back to when we changed in 2015 it was all about immediate access, access on the day. You can’t do both” P13*

Other respondents suggested that political pressure and policy was the main motivator of implementation. In the case of WAST, this was delivering performance standards in the primary care facing system to meet policy prescribed levels of performance:

*“We had to redesign the Welsh Ambulance Service’s main response model back in 2011 and as it, the reason for doing that was we were under significant political pressure to hit performance standards that were set at the time and also obviously to always maintain a safe service as an emergency service.”P12*

Policy priorities were synonymous with prescribed change for most participants in the study. P7 suggested that there was a top down approach to policy implementation and that he felt more collaborative approaches to inform policy formation and implementation would be symbiotically beneficial to both government and providers of primary care services:

*“So, I think the problem is, it feels very convenient for commissioners to think, “If we change the system or if they could just see them remotely, everything will be fine.” It isn't because there just aren't enough of us to deal with the demand that's out there. I think there's a few things that have been quite useful, I think. I mean, computer systems are taken out of our hands now, which is a shame because we've just got a migration coming up to a new system, which is going to be relatively disastrous for those of us in primary care, by the looks of it. P7”*



### 5.3.2 Incentives and Mandates

<b>Concept Definition:</b>		
<p>"Stakeholder perception of the extent that external policy and regulations (governmental or other central entity), mandates, recommendations and guidelines, pay-for-performance, collaboratives, public or benchmark reporting, or centralized decision-making exist (Mendel et al., 2008)."</p>		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Stakeholder perception that incentives and mandates either do not exist or do exist in external policy and regulation, but not supportive of implementation of innovation, improvement or EBP	P6, P7, P11, P13,
Medium	Stakeholder perception that incentives and mandates exist in external policy and regulations making exist, and but may be mixed in supporting implementation of innovation, improvement or EBP	P12, P11
High	Stakeholder perception that incentives and mandates exist in external policy and regulations making exist, and are supportive of implementation of innovation, improvement or EBP	
<b>Examples of Cross Reference or Support in Literature:</b>		
Damschroder (2009, 2021), (Mendel et al 2008), Watson et al (2018)		
<b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b>		

Motivation to implement innovation, improvement and EBP can also be external as well as internal; and at the organisational level instead of the individual. This idea has been found in literature, for example (Damschroder 2009, 2021) who present the concept as organizational incentives and rewards. This features “extrinsic incentives such as goal-sharing awards, performance reviews, promotions, and raises in salary, as well as less tangible incentives such as increased stature or respect”.

Respondents described in their case studies, a range of external influences on their decision to implement a particular innovation, improvement or EBP. They also suggested these external influences affected how they implemented. The main external influence was Welsh Government. Direct contractual issues are highlighted in the following section, however a range of other motivators were also applied by Welsh Government as commissioners of primary care and local health boards as managers of that service at local level.

One such issue that was topical when interviews were being undertaken was access standards. This was an issue Welsh Government had decided to issue a mandate top practices that they must comply with. This was universally badly received by participants:

*“The new access requirements may give us significant trouble, I haven’t actually thought how we’re going to implement it. Do we implement it or do we take a financial hit? I’m incredibly angry and disappointed with the Welsh Government for doing this, so once I get passed that, I’ll get my head round to decide can we afford not to do it. I think the rationale behind it is flawed, I don’t agree with it. I think it’s political and I think that’s a big disgrace.” P13*

### 5.3.3 Regulation

<b>Concept Definition:</b>		
Quality mechanisms, which may be at the practitioner or organisational level, within which innovation and improvement projects must operate. The purpose of projects may be to improve compliance with regulation or quality.		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	The purpose of change is not to improve compliance with regulation or quality. It may also be that the implementation of innovation, improvement or EBP fails to recognise the role of regulation in successful implementation.	
Medium	The purpose of change may be to improve compliance with regulation or quality. The implementation of innovation, improvement or EBP recognises the role of regulation in successful implementation to some extent	P11, P1, P4, P3, P7
High	The purpose of change is to improve compliance with regulation or quality, or, it may also be that the implementation of innovation, improvement or EBP is not directly to improve compliance with regulation however recognises the role of it has in successful implementation.	P12, P8, P2, P5, P9
<b>Examples of Cross Reference or Support in Literature:</b>		
Cabana et al. (1999), Hamilton et al. (2015), Daft (2015), Watson et al (2018), Ziemann, et al (2017)		

### **Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

Primary care delivery is a highly regulated industry at the organisational and practitioner levels. This therefore was likely to be an external determinant in successful implementation of innovation, improvement and EBP. There were references to regulation as a potential determinant and respondents in this study confirmed its presence in the context of implementation in primary care.

The main feature of regulation, differing from the role of regulation in secondary care implementation, was how feedback and complaints were resolved. In primary care services are delivered by providers but complaints can be raised to commissioners. The 'work' of resolving that complaint is undertaken by the practice, usually the senior partner, whereas in the secondary care system there is likely to be a team responsible for this:

*“It’s causing us frustration, it’s causing, you know, stress to the practice because patients are complaining, and they can’t get access, there will be more complaints and then that generates more work. Unlike hospital doctors, if a complaint comes in, they have a whole team that deals with it and the consultant has a small input, with us, we have the full input into it usually.” P6*

Regulation also impacts what system changes can be made when implementing innovation, improvement and EBP in primary care. Several examples of practical issues which needed to be taken into account by practitioners were provided by respondents:

*“It’s all down to what the accepted standards are. It depends what the local governance rules are around stuff like that really. For example, if they’ve got to email me it has to go to my practice email account, not a personal account. If I have to use my phone to take a picture then it has to be deleted once it’s loaded onto the system, all that sort of stuff. So it all depends on local and national governance frameworks for that sort of stuff.” P11*

The final regulation issue reported by respondents was the quality system itself and how this integrated with the care journey or system of care. The two are interlinked and where

implementation recognised that project should have a quality and safety improvement dimension, performance and efficiency were improved as a result:

*“I mean, we've got relatively decent clinical governance procedures set up. So, we can clearly raise any concerns really and discuss them; significant events are raised. We do some sort of audit monitoring stuff as well, where we need to; some of it is contractual but some of it is quality based, where there is a risk being highlighted.” P7*

### 5.3.4 Commercial Contracts

#### **Concept Definition:**

The agreements between primary care providers, commissioners and government who pay for these services. Where contracts encourage implementation of innovation, improvement or EBP these are more likely to lead to successful implementations. Where contracts create barriers or obstacles, implementation is likely to be impeded.

<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Stakeholder perception is that agreements between primary care providers, commissioners and government who pay for these services create barriers or obstacles, and so implementation is likely to be impeded.	P6, P7, P3, P13, P10, P11
Medium	Stakeholder perception is that agreements between primary care providers, commissioners and government who pay for these services, neither encourage or impede implementation.	P5, P9, P12, P8, P2
High	Stakeholder perception is that agreements between primary care providers, commissioners and government who pay for these services,	

	encourage implementation of innovation, improvement or EBP these are more likely to lead to successful implementations.	
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**Examples of Cross Reference or Support in Literature:**

(Daft, 2015), (Aarons 2014), Watson et al (2018), Harvey and Kitson (2019), Ziemann, et al (2017)

**Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:**

In frameworks of implementation existing in the literature, it had been established that ‘service contracts’ played a role in the successful implementation of innovation, improvement and EBP. The respondents in this study reported that this too applied to primary care implementation.

The contractual arrangements set out income for the practice from its sole customer. This is an important feature of the role of contracts as a determinant which is not applicable to secondary care:

*The long and short of it is that GPs are in the business for money. And we’ve long since been up over 10, 15 years as we’ve never been recognised as giving an exemplary service quite frankly. In [surgery name] none of our patients have had to fight for appointments and that was going back to the days of advanced access. There was never any monetary reward directly for providing good access. And then by the time it became an issue, and everyone was screaming from the rooftops, you can’t get a GP appointment for love nor money, by then they couldn’t enforce an access minimum. If they did, as a Health Board, they would have lost their primary care overnight, most doctors would say do it yourself.*

*I’m off. I’m out of here. P1*

Practices know they have a high degree of power within contractual negotiations, which are centrally negotiated by the BMA. The features of the contract that encourage implementation, often financially, act as an enabler. There is a relationship dynamic

between the commissioner and provider, through which the contract is the means of communication.

The contractual management dynamic was reported by one health board clinical director in detail. This long quote describes, from the perspective of the manager of primary care services the role of the contract in its management of services:

*“The GMS contract contains a specific phrase on clinical governance that each practice has to have its own effective system of governance, and that’s it. It doesn’t specify anything further about what form that takes or how it should look. And what that means is that each practice is responsible for monitoring its own quality and safety and responding to any risks that are there. So, in any system of governance, you need to take into account quality assurance and quality improvement. If we have evidence that a practice is failing in some way, then we look for evidence that they are making changes that they are improving.” P5*

This account, demonstrates that actually, practitioners have a lot more freedom in their contracts they often suggested. This health board had never taken corrective action formally and fully audited 2 practices out of 74 in the previous year. Therefore, contractual obligations are unlikely to be an impediment to implementation in most cases. Conversely, higher levels of support from commissioners using the contract as a framework may have a beneficial effect.

### 5.3.5 Political Context

<b>Concept Definition:</b>		
The political issues at societal level which Governments create policy in response to. For example increasing demand and access to care are political issues which result in policy priorities		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	Implementation fails to identify or respond to political issues. Implementation is incongruent to political context.	P6, P7
Medium	Implementation identifies political issues but may be incongruent to political context. For example, implementation may improve some aspects of delivery but not improve access to care, resulting in one key stakeholder group, patients, not supporting the implementation	P3
High	Implementation identifies political context and is responsive to it. This results in an alignment between stakeholders.	P12, P5, P9, P11
<b>Examples of Cross Reference or Support in Literature:</b>		
Watson et al (2018), Greenhalgh (2004)		
<b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b>		



This sub theme incorporates the actions government take to operationalise the political agenda. There were several policies participants described which impacted the external environment. These included access

*“I think the main problem from a patient point of view was access. Access when they want it with the GP they wanted and so we were trying to say that obviously we’re drowning, have to try something different. This seems to be the way they’re [Government is going.]”*

*P13*

*“The main bug bear for the government at the moment is access, they are seeing patients and complaining to their MPs, the reality is the government hasn’t invested in primary care to any significant amount for the last ten years and now they’re just reaping the problems on that, they put a lot of money into secondary care but not into primary care.”*

*P6*

### 5.3.6 Evolving Requirements

<b>Concept Definition:</b>		
<p>Implementation of innovation, improvement or EBP is a response to an evolving macro level requirement of primary care. For example, over the long run this would include issues such as increasing and insatiable demand for care. The Covid 19 pandemic is another example of an evolving requirement, which has had lasting impact on how care is delivered</p>		
<b>Level</b>	<b>Description</b>	<b>Experienced By</b>
Low	There are no evolving requirements impacting on the implementation of the innovation, improvement or EBP.	
Medium	The implementation of the innovation, improvement or EBP is not a direct response to an evolving requirement but is one issue in the motivation for implementation.	P8, P2, P5, P9, P6, P3, P7, P13
High	The implementation of the innovation, improvement or EBP is primarily a response to a specific evolving requirement.	P12, P11, P10, P1, P4
<b>Examples of Cross Reference or Support in Literature:</b>		
<p><b>Features of Literature and Data Collected Relevant to Developing a Framework of Implementation of Innovation, Improvement and EBP in Primary Care:</b></p> <p>This theme arose from the data and partly inspired by the demands Covid 19 placed on primary healthcare systems. The systems must evolve to meet new challenges which arise from patient needs and other external factors, such as the pandemic, but are not elsewhere</p>		

classified in the external environment. Some of the challenges affecting primary care as an industry also feature in this sub theme, such as patient expectations for the ways in which they access care:

“The reality is, we’ve got this activity because access, you know, into our service isn’t as, as good as it should be because of the demands of our service. So, you know, if people can’t get appointments, they’re going to use this service but what, what we found was they, they do like it and it’s all ages are using it.” P6

### 5.4.2 Overview Literature Conceptual Framework

Below is a reminder of the features of the initial framework the researcher developed from the literature search and resulting synthesis of information on implementation generally. The following sections as the remainder of his chapter, present a narrative thread for the reader. Starting with the initial framework and showing the development of that model which has resulted from the work presented in this chapter.

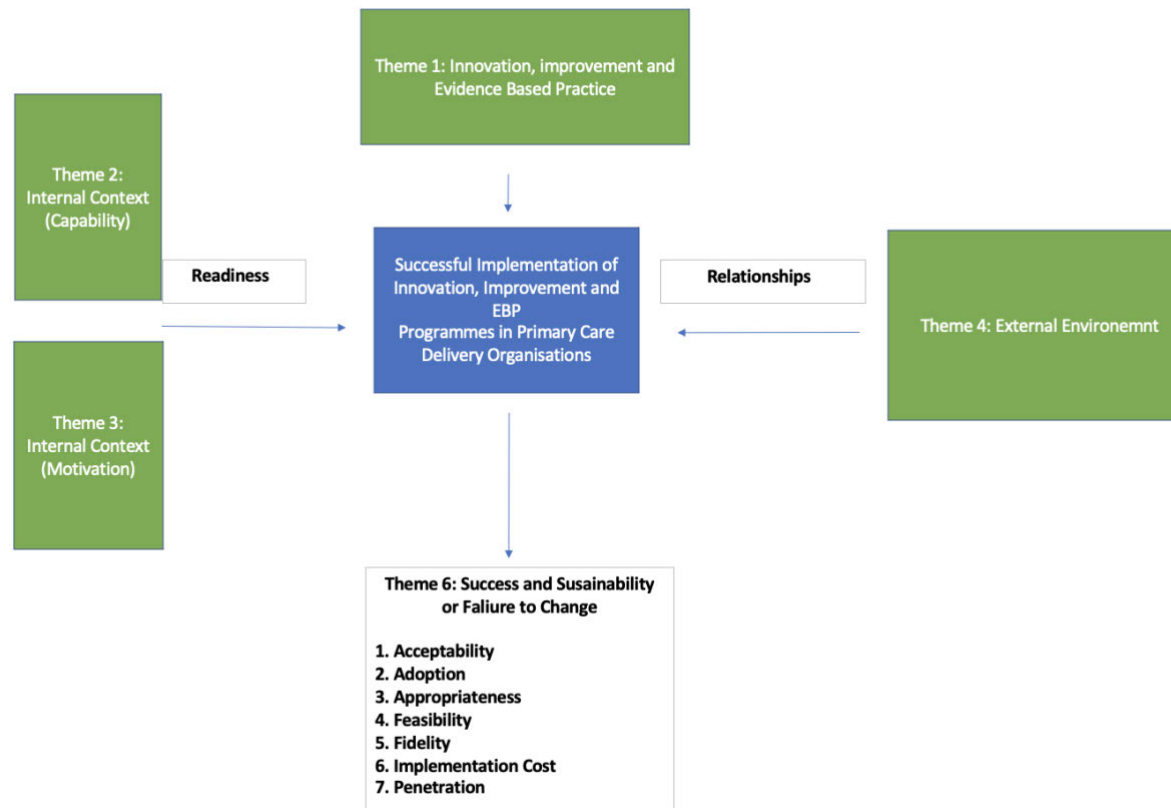


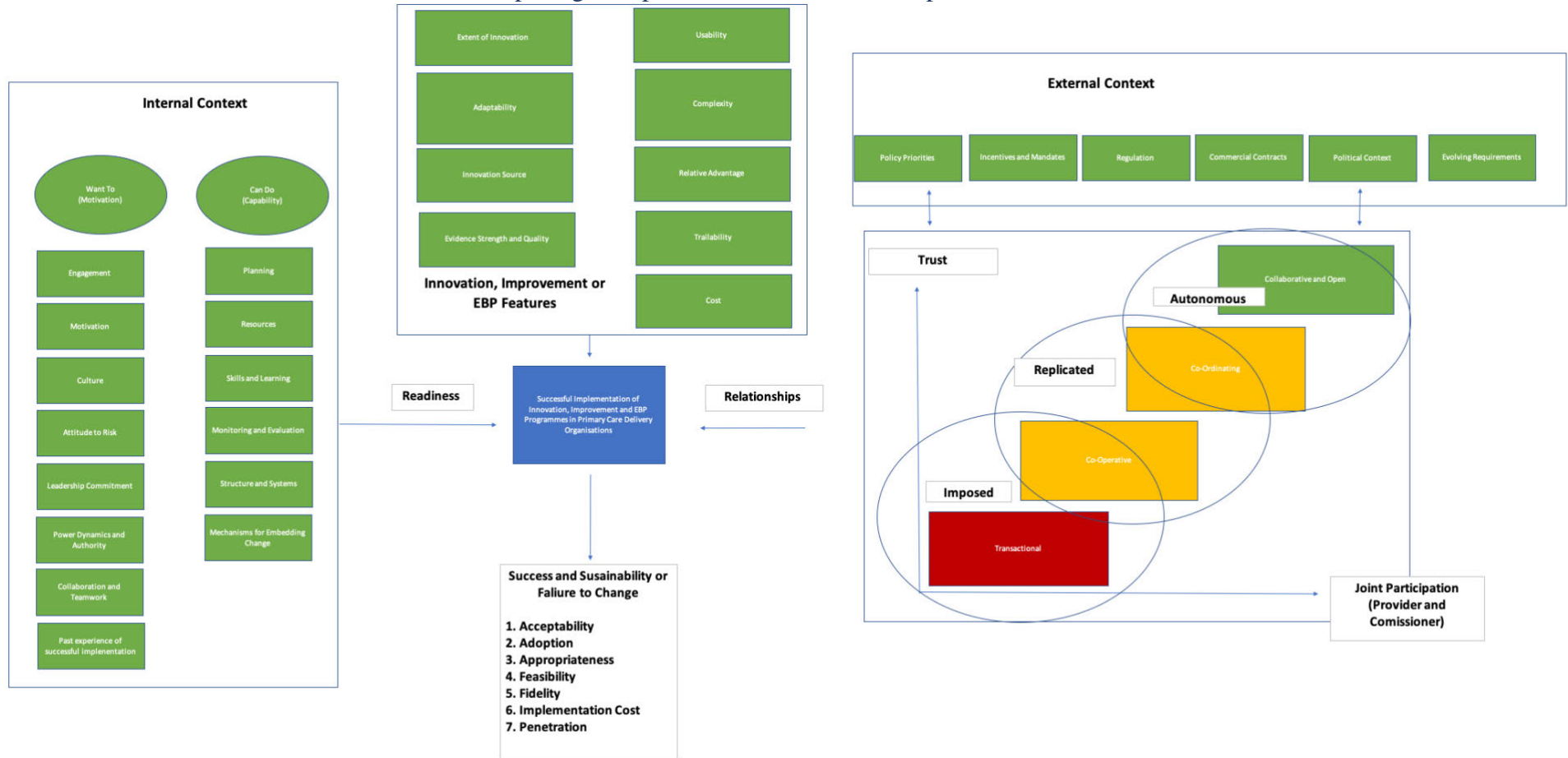
Figure 5.4.2: Reminder of Features of Initial Literature Framework Source: The Researcher

### 5.4.2 Overview of Updated Conceptual Framework



**Figure 5.4.2: Developed Framework with Added Components from Data Source: The Researcher**

### 5.4.3 Reflections on Phase One of Research: Proposing an Updated and Detailed Conceptual Framework



**Figure 5.1: Updated Conceptual Framework**

Source: The Researcher

At the end first phase of qualitative research, the researcher reflected upon his findings and developed a graphical figure to depict the key concepts that have been drawn from this phase of the study. The model takes the initial conceptual framework and has integrated the findings from phase one to group and depict the key concepts identified and explored.

Data collected from expert interview case studies in this first phase of research, validated some of the factors identified in the literature. New concepts that emerged from the interviews, or better described and explained the determinants of successful implementation of innovation, improvement or EBP in primary care were included. Data from expert interviews has enhanced the literature informed initial model, using real world findings drawn from the expert informants included in this study.

To the left hand side of the diagram, is organisational readiness. This was drawn from the concept proposed by Weiner (2009) and features in almost all other frameworks of implementation, sometimes by differing names such as internal context (Greenhalgh 2004, Aarons 2014). The main themes within organisational readiness mirror Weiner's theory which is well established and fitted the data collected in this study. The determinants within each of 'motivation' and 'capability' however differ from other models to reflect features specific to implementation in primary care.

The next grouping was of features of the innovation, improvement or EBP itself. This was the theme which was already most well researched in literature, with established definitions for each theme (Damschroder 2009, Greenhalgh 2004). These were confirmed by the data collected and as such no theoretical benefit was seen to adding or amending this element of the framework other than what already existed in literature. The participants in this study confirmed the presence and relevance of each in the primary care setting.

The right hand side of the figure differs significantly from the established literature models, to reflect the unique systemic environment of primary care. Frameworks proposed in the literature commonly have an outer context or outer environment (Greenhalgh 2004, Aarons 2014, Damschroder 2009, Harvey and Kitson 2015, Powell 2015), however, these all make the implicit assumption of collaboration being present between implementor and the external environment. A new approach to theorising the link between internal and external

environments is needed. New concepts of trust and joint participation are used to explain this complex interdependency between primary care practice and the external environment. At the lower end of the diagram, shown in red, there are low levels of trust and joint participation between primary care practice and the external environment. Most commonly this is with the Local Health Board or Government as its single customer. Here, actors are working to the contract with little flexibility or variance around contractual obligations. This is sub optimal and inefficient for both parties. Successive stages are shown, with the highest level of collaboration featuring high levels of trust and joint participation. It is here that implementation can successfully take place from a systems perspective.

## 5.5 Chapter Conclusion

This chapter has presented findings from the qualitative phase of this research. The chapter begins by summarising each of the themes and sub themes identified through thematic analysis of the data collected. Each is accompanied by a definition and descriptor levels. The chapter then provides an improved theoretical framework, adapting and improving the conceptual model featured at the end of the literature review chapter.



## Chapter 6: Phase Two Quantitative Results

### 6.1 Chapter Introduction

Following the presentation of qualitative results in the previous chapter, leading to an updated conceptual model, this chapter presents results from the second quantitative phase of the research.

Results in this chapter present the analysis of data collected from a questionnaire, distributed to eligible participants and its subsequent analysis.

Prior to presenting results themselves, the chapter begins with an exploration of the reliability of the measurement instruments. For this, the Cronbach's Alpha is calculated for each scale and interpreted. Three data analysis sub sections then follow, presenting and interpreting demographic data, correlations and regression analysis respectively.

A correlation analysis then explores the relationships between variables, how each effects the other. The main analysis is then a regression analysis, used to explore the model designed from the first phase of research.

This phase of research had two purposes:

- The main aim of this phase of research is to apply the developed model to primary care delivery in NHS Wales and use it to develop insight to this particular context- if these variables are enabling or inhibiting implementation of innovation, improvement and EBP in NHS Wales. Policymakers, commissioners, managers and practitioners may then use this output to decide what to do about the deficiencies identified.
- A secondary aim is to explore the developed model of implementation of innovation, improvement and EBP itself. The model is a realist-pragmatist research outcome and is not positivist, however quantitative techniques might

yield understanding about the model. To confirm the utility of the model, increase robustness and for quality assurance.

The purpose of this chapter, is to explore the state of primary care delivery within the Welsh NHS using the model. The results were interesting to the researcher in this and provided a wealth of output for discussion. This was pragmatic research, with the aim of theory building and not a positivist study. This is because the positivist would not have enough richness of information to operate, without first a substantial qualitative work, to establish the right questions a positivist could explore and test.

## 6.2 Pre analysis and Measurement Instrument Reliability

In order to assess the reliability of the constructs, the internal consistency measure of Cronbach's alpha was calculated for each scale separately. The Cronbach's Alpha for each of the variables included in the mode was calculated for each of the dependent variables in the conceptual model developed from the literature review and qualitative phase of the research. These being; the innovation, improvement and EBP itself, motivation, capability, external environment, trust, participation. The same was also calculated for the independent variable, successful implementation. The developed measures or variables can be accepted at  $\alpha > 0.6$ , with  $\alpha > 0.7$  being preferred.  $\alpha > 0.8$  is very reliable (Forza 2002)). Based on the results, no items had to be excluded, in order to increase reliability of any scales.

<b>Scale</b>	<b>Aggregate Variables</b>	<b>Cronbach's Alpha</b>
Innovation, improvement and EBP	Extent of innovation Adaptability Usability Complexity Innovation source Complexity Relative advantage Evidence strength and quality Triability Cost.	0.733 Adequate
Motivation	Engagement Motivation Culture Attitude to risk Leadership commitment Power dynamics and authority, Collaboration and teamwork Past experience of successful implementation.	0.894 Good
Capability	Planning Resources Skills and learning Structure and systems Mechanisms for embedding change	0.868 Good
Participation	Participation	0.860 Good
External environment	Policy priorities, Incentives and mandates Regulation Commercial contracts, Political context Evolving requirements	0.852 Good
Trust	Trust	N/A

Successful implementation	Innovation, improvement or EBP itself, Motivation Capability Participation Trust External environment	0.970 Very good
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Table 6.1: Summary of Cronbach Alpha values for each scale

Source: The Researcher

The first scale measured the dependent variable of innovation, improvement and EBP itself. This was an aggregate of eight variables found from the literature review and first qualitative stage of research, it had one question in the survey for each item. These were; extent of innovation, adaptability, usability, complexity, innovation source, complexity, relative advantage, evidence strength and quality, trialability and cost. The Cronbach's alpha for this scale was calculated to be 0.733, indicating an adequate level of internal consistency.

The second scale measured the dependent variable of motivation as part of internal readiness. This was an aggregate of eight variables found from the literature review and first qualitative stage of research, it had one question in the survey for each item. These were; engagement, motivation, culture, attitude to risk, leadership commitment, power dynamics and authority, collaboration and teamwork and past experience of successful implementation. The Cronbach's Alpha for this scale was calculated to be 0.894, indicating a good level of internal consistency

The third scale measured the dependent variable of capability as part of internal readiness. This was an aggregate of six variables found from the literature review and first qualitative stage of research, it had one question in the survey for each item. These were; planning, resources, skills and learning, structure and systems and mechanisms for embedding change. The Cronbach's Alpha for this scale was calculated to be 0.868 indicating a good level of internal consistency

The fourth scale measured the dependent variable of participation as one concept, using an aggregate of four questions. The Cronbach's Alpha for this scale was calculated to be 0.860 indicating a good level of internal consistency

The fifth scale measured the dependent variable external environment. This was an aggregate of six variables found from the literature review and first qualitative stage of research, it had one question in the survey for each item. These were; policy priorities, incentives and mandates, regulation, commercial contracts, political context and evolving requirements. The Cronbach's Alpha for this scale was calculated to be 0.852, indicating a good level of internal consistency.

The sixth scale measured the dependent variable trust as one concept, using two questions in the questionnaire. This was the only scale where the Cronbach's Alpha could not be calculated as more than two items are needed.

The final scale measured the independent variable, successful implementation. This was an aggregate the dependent variables of the innovation, improvement or EBP itself, motivation, capability, participation, trust and external environment. The Cronbach's alpha for this scale was calculated to be 0.970, indicating a very good level of internal consistency.

## 6.2 Survey Responses

A total of 71 useable responses were collected from eligible participants, reflecting 71 separate organisations, which the researcher assessed to be significant given the population of 391 medical primary care practices in Wales as at December 2021 (Welsh Government 2021, <https://gov.wales/general-practice-workforce-31-december-2021-html>). This number of responses represents an even higher proportion considering the participants were instructed that only one respondent per practice take part. This would mean that 71 organisations, have made up the sample of primary care implementation projects in this second phase of data collection for this study.

Statistical analysis were performed using IBM SPSS V25 and Qualtrics to collect data using an online questionnaire. The graphs and data included representing the demographic data were produced using Qualtrics.

Prior to performing analysis the data was screened for potential input errors, outliers and responses with missing values. Due to having missing values of one or more relevant variables, two or more responses were excluded from the analysis below.

There was a 53% male to 47% female split, with no respondents selecting any other gender options. The sample represented Wales almost exclusively, with the majority having a high level of experience, 50% had 4-7 years of managerial or senior experience and 20%, 8-15 years.

## 6.4 Demographic Data

Below is the breakdown of demographic data from the questionnaire responses. Included were questions relating to respondent job role, area of primary care delivery, gender, experience of leading or managing change and size of the practice.

### *6.2.1 Responses by Job Role*

The first demographic question sought to understand the job role of participants. This was an open response question where respondents could write string text to reflect the various job roles and titles that might be encountered.

The most common of these are reflected by the word cloud below, produced by the Qualtrics software. This simple schematic gives the reader a flavour of the responses participants gave. The bolder or larger the text, the more responses received with that word.

General Practitioner was the most common response, appended with secondary responsibilities such as partner, cluster lead and so on. Managers or practice manager featured commonly with various other roles then featuring to less of an extent.



Figure 6.1: Word Cloud Illustrating Responses to Job Role of Participants

Source: The Researcher

The string text for this question response varied greatly, therefore to provide a more quantitative understanding of the distribution of job roles in the sample, the researcher created a table to reflect the most common responses:

Role Description	Responses
General Practitioner or Dentist or variant (including trainee, partner, owner or similar)	38
Physician Associate	5
Practice manager or business manager or project manager	10
Nurse or Nurse Manager	5
National Clinical Role or Medical Management Role	4
Pharmacy Manager, Pharmacist or Technician	5
Optometrist or team Lead	4

Table 6.2: Role responses reported by respondents

Source: Study Primary Data Collection

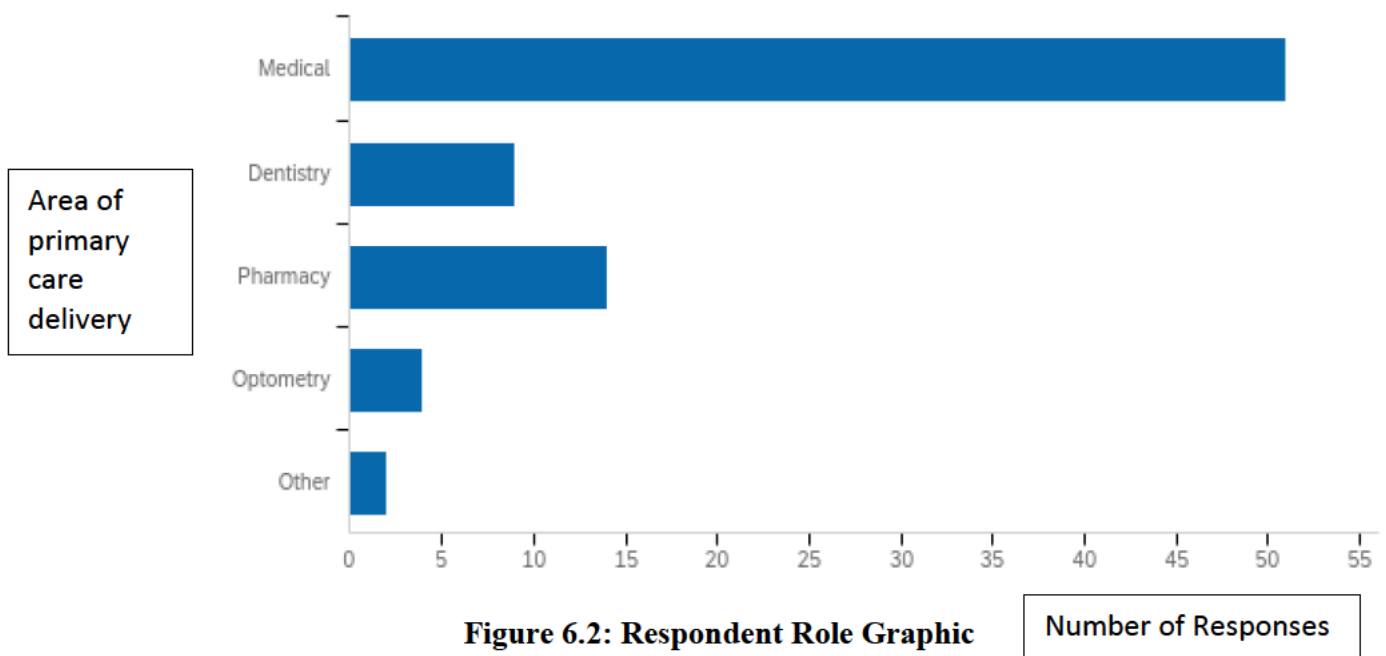
### 6.2.3 Responses by Area of Primary Care Delivery

The next demographic question asked in the questionnaire aimed to profile respondents according to their area of primary care delivery.

Primary care within NHS Wales comprises of four areas of community healthcare. These are medical services, dentistry, pharmacy and optometry. The four have similar operating environments and contracts but with some differences; medical services for example has a much broader scope of services than the others which tend to be more specialist.

The graph and table below shows the distribution of demographic data for respondents for this question. Medical services is by far the most common area within the sample, with more than 50 of the 71 respondents working within this sector.

This to a large extent suited the researcher and the research questions, which most directly apply to medical services contract holders.



**Figure 6.2: Respondent Role Graphic**  
**Source: Study Primary Data Collection**



#	Answer	%	Count
1	Medical	78.87%	56
2	Dentistry	8.45%	6
3	Pharmacy	7.04%	5
4	Optometry	5.63%	4
5	Other	0%	0
	Total	100%	71

Table 6.3: Respondent Role Information

Source: Study Primary Data Collection

### 6.2.5 Responses by Gender

The next question focused on the gender of the respondent. If the responses were mainly from male or female respondents, this may be representative only of that group and not the wider population.

The responses were almost evenly split with 53% of respondents being male and 47% female. There were no other variants of gender reported by participants.

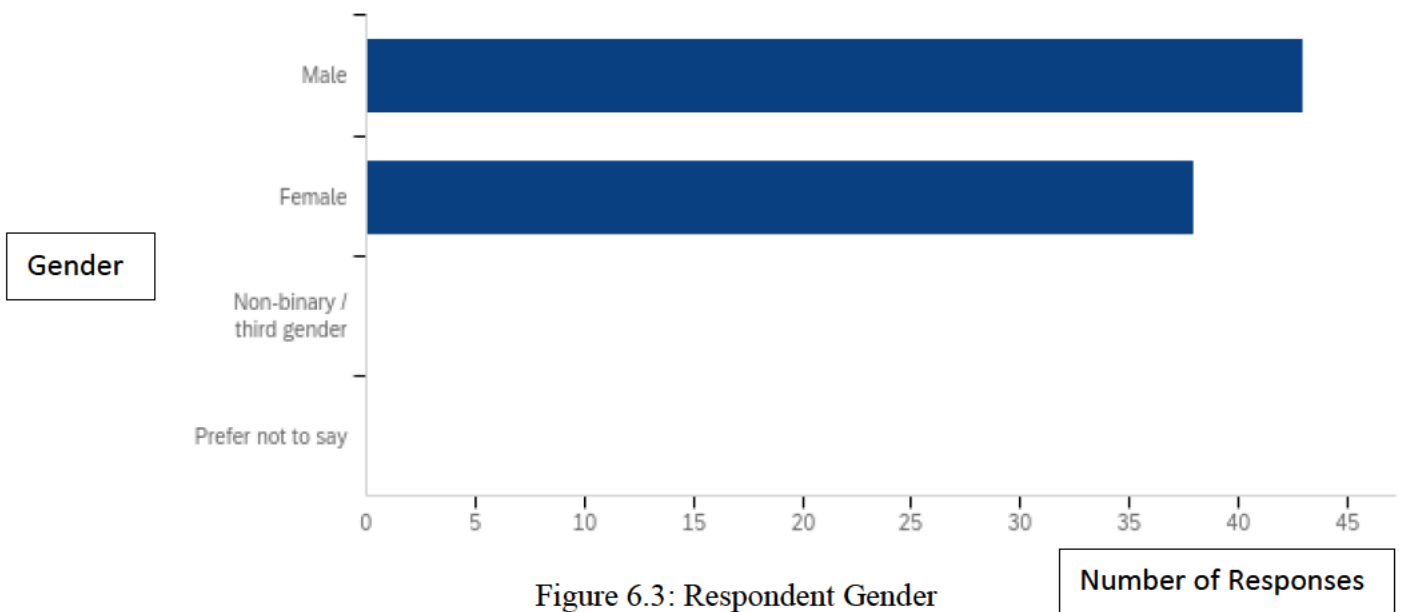


Figure 6.3: Respondent Gender

Source: Study Primary Data Collection

#	Answer	%	Count
1	Male	53.09%	38
2	Female	46.91%	33
3	Non-binary / third gender	0.00%	0
4	Prefer not to say	0.00%	0
	Total	100%	71

Table 6.4: Respondent Gender Information

Source: Study Primary Data Collection

The researcher was interested to establish if the sample represented the wider population of primary care practitioners. This was possible as Statistics Wales report on the demographics of the wider population. Though this is also estimated by a sample, it is a point of interest if these agree. The results of the Statistics Wales assessment as at December 2021 are presented below:

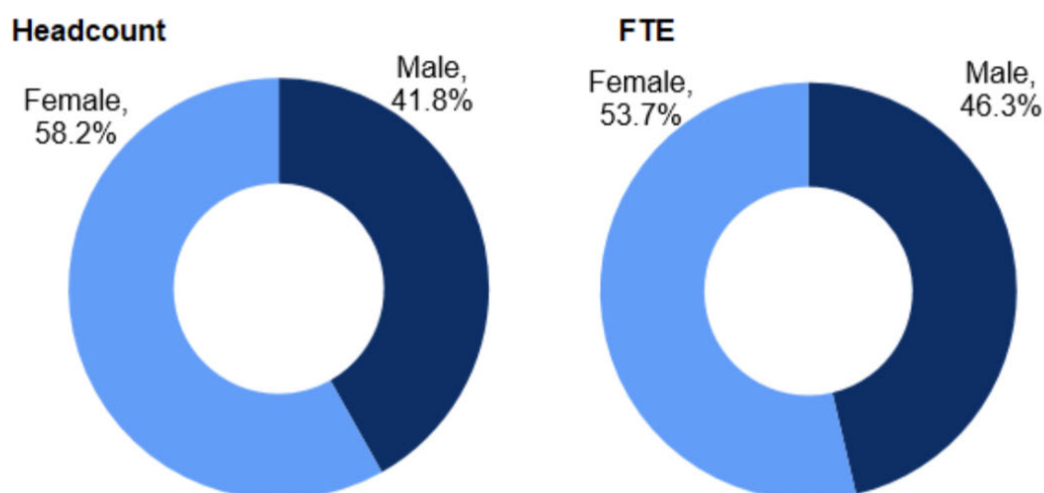


Figure 6.4: Statistics Wales estimation of Primary Care demographic split between male and female practitioners as at December 2021

Source: (<https://gov.wales/general-practice-workforce-31-december-2021-html>)

The first graphic presents data for the total headcount of practitioners and the second for full time equivalent practitioners, reflecting the different working volumes of that headcount. The demographic split for gender in this study sample was 53% male and 47% female. This is similar to the Statistics Wales estimate of roughly half split also, though this sample had male respondents making up slightly less than 50% at 46.3%. Therefore the sample demographic is reasonably consistent and representative in terms of gender.

#### *6.2.6 Responses by Years Leading or Managing Change*

A question was included in the survey to assess the level of experience of the respondent. A more experienced practitioner or leader of change may yield a more representative outcome or higher quality of response. This would reflect the benefit and knowledge of that experience. The interviews conducted in the first phase of research were exclusively with expert participants for this reason. The same logic was applied here, though recognising that a wider sample would include those with some but not an 'expert' level of experience.

Respondents had mostly more than 3 years experience, with only 35% having three years or less experience of implementing innovation, improvement or EBP. 4.1% had 4-7 years experience, 20% had 8-15 years experience and so very experienced, 1.4% had 15-20 years experience and another 1.4% more than 20 years.

This suggests that the sample had some very experienced individuals, but also roughly one third with some but not extensive experience.

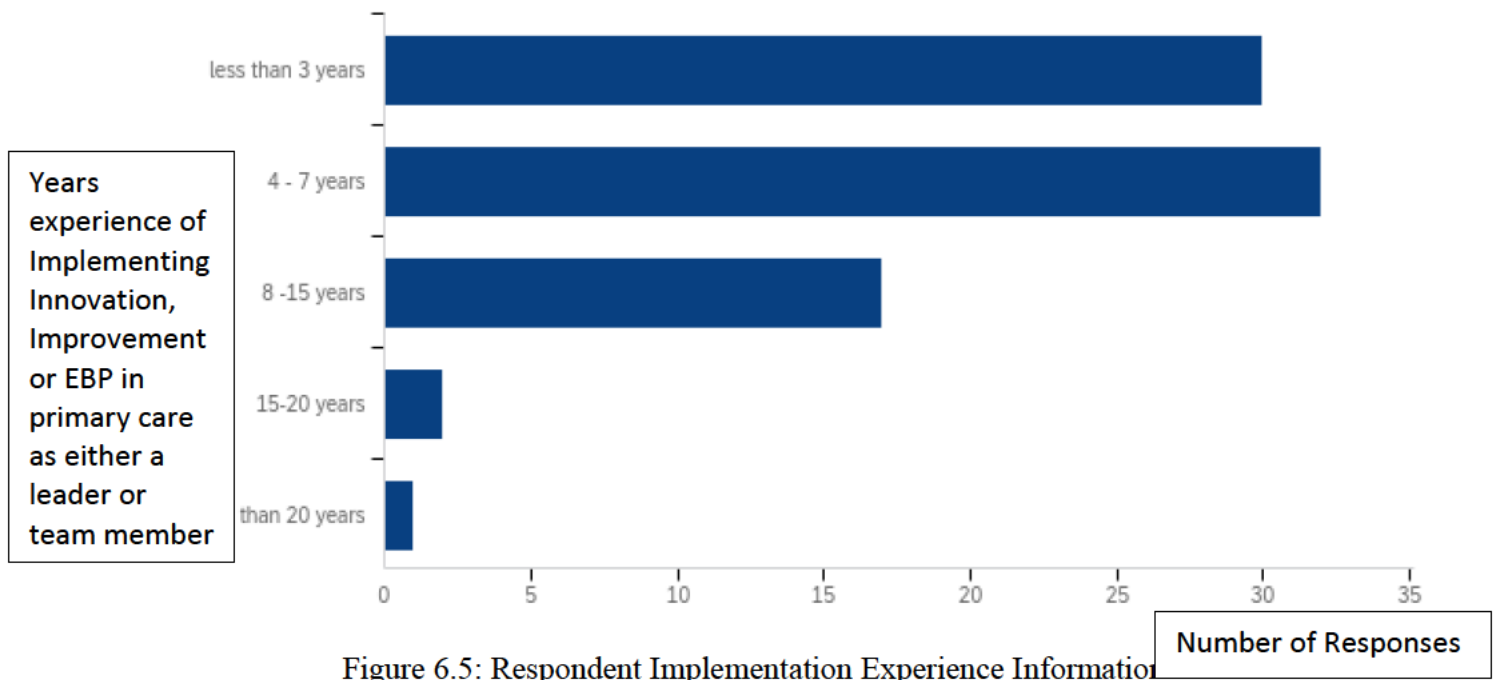


Figure 6.5: Respondent Implementation Experience Information

Source: Study Primary Data Collection

#	Answer	%	Count
1	less than 3 years	35.21%	25
2	4 - 7 years	4.1%	29
3	8 -15 years	20.13%	15
4	15-20 years	1.4%	1
5	More than 20 years	1.4%	1
	Total	100%	71

Table 6.5: Respondent Implementation Experience Breakdown

Source: Study Primary Data Collection

### 6.2.8 Responses by Number of Partners at Practice

The final demographic item included in the questionnaire was to establish the number of partners at the primary care practice, dentist or optician. This was a proxy for the size of the practice and an increased patient population and volume of output of services through the system as number of partners rises.

This item followed a roughly normal distribution, with no primary care practices being run by an individual partner, 4.1% having two partners and 2.13% having three. The majority of the respondents then had between four and six partners totalling 69% of the total sample. The remainder were from very large practices with either 11 or 12 partners, 7.04% each.

#	Answer	%	Count
1	1	0%	0
2	2	4.1%	1
3	3	2.13%	9
4	4	21.13%	15
5	5	32.39%	23
6	6	15.49%	11
7	7	2.81%	2
8	8	0%	0
9	9	0%	0
10	10	0%	0
11	11	7.04%	5
12	12	7.04%	5
	Total	100%	71

Table 6.6: Respondent Organisation Size Information

Source: Study Primary Data Collection

## 6.4 Results

Following presentation of demographic information about respondents, the next section presents the quantitative results. There are three parts to this section, each covering the output of one of the three quantitative techniques used by the researcher. These descriptive statistics- this is the most simplistic level of analysis and covers well known measures of mean, median, mode and standard deviation.

The second sub-section presents a correlation analysis. This is a method of assessing the strength of relationship between two variables. In this study, the strength of relationship between each of the variables and the other dependent variables and independent variable was explored. This offers the researcher and reader, an insight to if, for example trust and participation are linked on their impact on the implementation of innovation, improvement or EBP. This example could be extended to each of the variables and the value being an understanding of how two variables within the model created effect the outcome of implementation, when present together.

The third and final sub-section presents a regression analysis. A regression analysis is a way of sorting which of a set of variables have an impact on a dependent variable and which do not (Gallo 2015). It can also be useful to explore the strength of the impact of variables on the dependent variable, in this model the implementation of improvement. Regression analysis is a robust technique used to assess and explore models both academically but also in business analysis, to explore complex business problems. The application of this technique in this study has a flavour of both. It is a useful tool to use pragmatically, not just from a positivist viewpoint of proving or disproving a model. It can be used in this study to apply the model to primary care and explore provision within NHS Wales using the model created by the researcher.

#### 6.4.1 Descriptive Statistics

Descriptive statistics summarise the main features of a dataset. Each of the variables created in the model are continuous; they are reflected by values selected by respondents in the questionnaire of between 1 and 5, across each of a number of questions or scales for that variable. In this Likert scale, 1 represented strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 strongly agree.

The SPSS package (version 26, IBM Corporation 2019) was used to produce descriptive statistics for the dataset downloaded from the Qualtrics software. This has a standard output of five descriptive statistics; mean, median, standard deviation, minimum value and maximum value. These are presented for each variable in the table below.

	N		Mean	Median	Std. Deviation	Minimum	Maximum
	Valid	Missing					
<b>Project Success</b>	71	0	Disagree	Neither Agree or Disagree	0.62	Disagree	Neither Agree or Disagree
<b>Innovation, Improvement or EBP itself</b>	71	0	Neither Agree or Disagree	Neither Agree or Disagree	0.65	Disagree	Strongly Agree
<b>Motivation</b>	71	0	Agree	Agree	0.71	Disagree	Strongly Agree
<b>Capability</b>	71	0	Agree	Agree	0.75	Disagree	Strongly Agree
<b>Trust</b>	71	0	Neither Agree or Disagree	Neither Agree or Disagree	0.63	Strongly Disagree	Agree
<b>Participation</b>	71	0	Neither Agree or Disagree	Neither Agree or Disagree	1.12	Strongly Disagree	Agree
<b>External Environment</b>	71	0	Neither Agree or Disagree	Neither Agree or Disagree	0.78	Disagree	Strongly Agree

Table 6.7: Descriptive Statistics Summary Table

Source: The Researcher

The first two columns in this table present information about the number of respondents and highlight any missing values which would impact the calculation of values. For each of the variables and descriptive statistics there was 71 responses or observations and no missing values or responses.

The next descriptive statistic is the mean or average. The mean response is produced as the sum of the each observation, divided by the total number of observations. It is an indicator of the central tendency of the variable, the centre point of the distribution for a variable. The



remaining columns show median as the middle value when sorted in order and standard deviation, showing dispersion about the mean.

For the innovation, improvement or EBP itself variable, this had a mean value of ‘Neither Agree or Disagree’ (3.82) and standard deviation of 0.65. Respondents feel that, for primary care provision within the Welsh NHS; the innovation, improvement or EBP itself is not always present where they have had success of an implementation project. This is a point which will feature in the discussion chapter as the literature suggests this might be higher. It may suggest that the factor should be present in the model, but an area for development to the Welsh NHS. The design of the innovation, improvement or EBP to be implemented as part of the project should logically be a large component of success.

For the motivation variable, this had a mean response of ‘agree’ (4.07) and standard deviation of 0.71, representing that respondents have found the factors within that theme to be influential to implementation success in their experience.

For the capability variable, there was a mean response of ‘agree’ (4.07) and standard deviation of 0.75, again representing that respondents found this variable to be influential on implementation success in their experience.

The remaining three variables had a mean response of ‘Neither Agree or Disagree’. For, trust (3.00) and standard deviation of 0.64. For participation, ‘Neither Agree or Disagree’ (3.22) and standard deviation of 1.13. For the external environment variable, ‘Neither Agree or Disagree’ (3.62) and standard deviation of 0.78.

This section has presented the reader with the descriptive statistics for the data collected in the second phase of this study. The next section will move on to discuss the correlation analysis undertaken on the data collected, the second of three techniques applied.

## 6.4.2 Correlations

In order to explore the bivariate relationships between the variables, Pearson correlations were calculated. Correlation analysis measures if any linear relationships exist and their magnitude. The table below presents the results of this analysis:

	Project Success	Innovation, Improvement or EBP	Motivation	Capability	Trust	Participation	External Environment
Project Success	1	0.545 <0.001	0.694 <0.001	0.737 <0.001	0.009 0.937	-0.641 <0.001	0.774 <0.001
Innovation, Improvement or EBP itself		1	0.732 <0.001	0.721 <0.001	0.025 <0.001	-0.99 <0.001	0.259 <0.001
Motivation			1	0.868 <0.001	0.149 <0.001	-0.371 <0.001	0.450 <0.001
Capability				1	0.109 <0.001	-0.386 <0.001	0.471 <0.001
Trust					1	0.212 0.73	-0.122 0.309
Participation						1	-0.769 <0.001
External Environment							1

Table 6.8: Correlation Outputs for Each Variable

Source: The Researcher

Green project success has a high correlation between independent variables and project success dependent variable (motivation 0.694, capability 0.737, external environment 0.774). However, trust has extremely low correlation showing based in this data does not impact project success.

There are also some noteworthy correlations between independent variables, this will impact the future analysis with regards to regression to make sure correlation results between the independent variables are taken into consideration

Blue Innovation, Improvement or EBP itself is highly correlated with Motivation (0.732). This suggests that Innovation, Improvement or EBP itself positively/negatively impacts Motivation.

Blue Motivation is highly correlated with Capability (0.732). This suggests that Motivation positively/negatively impacts Capability.

Blue Participation is highly correlated with External Environment (0.732). This suggests that IV1 positively/negatively impacts IV2.

There are some independent variables that have insignificant correlations and this can be seen by the high significance value in table 6.11.

Overall because of a number of independent variables being highly correlated it is important to check for any multicollinearity issues during the regression process. this is because a high correlation (multicollinearity) can potentially negatively impact the regression results.

### 6.4.3 Regression

To further investigate the multivariate relationships, an ordinary least squares multiple linear regression was performed by producing regression success scores for the dependent variable of project success of implementation of innovation, improvement or EBP, onto the composite scores of motivation, capability, trust, participation, innovation improvement and external environment.

There were overall two regressions conducted. The first included all variables proposed by the model, created as an output of the first qualitative phase of research (motivation, capability, trust, participation, innovation improvement and external environment.) Based on the results, the overall model with all independent variables included was found to be statistically significant; explaining 72.5% of the variability in success scores,  $F(6, 51) = 22.462$ ,  $p < 0.001$ ,  $R^2 = 0.725$ ,  $\text{adj. } R^2 = 0.693$ ).

Some of the individual P values reflecting statistical significance were lower than expected in the first model regression output (innovation, improvement or EBP itself  $P = 0.98$ , capability  $P = 0.067$ , external environment  $P = 0.812$ ). Therefore, a second regression analysis was then undertaken on a stepwise basis. This removed any variables not adding to the overall significance of the final model, any variables which did not improve the explanatory power of the model. This second regression only removed one variable from the regression, external environment. Both regressions are presented below.

#### 6.4.3.1 First Regression- Non Stepwise

This regression used the enter method and is summarised by the following table:

## Model Summary

Model	R	R Square	Adjusted R Squared	Standard Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.806	0.650	0.617	0.38322	0.650	20.103	6	65	<0.001

Table 6.9: First Regression Model Summary Table

Source: The Researcher

To understand or explain variation in the dependent variable, the R<sup>2</sup> (coefficient of determination) value is used; the overall correlation value between dependent and independent variables. In mathematical terms this value represents the ‘goodness of fit’ of the graphical line of best fit through the least squares plot. The value is always between 0, representing no correlation between dependent and independent variables and 1, which would show full correlation.

The R<sup>2</sup> value illustrates the percentage of the variation in the dependent variable, which can be explained by the regression. It is a measure of its effectiveness. For this regression the value was 0.65, which suggests that 65% of the change in the dependent variable is accurately predicted by the model.

Another measure of goodness of fit, more suited to this regression is the adjusted r<sup>2</sup> value. This takes into account the number of variables that are in the regression and so is a more sensitive measure than R<sup>2</sup>. The adjusted R<sup>2</sup> value for this study is 61%. The adjusted r<sup>2</sup> not r<sup>2</sup> as takes into account fact that have more than two variables in the regression this is 61.7%. means that 61.7% of variation in dependent variable is explained by independent variables

## ANOVA table

The following table shows the ANOVA output for the regression:

Model		Sum of Squares	df	Mean Square	F	Sig.
1						
	Regression	17.714	6	2.952	20.103	<0.001
	Residual	9.546	65	0.147		
	Total	27.260	71			

Table 6.10: First Regression ANOVA Table

Source: The Researcher

The value of interest here is the F statistic. This shows the explanatory power of the model. The F-value is the variation between sample means as a proportion of the variation within the samples. The higher the F-value, the higher the variation between sample means, relative to the variation within the samples. The higher the F-value, the lower the significance.

A challenging part of regression analysis is the decision of which potential variables to use (Albright 2017). In this regression analysis the start point for the inclusion of variables was the literature search. This first phase of research produced a model with 6 variables. From this first regression, it appeared that some variables might be insignificant (innovation features, capability, external environment). To improve the regression and remove any variables not adding to the overall explanatory power of the model, a backward regression was the next step.

## Coefficients Table

	b	Std. Error	$\beta$	t	p	95% Confidence Interval	
						Lower Bound	Upper Bound
Innovation, Improvement or EBP itself	0.252	0.150	0.266	1.679	0.98	-0.48	0.552
<b>Motivation</b>	<b>0.404</b>	<b>0.132</b>	<b>0.461</b>	<b>3.053</b>	<b>0.003</b>	<b>0.140</b>	<b>0.669</b>
Capability	0.248	0.134	0.300	1.861	0.067	-0.018	0.515
<b>Trust</b>	<b>-0.157</b>	<b>0.076</b>	<b>-0.161</b>	<b>-2.070</b>	<b>0.042</b>	<b>-0.309</b>	<b>-0.006</b>
<b>Participation</b>	<b>0.204</b>	<b>0.066</b>	<b>0.366</b>	<b>3.098</b>	<b>0.003</b>	<b>0.072</b>	<b>0.335</b>
External Environment	-0.027	0.113	-0.034	-0.239	0.812	-0.254	0.199

Note: *b* unstandardised coefficients;  $\beta$  standardised coefficients

Table 6.11: First Regression Output Table

Source: The Researcher

The estimated multiple regression equation is:

$$\begin{aligned} & \text{Successful Implementation of Innovation, Improvement and EBP} \\ & = \text{constant (B)} + \text{Innovation Features} + \text{Motivation} + \text{Capability} \\ & + \text{Trust} + \text{Participation} + \text{External Environment} \end{aligned}$$

Holding all else constant, there can be the following interpretations:

- Considering the individual contribution of the variables both the scales of Motivation ( $b=0.455$ ,  $\beta=0.443$ ,  $p<0.01$ , 95% CI[0.178; 0.732]), Trust ( $b=0.191$ ,  $\beta=0.18$ ,  $p<0.05$ , 95% CI[0.02; 0.362]), Participation ( $b=0.204$ ,  $\beta=0.366$ ,  $p<0.05$ , 95% CI[0.072;0.335]) were found to have statistically significant positive predicted influence on the outcome.

- Having the highest effect, the model predicted a 0.405 unit increase of success scores for every unit of increase on the Motivation scale, as well as -a lower but still significant- 0.157 unit increase of success scores for every unit of increase on Trust scores respectively.
- It needs to be noted also that while the capability factor was found to be non-significant it was marginal ( $b=0.25$ ,  $\beta=0.261$ ,  $p=0.78$ , 95% CI [-0.029;0.529]), the results once again indicating a positive relationship.
- The rest of the variables however failed to achieve significance. Statistical significance means this regression cannot show the determinant exists outside of the sample. However, that does not mean that it does or does not have an effect on project success.

#### 6.4.3.2 Second Regression- Stepwise

To improve the explanatory power of the regression and remove any variables that were not adding to the overall explanatory power of the model, there was a second regression. This regression was on a stepwise basis, removing variables successively and showing the most parsimonious model.

#### Model Summary

The model summary table for this model is shown below, comparing the initial regression and stepwise:

Model	R	R Square	Adjusted R Squared	Standard Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.806	0.650	0.617	0.38322	0.650	20.103	6	65	<0.001
2	0.806	0.650	0.623	0.38047	0.000	0.057	1	65	0.812

Table 6.12: Second Regression Model Summary Table Source: The Researcher



Dependent variable is again Project Success. For Model 1 the predictors are: constant, external environment, trust, motivation, participation, innovation and capability. For model 2 the predictors are: constant, trust, motivation, participation, innovation and capability. External environment as a variable has been removed.

The regression equation then becomes:

$$\begin{aligned} & \text{Successful Implementation of Innovation, Improvement and EBP} \\ & = \text{constant (B) + Innovation Features + Motivation + Capability} \\ & + \text{Trust + Participation} \end{aligned}$$

### ANOVA table

The ANOVA table for the initial and stepwise regressions are shown below:

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.714	6	2.952	20.103	<0.001
	Residual	9.546	65	0.147		
	Total	27.260	71			
2	Regression	17.706	5	3.541	24.462	<0.001
	Residual	9.554	66	0.145		
	Total	27.260	71			

Table 6.13: Second Regression ANOVA Table

Source: The Researcher

The F value is higher for the second model (24.46) than the first (20.10).

### Coefficients Table

Below is the coefficient table for this model:

Mode 1		b	Std. Error	$\beta$	t	p	95% Confidence Interval	
							Lower Bound	Upper Bound
1	Innovation, Improvement or EBP itself	0.252	0.150	0.266	1.679	0.98	-0.48	0.552
	<b>Motivation</b>	<b>0.404</b>	<b>0.132</b>	<b>0.461</b>	<b>3.053</b>	<b>0.003</b>	<b>0.140</b>	<b>0.669</b>
	Capability	0.248	0.134	0.300	1.861	0.067	-0.018	0.515
	<b>Trust</b>	<b>-0.157</b>	<b>0.076</b>	<b>-0.161</b>	<b>-2.070</b>	<b>0.042</b>	<b>-0.309</b>	<b>-0.006</b>
	<b>Participation</b>	<b>0.204</b>	<b>0.066</b>	<b>0.366</b>	<b>3.098</b>	<b>0.003</b>	<b>0.072</b>	<b>0.335</b>
	External Environment	-0.027	0.113	-0.034	-0.239	0.812	-0.254	0.199
	2	Innovation, Improvement or EBP itself	0.233	0.126	0.246	1.847	0.069	0.300
	<b>Motivation</b>	<b>0.405</b>	<b>0.132</b>	<b>0.462</b>	<b>3.079</b>	<b>0.003</b>	<b>0.236</b>	<b>4.239</b>
	Capability	0.252	0.132	0.304	1.910	0.061	0.210	4.769
	<b>Trust</b>	<b>-0.157</b>	<b>0.075</b>	<b>-0.160</b>	<b>-2.078</b>	<b>0.042</b>	<b>0.893</b>	<b>1.120</b>
	<b>Participation</b>	<b>0.212</b>	<b>0.056</b>	<b>0.381</b>	<b>3.812</b>	<b>&lt;0.001</b>	<b>0.532</b>	<b>1.881</b>

Table 6.14: Second Regression Output

Source: The Researcher

Holding all else constant, there can be the following interpretations:

- Motivation ( $b=0.405$ ,  $\beta=0.462$ ,  $p<0.01$ , 95% CI[0.236; 4.239]), Trust ( $b=-0.157$ ,  $\beta=-0.16$ ,  $p<0.05$ , 95% CI[0.532; 1.881]), Participation ( $b=0.212$ ,  $\beta=0.381$ ,  $p<0.05$ , 95% CI[0.532;1.881]) were found to have statistically significant positive predicted influence on the outcome.
- Having the highest effect, the model predicted a 0.405 unit increase of success scores for every unit of increase on the Motivation scale, as well as -a lower but still significant- 0.191 unit increase of success scores for every unit of increase on Trust scores respectively.
- It needs to be noted also that while the capability factor was found to be non-significant it was marginal ( $b=0.25$ ,  $\beta=0.261$ ,  $p=0.61$ , 95% CI [0.210;4.769]), the results once again indicating a positive relationship. The P value was also closer to the  $P<0.05$  criteria for significance.
- The innovation features variable again failed to achieve significance. Statistical significance means this regression cannot show the determinant exists outside of the sample. However, that does not mean that it does or does not have an effect on project success. The literature is suggesting that it is having an effect and this may be reflect the innovation ecosystem within NHS Wales primary care and highlight a deficiency for policy.
- External environment did not add to the overall explanatory power of the model and was removed by the stepwise regression.

## Chapter Conclusion

This chapter has presented the quantitative analysis of the data collected from the second phase of research. Three statistical techniques have been used for this purpose; descriptive statistics, correlation analysis and regression analysis. The phase of research and this chapter presenting it, supports mostly the second research question; to test and apply the model of

implementation of innovation, improvement and EBP in primary care. The results show that the proposed model is statistically significant and highlights many points for discussion in the next chapter.

## Chapter 7: Discussion

This chapter will present a discussion of the empirical findings of this research study and bring the empirical research phases together in order to meet the objectives of this study and to elaborate on the new insights provided.

### 7.1 Introduction and Purpose

The purpose of this chapter is to bring together the findings of the field research and to contrast what has been found against the extant literature and to answer the guiding research questions. The chapter will also explore the contribution of this work to a greater understanding of implementation of innovation, improvement and EBP in primary care, particularly in Wales. Towards the end of the chapter a more theoretical discussion will be undertaken which relates the findings of this study to the background literatures and theoretical lenses through which this study will be judged. The review, using the background literatures (based mainly on systems theory) will review the findings and consider the implications for each of the research questions. In particular, by applying the theoretical the research questions as they apply to the theoretical understanding of this modern healthcare management issue and as a way of explaining what is happening to the innovation ecosystem.

### 7.2 Restating Research Questions

To assist the reader, the guiding research questions are restated for clarity. The research questions are shown below:

*RQ1: What determinants effect successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*

*RQ1A: What determinants, featuring internally within primary care provider organisations, influence the implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*

*RQ1B: How do external determinants influence successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*

*RQ2: What insight about can be gained for practitioners and policymakers, by applying the developed model to the context of NHS Wales Primary Care delivery?*

These questions were designed to close a gap in the extant literatures and body of knowledge concerning the adoption of innovation, improvement and EBP and the ecosystem that supports primary care providers located in the country of Wales.

7.2.1.1 Answering Q1A: What determinants, featuring internally within primary care provider organisations, influence the implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?

The first research question shown is:

**RQ1A: What determinants, featuring internally within primary care provider organisations, influence the implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?**

The purpose of this question is to identify internal determinants of successful implementation of innovation, improvement and EBP in primary care. The internal dimension concerns the practices, motivation and local decisions taken by general practices in their pursuit of improved performance.

In the focal literature there was significant debate about the determinants that would enable greater use and effective implementation of innovation. However, despite the importance of such determinants, there was no single universal view as to which were influencing and enabling primary care practices to adopt new ways of working or adapt existing ones. Proponents of the importance of internal readiness determinants included authors such as Aarons (2014), Greenhalgh (2004) and most specifically Weiner (2009). Each author

highlighted different internal readiness determinants and others identified completely different sets of influencers altogether, not including internal readiness (eg Ziemann 2017).

The findings of this research clearly indicate, in the context of the Welsh NHS, the strengths of the three internal determinants of motivation, capability and innovation features. The detected importance of this portfolio of influencers confirms the research of Aarons (2014), Greenhalgh (2004) and Weiner (2009) and their associated models which show the management and exploitation of these concepts to be of central importance to success. This research therefore validates and confirms the views of these researchers, in the context of Welsh NHS primary care. However, it should be noted that these concepts and the previous research, draws extensively from a research context that is generically secondary care in nature or from private health and care models (such as that operated in the United States). When reconsidering the literature and empirically tested model of this research, the researcher's model has promising potential to offer good utility and alignment with previous research studies.

From the conceptual framework from the findings, three core concepts were identified, namely:

1. Motivation
2. Capability
3. Innovation features

To provide a discussion of the findings relative to the existing literature, the researcher will look at the areas of commonality between his findings and previous research in the field. The published research literature predicted that the “internal readiness” or “internal context” of an organisation (namely the primary care organisation) would have a significant impact on the ability of an innovations system to engage with innovation, improvement and evidence-based practice improvement. The thesis findings suggest that this is true and that the extant body of knowledge was found to be correct when confirmed by the findings of the questionnaire administered during this research. The “inner context” or “internal readiness” is a set of working practices and concepts that are typically associated with the concept of “motivation for change” and “capability to enact change”. Whilst the researcher agrees with these generic

conceptual labels, he disagrees in terms of the factors that are within both the motivation and capability for change.

The researcher's view is at variance with the existing literature and this research study has found that monitoring and evaluation are absent elements of existing published research studies and models. However, this study finds that these feedback systems were found to be critically important elements of each organisation's ability to engage in innovation and interventions to implement new ways of working. These findings are unique to this study, and this was confirmed when the researcher retested the modern literature to see if such a set of concepts had been detected by others. Within the specific contextual constraints of primary healthcare, the research also found that, within the "motivation" concept as a driver, there are many missing features that are prevalent within healthcare that are not in other domains. An example of such a localised condition is an imbalance in power whereby the owner of the organisation (the senior practice partners) is not always those charged with or initiating change within the general practice. Unlike other studies that have focused on secondary care (where comparatively more powerful organisations exist relative to the small organisational size of individual general practices and clusters) the power and resources available to hospitals (including a direct link to national government support and inducements to change) make secondary care a very different context to primary care.

The following sections are presented and discussed to provide the reader with a greater differentiation of the findings and linkages of the new model derived from this research.

#### *7.2.1.2 Motivation*

The concept of 'motivation' is presented in the innovation literature as an important concept yet exploring why innovation occurs, from a human motivation perspective, is often not treated in significant detail. The motivation concept was also present in more modern and behavioural works associated implementation science literature base. The incorporation of 'motivation' within the behavioural approach is largely due to the existence and widespread endorsement of the PARIHS framework (a framework which provides a guideline to enacting and implementing change). The PARIHS approach does not explicitly recognise 'motivation' but instead treats it as an amalgam of internal organisation concepts (Harvey & Kitson, 2015). The CFIR studies and classification of concepts, does explicitly recognise motivation as a



determinant and enabling influence for success (Damschroder, 2009). The researcher would support this inference and causal linkage from his study.

Motivation is also a theme or determinant in various other implementation and innovation models in the literature, especially at the organisational level. The models include the seminal work of Rogers (2003), and other such as Wenger (1998), Gabbay et al. (2003, 2004), Carlile (2004), Michie et al (2005), Weiner (2009), and Cane et al (2012). It is sometimes also featured as an individual adopter characteristic, such as Carlile (2004) and Greenhalgh (2004) especially in the health and care context. However, the development of the concept has not been well-tested and refined in the health and care context, specifically beyond the bounds of secondary care. Motivation as a driving concept for innovation was also identified in the context of facilitators of change projects (individuals attempting to create unity and goal performance within a change team) but these studies were ‘out of scope’ for this research due to its focus on a distinct single case study and low levels of similarity was detected by comparing works in this field of study with the findings of this research. The motivation concept was also studied by previous researchers from the viewpoint of ‘stakeholders of change’ and it was identified as clearly associated and a determinant of successful implementation (eg Damschroder, 2009). The reason for this causality is the reduction of risk and project failure when stakeholder interests are understood, and mutually agreeable solutions can be found in terms of innovation design and implementation. However, these studies also focused on the individual as a focal point for uniting stakeholders and this view reduces the utility of these works when explaining how systems and complex stakeholders interact. However, there are some similarities from these literatures and this study, in that, where there is motivation at the individual and organisational levels; this enables successful implementation. Where motivation is unclear or not present this inhibits successful facilitation as was detected by Harvey and Kitson (2015). The findings of this study show that individual motivations to enable innovation are present in most stakeholders in the Welsh NHS system, albeit the capability and competences needed to enact change are lacking at the general practice level and “positive motivation” is absent. This is due to a mistrust concerning the motives for and lack of means of promoting or inducing change from central government and local health boards.

Paradoxically, the majority of participants (in both phases of the study) demonstrated high levels of motivation towards innovation deployment and adoption. The results show that they

appeared interested to progress implementations. In the data collected, the tone of voice and speed of speech were non-verbal cues and signals of this positivity which reinforced the data. However, the willingness to engage is tempered by a lack of means to convert this attitude into real progress. This finding does present a positive perspective, and, from a practical perspective, the undiminished optimism is a foundation upon which the implementation aspects of primary care innovations can be developed if the competence issues and the limited resources (human and knowledge) can be addressed for general practices.

However, it must be noted that ‘motivation’ among participants was varied, and no uniformity existed in the reasons driving motivation, the researcher found this inconsistency interesting. The variances suggest a lack of a common mental model of the future and an unclear goal (or variants of goal) for most key stakeholders. This study has involved many of the major stakeholders in the Welsh primary care innovation ecosystem and this finding suggests issues with the planning and communication of the need to innovate in sufficient time, for goals and resources to be combined for implementation (these processes are often termed system ‘feed forward’ planning processes). Motivation was classified as being ‘low’, ‘medium’, or ‘high’ for each of the different types or determinants of motivation detected. Often, the cited reasons consisted of “coping” with perceived increased workload (demand features), shift to chronic disease management (complexity reasons) and changing patient expectations of care (effectiveness reasons). These three sources underpinned this sub theme and support a link between motivations to improve efficiency i.e., reduce or cope with workload and far fewer responses indicated any intended strategic development or strategic competence building purposes. These findings support an intention to deal with the operational matters and benefits of innovation that enhance process flow of patients – the fundamental activity of the general practice. This focus is understandable, from the GP perspective, the general practice is an organisation that lacks human and financial resources to take risks on innovations that do not payback and, as such, investments are likely to focus on short term payback which can only be achieved by satisfying current service demand. Broader governmental policies also support a switch to local care and keeping patients ‘at home’ which further inflates demand.

Of note, is that motivation was not just based purely on economics. One participant, P1, proposed that “*the long and short of it is that GPs are in the business for money.*” This was a motivating factor, but not the only one and not as prevalent as expected. There being no clear

concentration of motivation, means that common motivation does not appear to exist, motivation is individual; one of a range of potential drivers.

In terms of this study, motivation was a main theme, which had eight sub themes. The terms motivation (or want to change) and capability (or ability to change) were inspired by Weiner's (2009) framework of organisational readiness as a determinant of implementation success. In this study, that literature as well as Damschroder (2009) and Harvey and Kitson (2015) is used as a start point, to understand organisational readiness specific to primary care organisations. From this, eight motivation determinants arose *a priori* from the literature and the data.

These motivation sub themes are: engagement, motivation (same name as the main theme purposively), culture, attitude to risk, leadership commitment, power dynamics and authority, collaboration and teamwork and past experience of implementation success. These sub-themes will now be explored.

Engagement was the first sub theme of motivating determinants of successful implementation. The literature said this concept was an important part of translating evidence-based practice into operational use (Pronovost, 2008), who said engagement was about inspiring stakeholders to support the outcomes. They did this by "*sharing real life stories of patient tragedies and triumphs and by estimating the harm attributable to omitting the intervention in their unit or hospital given their baseline data*" (Pronovost, 2008). Damschroder (2021) proposed four specific methods of engagement: using opinion leaders, formally appointed implementation leaders, change champions and external change agents.

This study confirmed the presence of this determinant in successful implementation of innovation, improvement and EBP in primary care and found the range and methods of engagement to be expanded from that in the literature. This included highlighting the benefits of successful implementation to all stakeholders through formal and informal communication. This fits well with existing literature; for example, change champions suggested to engage staff in a hospital environment would still be useful, however there are more stakeholders and with complex and sometimes competing agendas to engage.

Motivation as a core concept was the second sub theme. Motivation as a main theme comprises eight sub themes and is influenced by Weiner's (2009) classification of internal readiness

determinants being either motivation based, or capability based. There are also several other related sub themes which influence motivation on a wider basis, one of which is the definable concept of motivation, which is why there the main theme is of the same name.

The literature proposed the view that motivation acts as an enabler of implementation when present. Whereas when motivation is weak, unclear or not present, this inhibits implementation success. For example, motivation may be to improve patient outcomes or to improve profitability and such a view is widely held in the literatures (Damschroder, 2009:2021; Harvey & Kitson, 2015; Waltz et al. 2019)

Culture was an existing theme in literature and Gershon et al. (2004) provided the most relevant work to the role of culture in this study, defining this as “*the way that 'we do things in our organizations and work units..... [the] stakeholder perception of norms, values and basic assumptions of a given organization*” (Gershon et al., 2004). Culture within organisations has long been researched as an influencer of performance in organisations. For example, a transformational culture where change and transformation are the norm for the organisation. There are also management consultant proprietary models which are used as frameworks for approaching culture development in NHS organisations, such as the Mckinsey 7s model (Peters and Waterman 1982). Lewin’s 3 step change model (Lewin 1947) was also explored in the literature search and Kotter’s 8 steps to change (Kotter 1996). Each of these models is commonly used in literature to explain and approach culture development.

In this study, culture was found to be a determinant of implementation success. Where ‘the way we do things in our organisation’ was to embrace implementation, the perception of participants was that the implementation met its objectives (P1, P12 are the best examples). Where there was a culture which did not support implementation, effectively the organisational culture being of excuses or that change was futile, implementation was perceived to be less successful (p6,p7). This theme appears to be linked with the theme of leadership commitment, as leaders influence organisational culture (Muls, 2015).

The theme of culture was dominated by one of ‘coping’. Participants almost always commented that motivators included not just to improve performance or quality, but to avoid further deterioration in those things. It is arguable that this has become the accepted culture for primary care practices in NHS Wales.

Attitude to Risk was also a theme present in the literature and identified as ‘stakeholder perception’ of the degree to which leaders express their own willingness to try new innovations (Harvey and Kitson 2015). The literature suggested that the strength of an organization's climate for the implementation of an innovation, is a determinant of the success of its implementation (Klein & Sorra, 1996; Klein et al., 2001). Where the climate is one of risk aversion, which is common in public sector and NHS organisations, the literature suggested this would inhibit successful implementation or be a ‘response barrier’ (Greenhalgh et al., 2004; Nembhard & Edmonson, 2006; Harvey & Kitson, 2015; Damschroder, 2009). This theme was linked to culture and leadership commitment themes as attitude to risk could be either the implementation leaders view, the culture of the organisation, or both. In this study, participants often linked risk of introducing or delivering a service to financial incentives and indemnity. This could be important for policymakers to note.

Leadership Commitment is the commitment, involvement and accountability of leaders and managers of the implementation (Damschroder, 2019; Lukas et al, 2007). The literature proposed that this theme was an influencer of success and would be linked to the level of the organisation of the leader. In other words, the more influential the leader, the greater the effect of the commitment (Lukas et al 2007). In this study, there was a strong view from participants that leadership was an enabler of implementation success. There is a link to culture in that the leadership influence on culture was apparent in the majority of the mini cases (P5, P12 being good examples). P1 also demonstrated a commitment which rippled throughout the organisation from the leader downwards.

In hospital settings, where the studies on leadership commitment have mainly been, the organisation leader is often different from the implementer of the innovation, improvement or EBP. In primary care organisations, the leader of the practice or a senior partner was also the implementer. Therefore, the role of leadership commitment is likely to be more influential to successful implementation. Such commitment is a form of powerful motivation because it signals the legitimacy of change and implementing new ways of working.

‘Power Dynamics and Authority’ was a sub theme of motivation, as the motivation at an organisation is influenced by the dynamic of the partners. Primary care practices are unique in their structure as partnerships within the NHS. How decisions are made often depends not on

systematic choices, but the social dynamics of this partnership. Within the General Practice community, norms have evolved where more experienced partners may have more influence over decisions than partners with the same voting rights. This theme arose from the data whereas the extant literatures do not explore this aspect of innovation (the dynamic sub-theme was identifiable by the researcher from the phase one qualitative data and pattern matching across informants). The sub theme was significant because most research which focuses on implementation is related to the secondary care context where power is exerted within a system rather than being a recipient of the use of power and influence by organisations. There is a clear difference in the structure of primary care organisations and thus a new specific theme is needed to explain what is happening in practice and the researcher was pleased that this sub theme emerged from the phases of this study.

In practice, ‘the implementer’ of change will need to enlist the support of other partners, who may have more ‘soft’ or informal authority to enable or inhibit proposed projects. Such tactics are potentially a covert means of influencing a system. Informant P3 detailed this in his response where he had to provide academic studies and pilot studies to partner colleagues.

The theme of collaboration and teamwork in the context of primary care, is another sub-theme which arose from the data analysis as important. As a component of organisational motivation, the ‘want’ to change must be accompanied with a means of building the relationships necessary to enact change. This sub-theme suggests that where a team is openly collaborating and working well, this is an enabling outcome of organisational motivation. In this manner the relationship between actors is identified as an important finding of this study. In overall terms, the management of relationships and a collaborative approach is not the *modus operandi* of the system which is a centralised model of system management that lacks a two-way exchange of plans and implemented actions. This form of motivation and form of leadership commitment also drives organisational readiness, which in turn enables successful implementation. The researcher sees this as a broken process in that readiness is difficult to attain given the constraints identified in general practice, a lack of forward visibility of change and the lack of relational collaboration in place between actors (Weiner, 2009). The development of relationships, especially the overturning of poor relationships, into a means of improvement is a process that takes significant time as this is a form of culture which is embedded and influenced by negative previous experiences of change programmes.

The extant literature refers to ‘teamwork’ generally and in secondary care settings but more often teams as internal mechanisms (within a single organisation) that collaborate for successful change. For example, focusing implementation efforts on the wide range of roles in a service delivery team was identified as critical by Raghavan et al. (2007, 2008) but external integration of teams along a service pathway (involving inter-organisational collaboration) is not well understood and described in the health and care literatures. Collaboration and teamwork has been defined in this framework as the extent to which the organisation is able to work together to a common aim internally, within teams and between teams (a holistic view). High levels of collaboration and teamwork, lead to high functioning teams, which has been identified and well-researched as an enabler for change. However, this study shows that teamwork is practiced within organisations but not used as a conduit, bound by a common innovation goal, to unite policy and implementation. In this manner, teams can achieve goals for their organisation but are unlikely to formally align these goals with the goals of the health boards or government (even with leadership commitment for innovation) due to the tactical approach to innovation which is in place by general practices.

‘Past experience of success’ is a sub-theme related to the memory of the organisations involved in a system and this is specific to the attitudes of each organisation and especially the leadership of that organisation. As a common goal, unity and collaboration are missing elements of the current system for innovation, it can be assumed that existing positive relationships between actors were embryonic, immature or did not exist. The latter was found to be true during the qualitative phase of the research. As such, in the absence of projects that have worked and created benefits by collaboration then negative memories of change that is ‘mandated’ and imposed, combined with changes that have failed to realise benefits or incurred costs for the GPs will create a negative memory and an unwillingness to engage with future initiatives. The concept of ‘organisational memory’ is present in some of the more recent models of innovation (see Greenhalgh ,2004) but it is largely implicit whereas this study has explicitly identified this sub-theme and, on the whole, an inhibitor to progress for the Welsh innovation ecosystem.

### *7.2.1.3 Capability*

Capability is the second main theme identified by this study. As with the first theme, motivation, capability was found in literature as the second half of Weiner’s (2009) theory of organisational readiness for implementation. Whereas the first theme of internal readiness was

about the organisations want to change, capability is about its ability to. This theme has six sub themes; planning, resources, skills and learning, monitoring and evaluation, structure and systems, mechanisms for embedding change.

Capability involves structural elements which change as part of the implementation. The elements which enable the patient journey to take place. There are similarities in this theme to the business model planning literature which suggests arranging elements to deliver a service. Implementors need to understand the existing system they are implementing an innovation, improvement or EBP and how implementation involves and effects it. The system elements are the mechanism through which implementation makes a change, which in turn results in the potential improvements.

The first sub-theme in this section was planning. The literature was well established that planning as an activity, enabled successful implementation. Planning is the stakeholder perception of the degree to which a scheme or method of behaviour and tasks for implementing an innovation, are developed in advance and the quality of those schemes or methods (Damschroder 2021).

Planning includes a variety of processes, such as completing a context or needs assessment, developing action items, an implementation timeline and setting implementation goals.” (Damschroder 2021). One strand of literature argues for the increased use of planning in implementation and a more systematic use of theories when undertaking planning and evaluating (Grol et al., 2005, 2007). A rationale for the purpose of planning has also been established as being because the interaction of multiple factors influences successful implementation, an understanding of these systemic factors as determinants of success is essential to successful implementation (Grol & Grimshaw 2003; Grol & Wensing 2004; van Bokhoven et al 2003; Ferlie & Shortell 2001; Grol 1997; Shortell et al. 2000),

Greenhalgh (2004) points to planning as being the bridge between the intervention and the complex environment in which it to be applied. Planning was not included in the existing determinant models under the internal readiness section (Aarons 2012;2014, Greenhalgh 2004, Weiner 2009). However, planning can be viewed as a structural systemic determinant in itself. Planning is also mentioned in frameworks of Damschroder (2009) and Harvey and Kitson (2015), it is a prevalent and well researched determinant, though the quality of that planning



and specific planning activities are often not detailed. In this study, the variability of planning and sometimes its absence entirely, demonstrated its role in implementation of innovation, improvement and EBP in primary care. Planning activities ranged from informal and ad-hoc, to formalised and thorough strategies. Participant responses confirm respondents who had a positive perception of their implementation, tended to plan more- with more defined schemes of implementation and a greater understanding of the aspects of delivery model they were trying to improve (P12, P5, P9, P8, P2).

Resources was the next identified sub theme and includes the resources available to support the implementation process; for example, time and/or financial support for new skills development, new equipment, expert support and advice (Harvey & Kitson 2016). It also includes the resources needed for “business as usual” operation of the existing and proposed primary care delivery systems. The literature reveals that there were two types of resource, human and physical (Harvey and Kitson, 2016; Greenhalgh et al., 2004).

Human resources issues for the primary care sector are “*multiple and a myriad*” according to informant P1. General practices struggle to attract and retain staff and sometimes staff such as locums are in such high demand that they have high bargaining power and command excessive day rates. In effect, locum and transient human resources are common and this is unsuitable to building long-term and collaborative relationships with and between organisations. These individuals do not invest themselves in innovation because their role is temporary, and their contract is to satisfy excessive service demand. In this manner they have a low motivation to innovate, do not see a long-term relationship at the practice and are under-pressure to ‘see patients’ not engage in teamwork, relationship building and innovation/improvement.

The study data also showed that technology and new working practices means primary care now has a wide variety of potential innovation options from which to select a chosen form. Such a variety of alternative options causes more complexity when deciding which ‘solution’ to buy and to do so without risks that it would, over time, become redundant because the government or health board would select another solution. The latter scenario causes high costs for the constrained General Practice and requires significant human resource effort to transfer data to a new system. The variety of such options was identified by informants P8 and P2 for example. They showed new methods of scheduling staff shifts, which opened up work to general practitioners who would have otherwise would be unable to work. These included

remote working and flexible shifts with a variable rate of pay matched to demand. The technological options included general practitioners with young families and those who wanted ad hoc shifts to the resource pool. The sector needs to explore innovative solutions such as this if it is to attract new general practitioners to the profession, as well as retain existing ones. From the perspective of the implementor, introducing innovative solutions to human resource issues are tactical and concern the volume of patients that can be seen (an efficiency motivation as previously identified). However, these systems and alternatives were largely aimed at better scheduling rather than time compression of diagnostic activities (improved speed through better quality of care) and again reflect a concern of innovating as a means of dealing with demand. The tactical use of technology was seen by the researcher as lacking a strategy and lacking a strategic investment in technologies which would improve efficiency and effectiveness of the GP practice. Implementation is prevented by the costs of such technology and the risks of doing so, in the absence of signals from the government or health board that such a system is the one they have selected and are committed to for the medium and long term.

The point most participants note in terms of physical resource and new innovations, was the “teething problems” described when reviewing their experiences using new technological innovations. For example, increasing the use of telephone lines would often lead to them to collapse. Other IT systems would struggle to cope with demand as the professionals also needed to learn new ways of working. It should be noted that there is a link to planning within this theme in that where more planning, and crucially better-quality planning processes will lead participants to report fewer such teething problems (a feature of a ‘lack of readiness to change’ at the organisational level despite having leadership commitment and investment in a new technology).

‘Skills and learning’ was the next sub theme from the research study and the existing literature recognised the role of learning in developing the skill level of the implementer as an enabler for success in previous and recent studies (Damschroder, 2021). This skill level implies an awareness of the implementation environment, the management of human resource skills gaps, and this sub-theme is linked to the sub theme of planning. The skills theme includes understanding the range of partners involved in primary care delivery, awareness of competing tensions, local context evaluation and ability to assess system-wide activities. The overriding finding from the data in this study is that there is not enough such skill and awareness within the primary care implementer community. No participants had had any formal implementation

training and it is a lottery which have developed the skills which are known to be determinants of success in the literature. The Royal College of General Practitioners as the professional organisation of primary care would be well placed to lead this agenda. It currently offers one half day training course on business management. This is not sufficient and is harming implementation in practice. There is an unskilled workforce attempting implementation without the knowledge to undertake that successfully.

Formative and summative assessment of the progress of an implementation is described by the sub theme of monitoring and evaluation (often termed 'feedback' in other models). The literature shows that failures occur either because the intervention was ineffective in terms of its intention (intervention failure) or a good intervention was deployed poorly (implementation failure) see Proctor (2011). The purpose of monitoring and evaluation is to assess both forms of failure and use monitoring to adjust the process of implementation in a timely manner when variances between the goal and progress are detected. Formatively, is the implementation deploying as planned and summative, does the result of the implementation meet expectations. Glasgow et al (1999) proposed the RE-AIM model for evaluating public health interventions that assesses 5 dimensions: reach, efficacy, adoption, implementation, and maintenance. These dimensions occur at multiple levels within these dimensions including patient outcomes, practice, health board and national health system. There are also the implementation outcomes detailed in the literature review which practitioners can use in practice to assess their implementations; acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, penetration and sustainability. From the data collected from responses of participants in this study, there was a clear lack of meaningful evaluation. No implementation quoted or referenced any recognised evaluation framework. Where evaluation had taken place, this was often informal with little structure and not written down (P3, P6, P7, P11, P13). In four cases, the Welsh Ambulance Service redesign (P12), the Pacesetter telephone first implementation (P1, P4), the Health Board (P5, P9) and the private digital provider (P8, P2), there was more formalised evaluation involving specialist analysts. However, still no implementation research evaluation frameworks had been used and this is an area that could be improved within NHS Wales primary care; ensuring implementors understand what they are trying to achieve and if they have achieved it. In the absence of system coordination mechanisms or support, this decision will remain with the autonomous general practice within which dedicating senior partner time to such duties (during the working day of any project team) will be unlikely and not to the depth needed to detect when a project is not achieving its intended outcomes.

The 'Structure and systems' sub theme (within the capability theme) is regarded in the literature and a number of models concerning implementation as important (Aarons 2014, Greenhalgh 2004). There are as many different ways to arrange patient 'care journeys' and the variety of primary care practices means this process will not always be undertaken in exactly the same way. In this study, it was found that every GP practice operated different processes and this was contrary to the researchers initial belief that the general practice model is standardised (a view largely promoted by the existing literature and an abstract-level view of the practice and its purpose). The more detailed understanding from the first phase of research showed that technology and many other processes differed between practices. Such a diversity creates both opportunities and challenges for implementers of innovation, improvement and EBP in primary care. The first implication is that the system must be fully assessed and understood before it can be improved and that a universally standardised set of GP processes is easier to improve than a wide variety of 'home grown' or uniquely configured systems. This theme therefore has links to planning and skills and learning sub themes. Planning is the activity through which the system is understood and the implementer has to have the understanding of how the system is operating. Secondly, it means that every implementation is unique, one size fits all models are unlikely to be effective, as it will meet the needs of some systems but not others.

Once an implementation takes place, its potential is only realised when it is in use (post the 'teething stage' mentioned earlier in the context of technology). Many of the themes and sub themes address the concept of fidelity, implementing an innovation, improvement or EBP as its designer intended (Carroll 2007, 2021). This next theme identified the retention of an implementation's use; mechanisms for embedding change. Mechanisms for embedding change was found in the wider innovation literature in theory such as diffusion of innovation (Rogers, 2003), literature on implementation was also found on the theme of sustainability, an innovation being in use after its implementation Stirman et al. (2012), Bowman (2008), Massatti (2008), Maher (2007), Scheirer (2011), Feldstein (2008). However, despite this theory being available, many of the models of implementation did not include this specifically. Damschroder (2009) for example has no mention of this, nor Aarons (2012;2014) or Greenhalgh (2004), a deficiency addressed by this research.

A working definition for the theme was created drawing on the existing theory of sustainability, that mechanisms for embedding change involves understanding the modifications that will be

needed to routine practice and patient journey, to embed innovation and improvement into business-as-usual. Participants in this study proposed that they saw embedding implementations as part of continuous improvement even ‘living with’ issues whilst operating the daily practice. When participants were asked to discuss the sustained use of an implementation, they often answered in terms of how they would further improve it so awareness of the inadequacies of an innovation versus its intended purpose existed. Yet a formal investment in solving these issues was not undertaken as the informants portrayed it.

#### *7.2.1.5 Innovation, Improvement and EBP Features*

Innovation, improvement and EBP features was the third theme established. This theme was mainly an *a priori* influence and a part of the resulting model which had been well researched in literature. This theme has been an element of existing models (Aarons 2012;2014; Greenhalgh 2004) and so was included from the literature search.

There were nine sub themes within this section; relative advantage, extent of innovation, adaptability, trialability, usability, complexity, evidence strength and quality, innovation source and cost. Because these sub themes are all taken from existing literature, they can be seen by the reader in the qualitative results presented at chapter 5 and are discussed as a collective here. There was an interesting finding relating to this theme in that the participant responses for the first phase of research confirmed their importance to a model of innovation, improvement and EBP. However, in the quantitative phase, there was a disparity between the correlation and significance values. This meant that statistical significance could not be confirmed for the survey sample in this study.

This finding was not expected, as the concepts that make up innovation features were well researched in literature. The respondents to the survey should also have perceived these determinants to be important factors in their successful implementations. However, this was less strong than expected. The potential reason for this, is that the survey, as well as testing the model, also is effectively applying it to NHS Wales primary care. This result is therefore then, reflective of that system and its maturity. In this sense, the model can be applied as an evolutionary model. A more mature system would have exhibited higher levels of awareness about the role of innovation, improvement and EBP determinants as enablers and inhibitors of success.

7.2.2.1 RQ1B: *RQ1B: How do external determinants influence successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*

**RQ1B: How do external determinants influence successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?**

The purpose of this research question is to identify external determinants of successful implementation of innovation, improvement and EBP in primary care. The external dimension concerns external environment surrounding primary care practices, the trust between the primary care delivery provider and external parties and the level of participation the practice has in the innovation, improvement and EBP implementation and the wider agenda and ecosystem. In the existing literature there was again significant debate about the determinants and no single universal view. The findings of this research clearly indicate, in the context of the Welsh NHS, the strengths of the three external determinants drawn from the literature and used to frame this study and confirmed through its findings. These are:

1. External Environment
2. Trust
3. Participation

These key dimensions of the researcher's framework will now be discussed.

#### 7.2.2.1 External Environment

External factors or external environment are those actors and temporary conditions concerning the wider community, demographics and population health and are determinants of a successful implementation which had been included in the models found at the literature search phase. In effect, these models present success as a 'good fit' between the innovation and these wider external factors. Aarons (2012, 2014) includes an 'outer context' in his model of implementation which comprises of legislation, leadership (government leadership not organisational), policies, resources and service contracts. These were used for this study with

due note that the context of his study was United States service systems and there are likely to have external environment differences to Wales.

There was clearly a disparity within the literature as the determinants within models featuring external environment (or similarly named theme). Therefore, the task to progress this research objective was to establish which determinants were applicable for implementation of innovation, improvement and EBP in primary care using data collected. The second task also using the data collected was to see which factors were applicable to the context of the Welsh NHS and identify any new themes not existing in previous models. The resulting themes found were policy priorities, incentives and mandates, regulation, commercial contracts, political context and evolving requirements.

Watson et al (2018) defined the external context as having eight external context constructs: professional influences, political support, social climate, local infrastructure, policy and legal climate, relational climate, target population, and funding and economic climate. Again, this was similar to what was seen in the other models and frameworks but using different terminology and with slightly different meaning. Social climate, for example, describes the public expectations of the system outputs, for example in primary care to see a doctor and receive a good standard of care. In this study, the concept was found to be better expressed through the political context dimension. One participant in particular (P6) described a mechanism where public and patients complained to political representatives which in turn pressurised NHS Wales to act in what it perceives to be politically desired by the public. His sentiment was that long term improvement is prohibited by short termist political “meddling” (P6).

Greenhalgh (2004) is one British model which includes external environment as a determinant of implementation success. This model includes the factors of socio-political climate, incentives and mandates, interorganisational norm setting and networks and environmental stability. Aarons (2012, 2014) includes an outer context section where external environment is featured. Pfadenhauer et al (2017) and Ziemann (2019) are further examples where a thorough analysis of the role of the external environment in implementation is provided. The construct was prevalent in all models and clearly a likely factor in any model of implementation of innovation, improvement and EBP in primary care. This study used this established concept

and explored if it existed in the primary care sector and within the Welsh NHS. The results indicated it was present and highly complex given the structure of primary care in Wales.

Socio-political climate, proposed by Greenhalgh et al (2004), was split into two determinants from the work of this study; political context and policy priorities. This reflects that in NHS Wales the government has an operational role in NHS management, more so than even in England where local commissioning groups have more power. In Wales the Health Minister has a higher level of oversight and can request operational changes. Political context therefore is similar to what Greenhalgh proposed and a new determinant of political priorities was created to reflect the operational political oversight of the government in primary care delivery in NHS Wales.

The ‘Commercial contracts’ theme was not included by Greenhalgh (2004) but is a theme similar to ‘service contracts’ in Aarons (2012;2014). The context of service contracts in the US however is entirely different to the UK NHS where healthcare is funded differently. Private healthcare and remuneration from the user is very different to system based on redistributed tax payments from citizens and a publicly funded system supported by small GP practices which act as private businesses supporting a dominant local customer (in the form of a health board) and a national single customer (the Welsh Government). This theme is highly relevant to the primary care sector, when compared to secondary care. This is because all primary care is arranged through these contracts. Publicly funded secondary care in the NHS has less relevance, but a main feature of the external environment for primary care in Wales is the contract through which primary care is organised. It is amplified in magnitude to practices, as it is their sole source of income from one customer.

Incentives and mandates was a category, used in this study, which was inspired by Greenhalgh (2004). Respondents were highly influenced by incentives and mandates from NHS Wales and sometimes “whole service offers” decisions were decided on the incentives or effective financial penalties. Some incentives and mandates from NHS Wales were intentional, such as new access standards imposed on providers. Others were the result of what seem to be unintended consequences of policy introduced. For example, new indemnity arrangements where providers are insured by NHS Wales the same as hospital doctors was supposed to be an improvement. However, depending on what that insurance covered in practice determined if providers would deliver a service. For example, orthopaedic injections are now not offered



by many practices as there is an effective financial penalty of doing so, as separate insurance is needed at additional cost, often outweighing the contractual income generated from the service.

A new construct was developed from the data called evolving requirements. The participants of this study suggested that there were external influences, other than political and cultural (Aarons 2012,2014; Greenhalgh 2004), which affected the implementation of innovation, improvement and EBP. This study was undertaken during the COVID 19 pandemic, this is one example of a requirement or pressure placed on primary care systems to which it has to respond and is not covered by any external environment determinant already existing in the literature. Similarly, there is a whole chapter of this thesis dedicated to the context of the Welsh NHS and the pressures of increased demand for care and evolving patient expectations about how that care is delivered. This is driven not only politically, but by consumer expectations from other industries. Participants described (P8,P8) how, patients had reported to them evolving preferences for how they receive care. When interacting with almost any service organisation, for example a bank or energy supplier, the drive is to digital delivery of those services. Patients as consumers have an expectation of digital interaction. These requirements for a primary healthcare system to evolve have been termed evolving requirements in this study.

#### 7.2.2.2 Trust

A surprising finding was that trust was such an important motive force, which was shared by all participants, in their dealings with the ecosystem for the implementation of innovation, improvement and EBP and its actors. This significant aspect of intercompany relationship management has not been detected by any previous study. The inclusion of 'trust' followed the implicit use of trust in most models which stressed the importance of collaboration and increased dynamism, economic penalties for inappropriate investment and uncertainty of the modern environment detected in recent published works. Most previous models have suggested a relative 'simplicity' or mechanistic approach between identifying the need for change and making the change in organisations. However, in the context of primary healthcare, there are dynamics between government and commissioning managers who may wish to engage in change and practice partners who are implementers in the organisation who allocate sufficient resources and investments to support the change. Looking at this dynamic tells us that the

existing representations of collaboration in existing models of implementation of innovation, improvement and EBP are unsuitable for application to primary care implementation.

The power dynamic imbalance between government and provider, is not represented in the modern literature and it is not prevalent in previous models. As such this research has identified this new dynamic which currently is seen as an inhibitor to change, or at least a means of slowing the change and adaptation process of the general practice. Greenhalgh (2004) proposes in her model that key concepts that enables successful implementation of innovation, improvement and EBP is 'communication' and 'influence' between external organisations and the company expected to undertake the change. The researcher, whilst accepting this at face value, has found contradictory evidence in that Greenhalgh implicitly accepts a trust relationship between the two organisations. In the context of this research no such trust existed and therefore this created an impediment to communication, influence and the adaptation of working practices for general practice partners and organisations.

Aarons (2014), from the perspective of United States healthcare, also identifies a link between the care provider and the commissioning organisation. Aarons uses the term 'collaboration' and again implicitly believes that trust will exist between two organisations. As seen by this research such a proposition is not true in the reality of Welsh primary care. Once again, the concept of trust is present and the researcher believes, from his framework drawn from the empirical work, that the Welsh relationship is best described as imposed. There is a transactional relationship between government and general practices who are expected to deliver changes to care. Harvey and Kitson (2015) also identify a means of collaboration or at least influence, in their concept of influencing and negotiation skills.

However, once again, this form of relationship for the mutual benefit of the two organisations, was found to be absent in both phases of the research. It was also seen as a desirable state by all informants in the qualitative stage of this research. The current practice in the Welsh ecosystem is a single one-way direction, from the more powerful centralised commissioning actors to the general practice. As a system, the ecosystem lacks the view that the GPs are a customer and stakeholder. Instead, the way in which the system is structured and planning flows is in a single direction. Primary care practices are regarded as subordinate and suppliers. In reality, the researcher reflected, that it is very difficult to engage all primary care practices as equals in a geographically dispersed and time-constrained system of care on this basis. Few

alternative models exist which can be used as ‘benchmarks’ around the world to inspire government policymakers.

In the current system set up there is no form of negotiation (or two-way learning via discourse and communication). Instead, imposition of the “demand for change” is made without then supporting the delivery organisation in making the move from the current state way of working to the new improved state. This inability to engage with the general practices is a void in the system. This disconnect means feedback to the health boards and central government is absent or involves just few (of many) primary care practices.

In summary, the literature proposes a much more positive view of how systems behave and how they use relationship management to positively influence each other in a two-way flow of communication and change than has been found by this study. This study does not find this two-way process and instead has identified an imposed change model within which the autonomy of general practices is largely ignored when imposing nationwide change and doing so without providing additional investments and resources to relatively constrained small organisations as is embodied by the general practice.

Damschroder’s (2009) model simply associates a process with an improved ‘adapted state’ for the organisation which is focused as the organisation that needs to change and this model largely ignores any other actors in a health and care system. This simplistic model fails to identify the key characteristics of the “inner setting” or inner environment despite acknowledging that as one of its core concepts and therefore the researcher believed that this model has a very poor utility when looking at the modern practice of change management in primary care.

Ziemann et al. (2017) merely identify what they call ‘contextual factors’, again failing to exploit or identify what actual elements are within this particular model. How it constrains adaptation by general practices. As such, the researcher believes, his research study has exposed this significant dimension in the modern and up-to-date holistic practice of an innovation ecosystem and in so doing has added greater definition to future studies. This contribution is significant because, even recent studies, have implicitly taken that there will be collaboration between actors in the system. In a completely closed system, like that of the NHS, then this would be a logical assumption because suppliers and customers are dependent upon

each other. However, this research has found no such evidence exists in primary care and instead the fragmented system has resulted in a transactional approach to change. Relationships remain embryonic despite being established and can be categorised as transactional rather than collaborative, cooperative or sharing some form of common destiny.

#### 7.2.2.3 Participation

The research clearly indicates that the concept of participation is associated with effective change and success. Many of the case studies showed how participation, which is a concept associated with trust and collaboration, does lead to joint working and a focus on a common problem that is restricting the ability of the system to improve. It is interesting to note that the explicit identification of joint participation is not in any of the modern established literatures and published works and that this study has found, even though the *modus operandi* is transactional and one of imposed change in primary care. Where collaboration is undertaken and participation is meaningful, success is the outcome. As such existing models are at variance with the findings of this research and this research would suggest that participation, together with trust, to underpin higher performance which supports the existing models. Although for the majority of organisations, only transactional and imposed change management processes are practised.

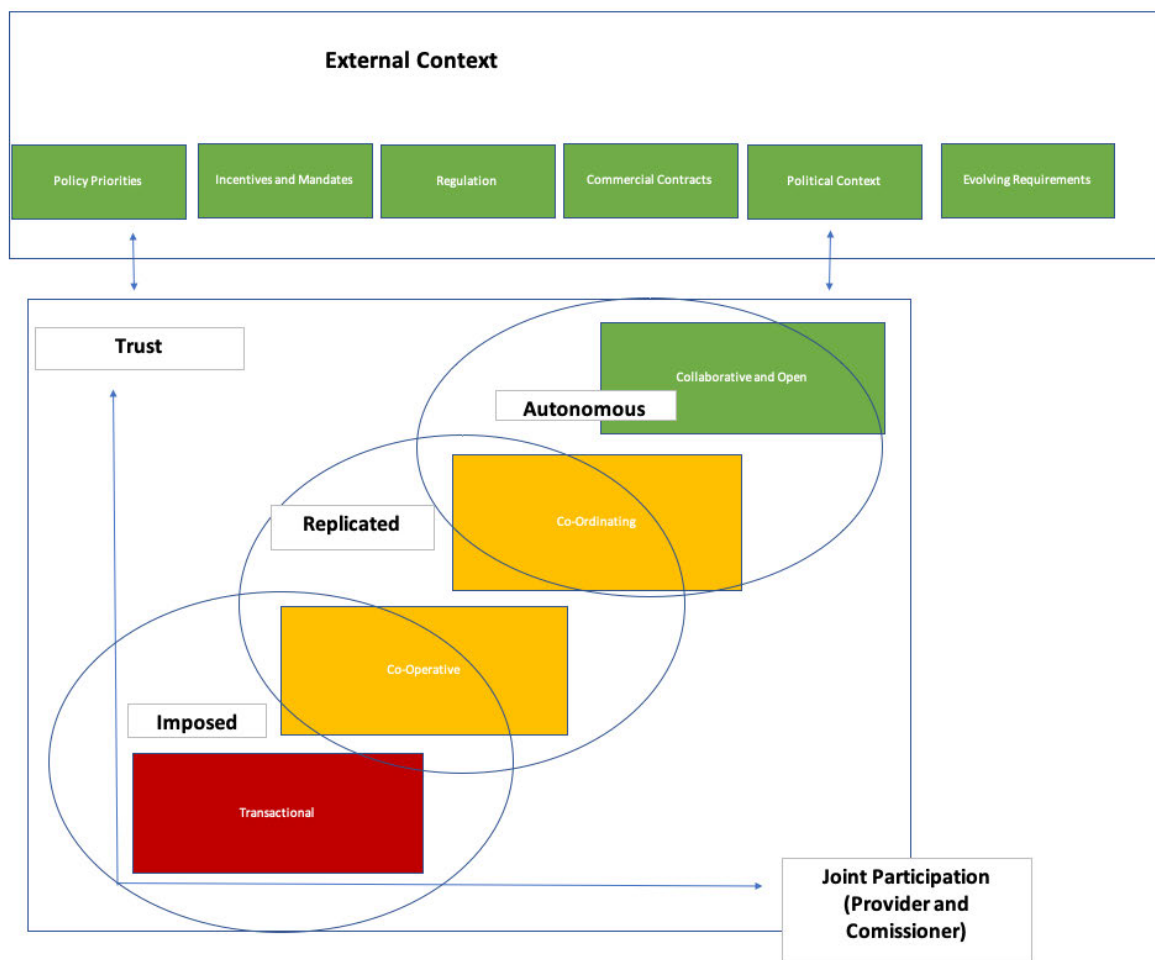


Figure 7.1: Relationship Between External and Internal Environments

Source: The Researcher

The relationship between participation and trust is explained in the proposed schematic above. This outcome of the theory building part of this study established a new explanation of how the incumbent determinant of ‘collaboration’, assumed by other frameworks, is in fact more nuanced. For implementation of innovation, improvement and EBP in primary care at least.

The external and internal environments in other frameworks sometimes recognise the relation between them. However, the simple arrows miss an important step. There is a relationship between external and internal, which this research has explored. Judging from the findings, it was obvious that each case of those in this study was transactional. The researcher found a broken system, where participants said that trust was an important factor in that.

Having reviewed the major findings of this study and contextualised their relevance to the discussion of how the Welsh primary care innovation ecosystem is designed and functions, the summarised answer to this research question is that there are a number of determinants of successful implementation of innovation, improvement and EBP relevant to a framework

applying to primary care. Some of these map from similar established models which have arisen from secondary care or wider service delivery research. Others needed amendment, amalgamation or addition to accurately explain implementation in primary care.

The most interesting finding of the second research phase was the interpretations which could be made about trust and participation. Motivation and trust, lead to participation. All the research before this study and resulting frameworks (see table below) focus only on the external environment as a determinant, with no explanation about how this interacts with the internal environment. The results of the quantitative phase of this study are very important, showing that in fact, trust and participation more important (significant) than external environment itself. The researcher reflects that this is logical. If there is low trust between Government and providers, there will not be engagement or participation. The relationship is simply transactional with no scope for collaboration beyond contractual obligations. If there is no joint participation, it makes no difference how the external or internal environment looks, there is effectively deadlock between the stakeholders and no meaningful implementation can take place.

The next section answers the second research question.

*7.2.3 RQ 2: What insight about can be gained for practitioners and policymakers, by applying the developed model to the context of NHS Wales Primary Care delivery?*

**RQ2: What insight about can be gained for practitioners and policymakers, by applying the developed model to the context of NHS Wales Primary Care delivery?**

This question concerns the service change process as a wider NHS Wales primary care ecosystem. The focus of primary care innovation, improvement and EBP in primary care and within NHS Wales, is different to secondary care. This is where much of the existing literature originates and is dominated by implementations of technological innovations, medical product advances and process change. As has been previously discussed, innovating or automating how

a process is conducted, is not typical of the primary care sector nor well developed in the literatures.

The second phase of this research involved a quantitative analysis of a questionnaire distributed to participants with implementation experience within the primary care innovation ecosystem, mainly drawn from NHS Wales primary care. There were several insights which resulted from this phase of the research in terms of highlighting features of the primary care innovation ecosystem in Wales. The focus of this was mainly on medical services as the largest delivery component of the primary care system (78.87%) of responses. However, responses received from pharmacy (7.04%), dentistry (8.45%) and optometry (5.63%) enhanced understanding to include the full locus of primary and community care.

The first feature which presented when considering the NHS Wales primary care ecosystem was that it appears providers are favouring 'least cost' solutions. This involves minimizing financial cost, time cost and resource cost when implementing innovation, improvement and EBP. Participants said they felt there should be that government should fund innovation and implementation through separate grants, as standard contracts did not cover the additional resource costs of innovation in their view. As a result, practitioners feel that less innovative implementations mean lower risk to what is essentially being funded from their income. Unless there is demonstrable high chance of success, which is rare in NHS improvement projects, practices favour lower cost and less original solutions.

This is to the detriment of all stakeholders. Many of the innovations, improvements of EBPs were a simplistic form of improvement in the Welsh NHS cases in this research. Telephone triage being the most common and system redesigns. There was no high cost or technical product implementations as they are rare in primary care in NHS Wales. The lack of innovation in terms of technicality is one potential reason why less emphasis was placed on the features of the innovation, improvement or EBP itself by practitioners in the survey in this study.

The second phase of this research and its quantitative output showed that the determinant of motivation, was found to be strongly enabling successful implementation of innovation, improvement and EBP in primary care in Wales. In the survey of implementors this was statistically significant at  $P=0.042$ . The researcher reflects that this is a logical finding to be expected and is consistent with the extant literature, including the frameworks compared in the

table below. The implication from this research and second phase of testing is that in both NHS Wales primary care and implementation in primary care overall, motivation is needed for successful projects. Implementors need to prepare their organisations and specifically motivation as part that organisational readiness, before projects begin. This is at odds with some of the responses that participants gave and in numerous informal conversations the researcher had with practitioners and implementors, who suggested they had total power and flexibility to implement new projects instantly, without undertaking any preparation. It is not possible to implement innovation, improvement and EBP without first ensuring the organisation is ready.

The literature said organisational readiness had a core component of capability (Damschroder, 2011,2021; Powell et al., 2014; Grol et al., 2005, 2007; Mendel et al., 2008; Glisson, 2005). The literature and stage one participant responses suggested six sub themes which make up the overall concept of capability. These are, planning, resources, skills and learning, monitoring and evaluation, structure and systems and mechanisms for embedding change. There was a conflict between the literature and responses from participants in the qualitative phase, compared to the results of the second phase survey. In the first phase, respondents clearly highlighted capability to be an important component of organisational readiness and determinant of successful implementation. The results of the questionnaire were interpreted as capability being a borderline determinant of successful implementation ( $P=0.067$ ). This was an unexpected finding and requires further research to understand why a determinant found in the literature and qualitative analysis, was only borderline significant in the quantitative analysis. The researcher reflects, this may be because practitioners feel they have autonomy over their own practices, whilst not recognising how inflexible their organisation actually is. NHS Wales primary care implementor respondents place less importance on capability, potentially an over confidence in their skill levels and organisational readiness. This highlights a lack of awareness or competence in management skills and a need for additional training, specific to capability factors in NHS Wales primary care.

Trust was found to be strongly significant; trust between the provider organisation, the manager of the contract and/or the government as the ultimate commissioner of services and sole source of income for the primary care practices. The output of this is that building relationship with suppliers and customers is needed within NHS Wales Primary Care to optimise returns. It is not a surprise that in a relationship where there is a democratic process, there greater risks to



each party. Neither party knows if implementation will work and the motivations of the other. Therefore, there is a need to increase trust if collaborative relationships are to be formed.

From the perspective of the government and managers of services, trust is effectively the only way of getting a small organisation to change; when they are the intermediary between the payer for care services and the patient themselves. The mandatory approach to change has limitations and is often completely ineffective as its result is to erode trust in providers, who are the only source of care delivery for government. There is a symbiotic relationship and in practice mandating change erodes trust, increasing risk. Mandating change is unworkable where providers collectively refuse, less extreme but more common is an active resistance.

From the quantitative results it was interesting to the researcher to note that motivation and capability (0.868) are very highly correlated. Only motivation is significant in the regression, capability is not significant. Because motivation is already highly correlated you would expect that to be significant also. There may be an interaction between these variables which is causing motivation to not be significant in the regression. There is a way to explore this by creating an interaction variable between motivation and capability and the researcher re ran a new regression, creating interaction variables but this made no difference.

Of note is that innovation, improvement and EBP features and participation (-0.99), correlated between independent variables, which causes interaction between the two. This interaction leads to effectively incorrect results (Albright and Winston 2017). The guidance in this textbook is that the remedy for this situation is to drop one of the variables from the regression. The difficulty is which to remove. The researcher removed external environment as a variable by rerunning a stepwise regression. If the R<sup>2</sup> was very high, the interaction variable might be useful. As it was not, the likelihood is that the output is accurate.

The improved model of implementation of innovation, improvement and EBP is shown again below:

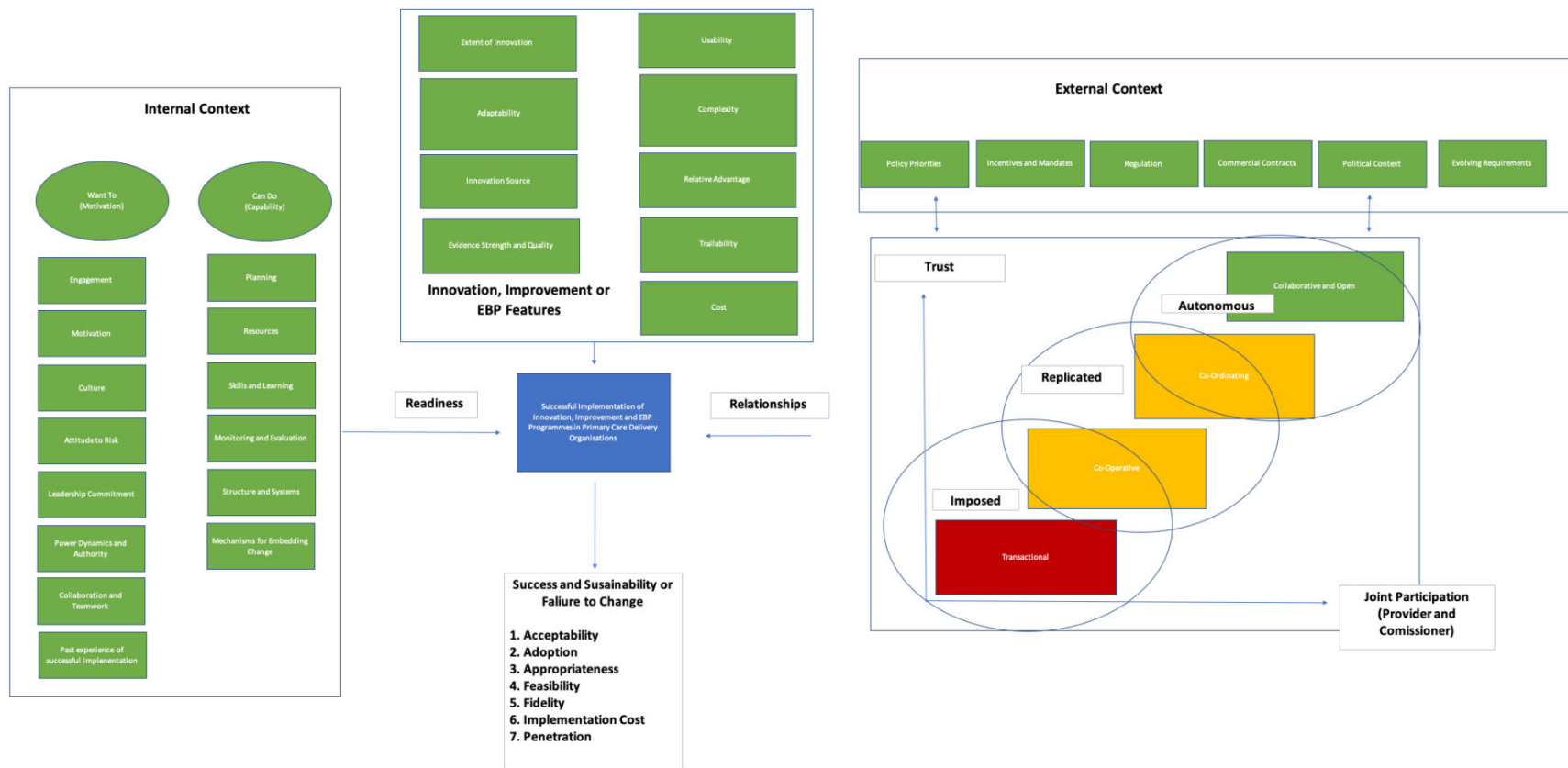


Figure 7.2: Improved Conceptual Model of Determinants of Successful Implementation of Innovation, Improvement and EBP in Primary Care.

Source: The Researcher

As presented at the end of chapter 5, then tested and applied to NHS Wales Primary care chapter six; this is the new final and empirically tested model, which is the major contribution to knowledge of this study.

Was based on several theories and frameworks identified from a literature search including; Greenhalgh (2004), Aarons (2012,2014), Harvey and Kitson (2019), Carrol et al (2009, Damschroder et al (2009), (Nilsen 2019), Weiner (2009).

Researchers working in the same field as this study, identified many factors in the implementation ecosystem which they thought were important determinants (enablers and inhibitors) of successful implementation (some of which are American or international). The next section will review these findings comparing these dominant models to the one this study has developed. The differences between these established models and the findings of this study.

The weakness of the existing models is that they focus on and have been developed from, secondary care. This study takes the determinants of implementation detected in a generic context and applies it, for the first time, to the unique setting of primary care implementation.

Existing models focused on either implementation of innovation or improvement, or evidence-based practice. This research was designed to result in a framework, which would be more useful; by extending applying to situations implementing either innovation, improvement or EBP

#### 7.4 Focal Literature

The most relevant focal literature is compared to the findings of this study and resulting improved framework of implementation of innovation, improvement and EBP specific to primary care is presented below:

	<b>Greenhalgh et al (2004)</b>	<b>Aarons et al (2014)</b>	<b>Damschroder et al (2009)</b>	<b>Kiston et al (2019)</b>	<b>Ziemann (2017)</b>	<b>New Framework</b>
<b>Primary or Secondary Care Focus</b>	Secondary Care/ service sector	Secondary Care	Secondary Care	Secondary Care	Secondary Care	Primary care
<b>Determinants relating to capability</b>	Featured in model as system readiness and system antecedents	Featured as inner context. Simplistic compared to other models an unlikely to fully represent all determinants	Featured as inner context: local and inner context: organisation. Is simplistic and likely to needs detail	Featured as inner setting. Number of factors which apply to primary care also	Not featured in framework or unclear. Closest concept is ‘implementation strategies’	Present and features; engagement, motivation, Culture, Risk, Leadership Commitment, Power Dynamics and Authority
<b>Approach to Motivation</b>	Featured as tension for change concept. Would benefit from detailed factors	Not featured expressly in model	Not featured in overall model but is within sub themes. Does not highlight importance of concept	Not featured in overall model but is within sub themes. Does not highlight importance of concept	Not featured in framework or unclear. Closest concept is ‘implementation strategies’	Features as a determinant of successful implementation with eight sub themes; engagement, motivation, culture, attitude to risk, leadership commitment, power dynamics and authority, collaboration and teamwork, past experience

						of successful implementation
<b>Role of innovation, improvement and EBP features in model</b>	Features and explains role and sub themes well with clear definitions	Features but no detail	Features but no detail	Features but no detail	Not featured	Featured and takes many of the established themes from Greenhalgh (2004) and applies to primary care setting
<b>Focus of relationship between external and internal environment</b>	Features communication and influence which may explain relationships of secondary care but appears not to apply to primary care	Collaboration is either present or not, no limited dimensions researched	Not featured in detail	Features as influencing and negotiating skills. Is not detailed enough to explain relationships of primary care	Not featured or unclear	Collaboration is present with in depth mechanism present including trust and participation driving that collaboration

Table 7.1: Comparison of Improved Conceptual Framework With Work Closest or With

Similar Objectives

Source: The Researcher

### 7.3 Discussion of the study findings- Focal and Background Literature

During the development of the literature review several established theoretical lenses were used to frame this study. These lenses included the long-established organisational systems theory, viable systems model and learning organisational theory.

#### 7.3.1 Systems Theory

From a systems theory perspective, high performance organisations and ecosystems generate superior performance through the presence of a number of critical features and elements. These include:

- System is greater than the sum of its parts
- System has a common and aligned goal that a high level of dependency exists across the supply chain
- The system must match and fit its environment in order to remain viable
- The system must be capable of effective and continuous adaptation, and,
- The system requires constant planning and feedback

Using the systems theory lens, the literature review explicitly stated that if these systems capabilities were present, then the general practice would enjoy success in the implementation of innovation, improvement and EBP. The literature also implied that the investments made in innovation, would support higher performance and be aligned with the needs of the health and care system. The innovations introduced would also lead to superior performance. In reality, this study finds, a fragmented and disorganised model of change despite significant and powerful stakeholders and customers.

Systems theory would contend that with dominant stakeholders, such as service commissioners and government, a collaborative and integrated approach to implementation would be

undertaken. From the systems perspective, primary care organisations will only be successful if they work with these dominant stakeholders.

This study clearly finds that the Welsh context is not characterised by a systems approach and instead is focused on individual organisations following their own innovation, improvement and EBP agendas. We can also say that in general terms, there is distrust between stakeholders and this was exhibited in the expert interviews as well as the questionnaire phase of the research. However, the questionnaire phase did identify and acknowledge the power and strength of initiatives and collaborative innovations as the most effective way of introducing innovation, improvement and EBP.

The logical conclusion is that the system is disjointed and lacking collaboration which means that, in the absence of joint working, the primary care sector will myopically focus on itself. In this sense, each general practice will follow its own agenda, at great risk of misalignment with the needs of their customers and stakeholders.

Open systems are responsive and adjust through learning, to maintain a fit with their external environment and stakeholders. This capability has been found to be absent from the Welsh context, due to a number of reasons:

1. The government does not incentivise primary care practices to undertake common innovation initiatives and instead merely sets the direction for change, without providing support to staff constrained community practices. This dysfunction and gap means that employees of primary care practices, operate without guidance, reference sites to go and see and the increased risks associated with investing in and implementing the wrong innovations. The Welsh system has a strategy and direction, however no mechanisms to ensure the successful implementation of innovation, improvement and EBP. In the absence of a “strong voice of the customer” and assistance in selecting and implementing the right type of innovation, improvement or EBP, the innovation system is less effective as a result.
2. Systems theory would suggest that the same problems, to which innovation is to be applied, will result in similar processes of implementation and success. However, such a result was not found. Instead, a wide variety of solutions and innovations were being

used by organisations of similar size, similar patient demands, similar processes and in similar locations. This diversity of innovations and mixed success rates result from incompetent staff at the practices and lack of training of the leaders of implementations. The wider primary care system is investing the adaptive capability of the system in the hands of people who are ill-trained and ill-equipped to undertake that task.

3. Because the system focuses on the practice then the best that can be hoped for is an improvement in efficiency, because improved effectiveness would require more integrated customer- supplier relationship and handovers of care. In short, the innovations, improvements and EBP, are likely to lead to greater information availability as well as some efficiency gains at the GP practice, but because the innovation has not been adopted systemwide it will not lead to improved care effectiveness and sustainable performance.
4. In the absence of showcase and best practice organisations, staff at the primary care practices, do not have access to or the ability to visit exemplar organisations from which they can learn and emulate. In effect the system has no dominant model.
5. The logic of improving flow, which is fundamental to a systems approach is also polluted. The general logic, used by systems theorists is to improve safety and quality in order to provide an effective solution to patient need. This study finds most implementors of innovation, improvement and EBP in primary care practices, see cost reduction as the primary motivator for change. Some even illuded to the formal contract of supply (contractual relationship between the practice and wider NHS and commissioners) as the basis upon which to make improvements in order to reduce costs for the government. Such a belief also contradicts a collaborative approach. By focusing on cost reduction and efficiency gains, many diffusions arise. Innovations that were introduced to reduce the cost of compliance, improve data availability and meet governmental efficiency or access targets, will not lead to “commercial gains” for the partners who have assigned scarce organisational profits to implementing innovation, improvement and EBP.
6. It is noted that the intervening period between the expert interviews and larger scale questionnaire, there was the outbreak of Covid 19. This pandemic created significant



uncertainty for primary care practices, pharmacies, dentists and other primary care organisations. Investing during this period of uncertainty heightens the risks and payback of such investments in the absence of a unified and strong NHS strategy and plan during the pandemic. The pandemic therefore created a perfect storm, where change was imperative but knowing what to change was uncertain. Investments with long payback that were launched during this time period have long life cycles and long paybacks. As such, any sub-optimised innovation solution would need to be “lived with” for potentially many years. The response rate for the large scale questionnaire was significant given the total population of primary care practices, pharmacies, dentists and opticians. As such, these blind investments appear to be a systemic failure of the Welsh NHS as a system and a lack of practical support for the implementation of transformational innovation. The expert interviews also echoed this theme and exposed it as a major gap in the Welsh system. It cannot be proposed with any certainty that these investments will deliver improvements in the short term, under the conditions of covid, in the medium term as the NHS stabilises and returns to business as usual, and in the long term. It cannot be proposed with any certainty that these investments will deliver improvements in the short term, under the conditions of Covid, in the medium term as the NHS stabilises and returns to business as usual, and in the long term.

7. The expert interview confirmed the common view that managing innovation was futile and that the Welsh system was immature and lacking in formalisation. If such an approach is true the lack of learning and adaptation will inevitably lead to mismatches in implementations of innovation, improvement and EBP and potentially catastrophic failure for some primary care organisations. This failure results from the fragmentation of innovation and its potential mismatch with the purpose of a whole systems approach. Implementation is costly and the legacies which are left behind will constrain future improvements.
8. This research has also found a fundamental tension in the design of the system whereby primary care organisations are motivated to extract a profit from increased demand and a weak direction setting central organisation.

From the perspective of the background theories that were adopted for the study, the researcher reflected that much of the innovation system in Wales was disjointed, incapable of in acting effective change and that there were competing objectives for the system stakeholders.

Systems theory proposes that a common goal is important for all elements of the system (in this case the patient, practice, commissioning health board and the Welsh Government) in order to achieve effective and efficient change. This research found and demonstrated that there is no such common goal, without which a system cannot perform or evolve towards a common agreed future state of performance. This is represented in the developed model by establishing a relationship of trust. There can be no systems approach without trust between the parties involved, despite their dependency. Without a holistic view of the system, and with very independent parties delivery supply chain, different agendas will emerge. They will continue to act independently, and sub optimal implementation will occur. The researcher reflects that when agendas diverge, with low levels of trust and participation between parties, then inefficiencies and lags in the implementation of innovation, improvement and EBP occur.

Systems theory also proposes that systems will change from its current state to a future state but that the current state must be stable in order to make decisions, at the right time and concern in the right parts of the system to change in order to progress. The researcher finds that the current NHS primary care system is both poorly aligned and chaotic. There is a proliferation of agendas and therefore a proliferation of individual objectives for each of the stakeholders. Without common agreement then the sum of the parts will never be able to exploit synergies between the organisations involved. With different motives, each actor will also undertake change and perceive the benefits of change in different ways.

It can be seen from the research evidence that the general practices, which are the focal point of the whole system act as autonomous businesses and find it very uncomfortable when trying to match the individual motives of the practice (to make a profit and an income for the regulated doctors employed there) and in achieving national targets for patient care and service delivery. The situation is made worse when the general practices regard the activities of other stakeholders (namely the local health boards and the national government) as not aligned with their interests and instead representing a system which imposes new directions for change and dictates adaptation by the general practices. This autocratic approach from the centralised system does not pay sufficient attention to promoting the awareness, the need for change and

the benefits for the general practices. Even clusters of general practices do not have the necessary power with which to act as an equal with the health board or the central government. As such, the researcher has found that general practices regard changes being imposed upon them despite having the autonomy to run their own businesses.

However, the frantic nature of a general practice and the demands placed upon it including constraints such as cost management preclude general practices from investing in improvement personnel. It was found that most practices had no such investments or training in people that would facilitate a better approach to engaging with change.

In addition, the researcher found poor feedback loops in the form of poor evaluation mechanisms, as well as the ability for a general practice (an organisation of small size and powerful directors) to engage and change quickly but often without any precursors already in us assessments concerning whether that course of action should be undertaken. In this respect the researcher finds a capability and competence gap at the general practice levels whereby the speed of implementing change, without sufficient research and evidence base for making a change, compromises the quality and potential success of any such investment. In this manner general practices can change very quickly, but in the absence of theory or a proven methodology, adhocism and experimentation remain the modus operandi. The latter activities do not increase the rate of success that would be associated with a more thorough approach to change.

However, this model is perfectly understandable when, from a systems perspective, no assistance is provided by the central government or health boards to assist general practices to make changes. In this respect there is no investment being made for the general practices to make sense of the change and to understand how they can exploit it for their own commercial benefits or for relationship benefits between themselves and other actors in the system. With the inability to dedicate people and employees to such projects, it is little wonder that most need refining.

The researcher also found where support was offered from the central team to general practice, the relationship improved between the two organisations and there was great adaptiveness and willingness to adapt current working practices. There was no evidence that this particular process was accelerated by inducements or financial incentives. Instead, the key to enabling

more effective change in general practice was perceived to relate to joint risk sharing, awareness of each other's strategies and needs as well as a formally written and documented methodology for change. These activities lower the risks associated with change for the general practice and do much to remove the "imposed change model" that is typical of centralised demands to invest in innovation and technology.

A final part of a systems approach to effective change requires that there is good feedback within the system. The research finds this vital loop of information that unites the objective of a national change with progress towards that desired future state is also absent. Therefore, there is no precursor to primary care organisations learning, no precursor to health board learning and no feedback, beyond which GPs have adopted the innovation, improvement or EBP, for the central government and the performance of the system for patients.

In overall terms, the research as it has found that the system is poorly aligned, it lacks the confidence to manage to change an adaptation in a formalised uncommon manner and that mistrust creates even more voids and problems when attempting to undertake change. In the absence of such guidance and a systems approach, each member of the system (the general practices, the health boards and central government) are operating independently of each other and therefore missing the synergies and scale effects of making the right changes to the system at the right time, in the right sequence and with the right relationships to allow future improvements to occur.

The researcher therefore reflects that a bad memory exists of previous change and that this must and will influence the way in which each actor perceives every new call for change. It is inevitable consequence that lacking the skills at the general practice level, lacking the relationship between general practices and other stakeholders and weaknesses in the manner in which changes are acted and feedback undertaken, that the system remains sub optimised and future interventions are most likely to fail.

If fully developed, a mature systems approach would therefore firstly prioritise a common goal for the system, it would offer a common mental model of what the future looks like for all stakeholders and investments will be made in the relationship between organisations to ensure a smooth transition between strategy and action. The latter would be a means of improving performance with much less risk and much greater understanding of the benefits that would be

received by every party. Only by undertaking these changes could a common vision of the future be converted into an aligned agenda between every stakeholder and therefore greater success of any innovation and evidence based practice improvement.

In summary, from a systems perspective and the need for a holistic approach to managing innovation, this study finds that there are significant failures and dysfunction is the result from poor integration of primary care with the principal consumer of primary care services, that being the Welsh government. This misalignment between activities in primary care and potentials for improved performance results from the lack of implementation of initiatives to support the skills of primary care staff (those charged with implementing new innovations) and a lack of transparency or dictation of which innovations should be introduced on a systems wide basis. Without such clarity of direction and in the absence of proficient innovators in primary care, the system remains broken and primary care practitioners (across all the forms of practice reviewed by this study) effectively actors independent elements of a healthcare system. By acting independently, this places a lot of pressure and risk on the abilities of busy general practitioners to find the funds for and optimise their innovation investments. This finding is conducive with the findings of the expert reviews conducted in the first phase of field research, where many of the experts identified these forms of failings in the current system. The second phase of the research confirmed that this scenario existed and created many problems for the improvement of practice for patients and improvements from general to secondary care.

The next general theoretical lens that was adopted by the researcher was that of learning organisation theory. Learning organisation theory, which originated in the 1990s, emphasises the role of the organisation and its internal teams to innovate and improve. This particular theoretical lens was adopted, as an early stage in the research during the literature review. Because it was likely that individual organisations, exercising their own autonomous decision-making, would influence the rate of and quality of innovation implementation. This theoretical lens will now be reviewed in the context of the findings.

### *7.3.2 Learning Organisations*

The main features of a learning organisation, according to Senge (1990), include systems thinking, a shared vision, personal mastery, common mental models, and team learning. This study finds that there are significant weaknesses in most of the key facets of a learning organisation. The previous section has already identified the lack of systems thinking and a national approach to innovation management that embraces and includes primary care. Much of the literature evidence was found to be focused on secondary care and a greater alignment of that element of the care system with government priorities and investments.

A shared vision would imply that all elements of the innovation system for health and care would understand the direction and ideal future state of care provision across the care economy (from primary care and secondary care to all other care destinations). The interviews and the later questionnaire provide evidence that there is a lack of a shared vision and shared understanding between all elements that need to come together to improve the performance of care in Wales. The lack of shared vision includes which systems to investing, how they will work, how a standardised approach would reduce risks for primary care and avoid the introduction of systems that become legacy systems very quickly (and costly miss investments by primary practices) and without the shared vision then it is not possible to determine the skills needed for the innovators who are located and employed in the primary care sector.

The researcher finds that the lack of systems approach and a poor verbalisation of a shared vision means that the direction setting for all organisations involved in the delivery of care is weak or absent. The learning organisation theory also proposes that there should be personal mastery by those people involved in innovation. In the purist sense, personal mastery means that individuals must access and apply knowledge that allows them to master the processes of innovation and implement them effectively. The researcher finds that personal mastery is not practised throughout the Welsh National Health Service and in particular it is not practised in primary care. The reasons for this vary and include lack of skills, lack of access to skills provision, lack of standardisation of approaches for primary care, and a lack of sharing between primary care practices. The personal mastery of innovation processes is also not typically related to the general duties of the people that participated in the questionnaire.

The role of innovation and innovator was part of another role. Typically, this role would include practice management or partnership, but the role of the innovator was a duty that was added on to this primary activity. As such it is difficult to find the time to invest in innovation skills when innovations are likely to be individual projects that are undertaken on a periodic and case-by-case basis.

The researcher therefore finds that personal mastery is not exhibited by the personnel and employees engaged in primary care and there is little support for these people beyond the employer organisation. Mental models of how health and care should be provided is another feature of a high performing learning organisation. These mental models are how the flow of patients is perceived by people in the system and shared across all others. It is different from a shared vision and is more operational in nature. The research are finds mixed evidence for the existence of mental models. The power of a mental model is in uniting the thoughts of managers and those involved in delivering care. This aspect of the learning organisation was not overly tested but was found to be lacking during the interview stage.

However, because practices (in all the different forms of the study) are small organisations and dialogue happens on a daily basis about projects and their status, it is likely that all those involved do share a common understanding of what the innovation should lead to. The presence or lack of a common mental model cannot therefore be distinguished between those projects that were successful and those that were unsuccessful and nor does it explain differences between the types of practices involved in the study.

The final facet of a high performing learning organisation is that of team learning. Team learning involves both groups of individuals come together to form a team, learning as part of a project, and, the vital process of reflective learning such that improvements could be made to working practices the next time a project is undertaken.

The research finds that these forms of learning and engagement do not exist in primary care and they represent structural and significant inhibitors to the progress of innovation in the context of practice management. The inhibitors include the small number of people dedicated to innovation in primary care per organisation, the treatment of each project as a unique activity, and no formalise processes of learning or sharing between staff. This finding also

supports the view that primary care staff are under skilled in the application of innovation and are largely the recipients of the dictation of the innovation by the partners involved in the businesses. That is to say the partners decide what innovation to undertake and pass that responsibility to implement to very few or individuals in their own organisation. These individuals, by themselves, lack the skills for innovation and project management of this nature.

These individuals have also not been involved in the selection of the solution and innovation itself. Therefore it is very difficult for them to exercise processes of learning because they are recipients of a command and control approach to implementation. This finding represents a major gap in the system, and from the learning organisation perspective, suggests that general practices do not learn from each other, innovators in each practice do not learn from each other, and innovators are separated from the identification of the innovation itself which means they start with an incomplete knowledge as to why and how the innovation will support improved practice.

In summary, the practice of innovation in primary care, using the lens of the learning organisation, has significant weaknesses which prevent learning as to how to do things right, prevents learning as to how to do things better, and, by the preclusion of the innovator in the selection of the solution by someone else in their own organisation, it preclude them from learning how to do things differently and what innovations would most suit their local conditions. This finding reinforces those of the systems theory review of the care processes and innovations and confirms many of the factors needed for high-performance are absent from the current state of working.

### *7.3.3 Viable Systems Model*

Viable systems theory was another theoretical lens adopted by the researcher. The reason why this perspective was selected, is peculiar to the primary and secondary care activities in the United Kingdom. Typically, primary care is a form of practice that must make a profit in order to remain viable. However, secondary care operates more in the form of a not-for-profit mode. This places significant stress and pressure on general practitioners (and all the other forms of primary care involved in this study) to make a profit whilst working with organisations to which



they refer patients to, that do not have this profit motivation. The ability of a practice, dentist, or pharmacy to extract a profit is also limited in terms of the catchment area of the patients they serve.

In this respect it is not possible to increase output (and consequently payment for) services because the demand is geographically based. Thus, there is an issue for the viability of primary care practices in all of its forms. Without the ability to increase demand or the ability to attract greater profits because the services offered by primary care are based on an established tariff, then investments become incredibly risky. As such, innovations, which involve the allocation of working capital or borrowings by GP practice, to improve its performance have significant implications and potentially catastrophic implications for the management of the business as a profitable entity. Whilst none of the participants in the questionnaire study had gone bankrupt or knew of organisations that had gone bankrupt, the questionnaire phase and also the expert informant phase did expose significant problems with the financial management of implementation and in particular risks associated with incorrect investments and their long-term impact on the practice and its ability to make a profit and stay in existence.

As such, this lens and perspective also reinforces the disjoint in the national care system and the myopic perspective of the primary care practice. The latter implies that without significant help, lowering of risks associated with investment in innovation, and other forms of coordinated or collective support, the primary care practices assume all of the risks and potential losses of implementation of innovation, improvement or EBP. The latter does not however explain the lack of skills and training in the individuals of these organisations who are tasked with innovation. However, as found previously the tasking of people to implement innovation is not the same as the decision to adopt an innovation over another.

The decision to adopt an innovation has, from the study, been found to result from the partners of the business. In general terms though, the issue still remains that to remain viable in the absence of an ability to increase profits or increase the prices charged for services, places significant risks on any form of investment and therefore investments are likely to be targeted towards short-term operational improvements rather than long-term investments in what is needed for a perfect future state of her care. This finding was evident in this research and most of the questionnaire informants declared that their implementations of innovation, improvement or EBP were not to significantly improve care experience but were there to satisfy

compliance or data tracking needs. In effect the innovations that had been introduced by those involved with the study tended to focus on the operational rather than investments that could transform practice.

#### *7.3.4 Systems Thinking*

The approach known as systems thinking can be seen to be the practical applications of systems theory but with a certain emphasis on how to understand and map complex systems in order to gain clarity, how to identify specific points in the system where interventions and innovations are necessary and how to develop frameworks for learning and continuous adaptation over time. The reason why the researcher used this theoretical lens, in addition to its parent of systems theory, is that it has a more practical and pragmatic impact for practising managers within organisations. In many ways systems thinking unites learning organisations and systems theory.

Once again, the researcher found significant weaknesses in the current state design of primary and secondary care within the context of a national coordinator and customer of these care services.

From a systems approach, the expert informants identified significant problems with visualising and identifying through mapping the care system.

Without such a mapped approach, it is impossible to correctly identify which parts of the system need to be improved and therefore which innovations are most suited to these contexts are most likely to give the greatest amount of payback to those involved and benefits to patients.

The research has exposed a lack of systems thinking, a lack of coordinating mechanisms which help promote innovation, and lack of support in terms of understanding how the system is configured and where best to make national programs of innovation and investment.

From the research it was unclear as to who would hold the responsibility for such mapping, implementation, coordination and standardisation.

The research finds it is unlikely to be the small organisations that represent the primary practices, the secondary care practices are also not equipped as supply chain coordinators or innovation system coordinators and therefore the lack of mapping of a system must reside with the national government. In order to map a system effectively, relationships need to be built and all stakeholders need to be engaged.

This activity was not detected during any of the interviews and therefore a collective approach to the system and the innovation is needed in the system we are not forthcoming. The researcher therefore finds, rather than a mapped collective system, there is a fragmented system whereby each organisation works on its own agenda and it is not correct to propose a national innovation agenda exists in any meaningful form for all of the partners involved in the delivery.

From a systems thinking perspective, the lack of coordination, collective learning and a map of the future to form a roadmap of innovation for the Welsh NHS is a major deficiency in the innovation system and inhibits meaningful progress. This finding reinforces those detected by the other theoretical lenses and suggest that the Welsh health innovation system is immature and lacks formalisation.

## 7.5 Summary of Findings Using Underpinning Background Theories

A recap and summary of the most important findings of this research is now provided below.

From a systems theory and systems theory point of view:

1. NHS Wales primary care innovation ecosystem is not working as a system, the whole is not greater than the sum of the parts.
2. There does not seem to be a common goal between stakeholders in that ecosystem
3. There is no orchestration of the NHS Wales primary care innovation ecosystem system, because the organisations are acting independently of each other suggesting poor levels of collaboration.

4. Variety and resource constraints of general practices make it difficult to integrate into a wider system and communicate with them in a timely and effective manner.

From a viable systems model point of view:

1. The Government has less budget and is reducing therefore they are cost saving and only selecting some innovations to invest in, but with no overall agenda or plan.
2. It is feared that General practices are not always economically viable
3. Stakeholders are caught in a trap; facing increased demand, with insufficient management to support general practitioners to be able to invest in people and innovation

From a learning organisation point of view, the system is not working because:

1. There is no common mental model
2. There is no shared vision
3. As a point of note, Welsh Government only just issued consultation for innovation strategy in August 2022, at the point of conclusion of this research. Gives some hope that progress is being made to enhance the shared vision and common mental model of the future
4. There is very little teamwork
5. Mastery isn't happening, dealing with legacy systems and not enough people

From a systems thinking point of view:

1. With a lack of a clear vision and clear mental model, noise and uncertainty exist in the system

2. Without a coordinating process to orchestrate the system then investments in innovation become more difficult and the primary care practices will resist these investments until the point that it interferes the business performance (this is the point at which the absence of innovation causes significant risks to patient safety and continuity of care)

From a background systems point of view, systems lack vision and implementation of innovation is much less than the dynamic healthcare system requires to be high performing. We have a broken system as shown from the literature, qualitative research, quantitative research and the common themes between the multiple phases of this study. The Welsh NHS primary care is fragmented, uncoordinated and effectively broken. In this state, it is unable to learn or improve.

#### 7.4 Chapter Summary

This chapter has taken a holistic view of the implementation of innovation, improvement and EBP, identifying determinants of successful implementation (factors which enable or inhibit). The resulting unique contribution to knowledge, improving existing literature on implementation, is an improved conceptual framework; specific to implementation of innovation, improvement and EBP primary care implementation and NHS Wales which is preventing it from adapting and implementing best practices.

There are major systemic problems in the implementation of innovation, improvement and EBP in NHS Wales primary care. These have been explored using the developed model and discussed using systems theory and related background theory.

The answers to each of the research questions has been presented in this chapter and a new, improved framework of implementation of innovation, improvement and EBP specific to the primary care setting is presented. This framework is not found elsewhere in the literature and is a new contribution to the field of implementation science.

The next chapter concludes the thesis.

## Chapter 8: Conclusions

### 8.1 Introduction and Purpose

The purpose of this chapter is to bring this research study to its conclusion, for the researcher to reflect on the research journey that has taken many years and to present the implications of his work. A particular emphasis will be placed on the practical implications of this work as that was one of its objectives.

### 8.2 Reflections on the Journey

Every researcher reflects on their research journey, critical events and how this can improve their future practice. This section will present a review of his reflections.

When considering the research strategy and the process of conducting the actual research, the overall methodology was found to be robust and generated significant insight into this under researched area of healthcare innovation management. The methodology was one typically used in the social sciences to explore emergent and dynamic contemporary issues, such as the diffusion of innovation within a complex health and care system. In conclusion, the methodology was proven to be robust and is explored in detail in chapter 3 so that future researchers can replicate this study and add new dimensions from their work.

Upon reflection, the researcher initially thought that gathering data from a variety of informants would lead to information overload, but in reality, the researcher found the interview process to be very insightful and that he reached a point whereby every additional interview added very little to knowledge or emergent themes. It was obvious, at this point, that the researcher was saturated and was nothing more likely to be gained from additional interviews. Upon reflection, the first phase of qualitative research was found to be highly rewarding, intellectually stimulating and prompted the development of the new model of ecosystem innovation (a contribution of this study).

The research process was time constrained as per the regulations concerning doctoral studies and in retrospect the researcher would have preferred more time to collect additional

questionnaires. However, given the limited population of experts concerning innovation management it is likely that the researcher would have collected more questionnaires from general practices. The number of questionnaires collected and analysed in phase 2, whilst not underpinning a positivist study, represent a significant number of stakeholders from the Welsh primary care innovation ecosystem.

Upon reflection, the research methodology was robust even though access was difficult during the Covid 19 pandemic, especially for accessing primary care practitioners to participate in the study. The study was also stimulating for those involved and access was provided through personal contacts and snowballing by the informants and this means of introducing new participants was the result of a high level of interest from those involved with this study. The researcher reflects that those involved see this as a very important and worthwhile study for them to invest their time in.

During the methodological design stage, the researcher did review whether to undertake a longitudinal case study as part of his research. This was precluded by the pandemic but in retrospect would be something that he would recommend other researchers to undertake.

#### a. Restating the Research Questions and Their Importance

For purposes of clarity, the research questions will now be restated:

*RQ1: What determinants effect successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*

*RQ1A: What determinants, featuring internally within primary care provider organisations, influence the implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*

*RQ1B: How do external determinants influence successful implementation of innovation, improvement and evidence-based practice programmes in primary care in NHS Wales?*



*RQ2: What insight about can be gained for practitioners and policymakers, by applying the developed model to the context of NHS Wales Primary Care delivery?*

The questions are considered by the researcher to provide significant insight into the realities of the Welsh primary care innovation ecosystem and have generated a new empirically tested model, which helps to frame the current performance of the system. The questions also contribute significantly to closing the gap in the body of knowledge that was identified and explored in chapter two. The questions provided a robust means of investigating the subject. The next section will explore the contributions made by this study.

#### 8.4 Contributions to Knowledge and Practice

The first area of contribution is the development of a contemporary framework which describes the current state of innovation adoption in Welsh primary care. Whilst it was not the intention of the researcher to generalise beyond the Welsh context, it is hoped that other researchers will benefit from the literature and empirical studies that have been the foundation of this new framework.

The framework, which has been tested and refined throughout this thesis does offer some ability to generalise its findings in other contexts. The researcher would propose that similar healthcare systems, where a powerful centralised and publicly funded health service exists and one with autonomous rather than highly managed providers, will exhibit similar forms of determinants when implementing innovation, improvement or EBP projects.

#### 8.5 Implications of study

##### *8.5.1 Implications for General Practitioners and Primary Care Practitioners*

Given the large volume of existing theory, models and frameworks for implementation of successful innovation, it is easy for practitioners to become confused as to which has the most utility (Glisson 2004). From the extensive literature review, many models were portrayed as representing innovation in the primary care setting when in fact these frameworks were either drawn from industry, secondary care or untested in primary care. Given the contextual richness of this study and the differences between the literature frameworks and this thesis, adopting the existing literature frameworks has a danger in that they do not fit the context specific problems associated with primary care.

It has taken a thorough literature review to assess the existing body of knowledge. Before this study, practitioners implementing innovation, improvement and EBP would have had to do this; making choices about which is relevant to primary care from the exist theory about service organisations and hospital healthcare. The contribution of this study is that primary care implementers no longer have to do this. The model presented is specific to the sector and builds on the relevant aspects of existing theory, adding new concepts such as participation and trust, where data and analysis in this study supported its inclusion.

Primary care practices are operated by groups of General Practitioners in Wales, at variance with some of the larger operators in England. Whilst this has perceived advantages for Welsh Government in reducing large operators making surplus profits, it has the disadvantage of long term investment where small operators focus on short term survival. Primary care practices need to realise that, though they are their own small organisation, there is a level of skill, planning and process needed to implement effectively. Practices cannot, as some suggested, decide to implement an innovation, improvement or EBP on a Friday afternoon, to begin on the Monday morning. Practitioners need to see the value on the specialist implementation skillset this research has shown to be effective and show maturity in understanding their own business systems and operations.

#### 8.5.2 Implications for Policymakers, Government, Commissioners and Managers of Primary Care Services

The researcher reflects that there are many implications of this research, which benefit policymakers and managers of primary care services in Wales. The first of these is to mature

the level of understanding, to realise that to get the best outcomes from the innovation ecosystem, innovation, improvement and EBP implementation isn't a part time job or extra responsibility. Practitioners are struggling to cope with perceived excess workload demands. This research shows that implementation needs to be considered a specialist role with the support to develop those skills within the workforce and funded resource to ensure potential benefits of innovation, improvement and EBP translate into practice.

This research has shown that primary care practices have little access to high quality implementation innovation. Primary care practices need to find out what innovation implementation models exist to be able to put these into practice. A single source of information nationally, for example, which practitioners can access and is updated with latest developments in the field of implementation research, would deliver such an outcome. Then, practitioners may begin to report accessing and using theory and achieving better implementation outcomes.

One of the main outcomes of this research, is identifying a lack of trust between primary care providers and government. The result is that attempts by government to innovate, are not delivering value or improvements for Local Health Boards or NHS Wales. A step change is needed in the development of mature and collaborative relationships, which only Government can initiate and invest in. This will take considerable effort and not be effective immediately, however moving to create a network of collaborative and engaged suppliers would deliver better outcomes for all.

To reduce financial risks to all parties and stakeholders, practices would be more prepared to invest where there is a clear long-term understanding and signalling from Government and Local Health Boards of where they plan to make investments. This ensures that all parties understand and reduces risks in terms of for example, compatible systems, hub development plans and shared undertakings. The more Welsh Government and Local Health Boards share information about innovation, improvement and EBP, their expectations and ambitions, the lower the risks and greater the compatibility and potential for trust and collaboration. There are many delivery challenges facing policymakers. Primary care needs to transform from treating illness to preventing it, ensuring access for all and equity of care. The more attractive implementation becomes for both parties and possible these outcomes become.

### *8.5.3 Implications for Teaching*

The researcher also reflects that there are implications from this research for teaching. Lecturers should stop using textbooks with general models taken from industry for this sector. Implementation of innovation, improvement and EBP are specialist and therefore teaching should replace generic models for industry, with specific models for healthcare and primary care. There are a wealth of possible teaching cases, which are rich and diverse and encourage problem solving where a range of determinants are present. A properly organised programme of education would include this level of information.

Lecturers should be careful with using the Rodgers curve to teach implementation of innovation, improvement and EBP as all parts of this curve still need trust and participation to apply. In the context of implementation of primary care, this assumption had been shown by this research not to hold. The implication is therefore that leaders won't pull others on if there is low trust. Curves are also long lasting into the decades for the primary care innovation ecosystem in Wales, which makes its applicability less effective. There is theory which has a better explanatory power, as highlighted in the discussion chapter. Any of the specialist implementation models do a better job of understanding implementation, yet still generic models are often used.

### *8.5.4 Overcoming Existing Limitations and Implications for Future Research*

The researcher reflects that though overall the research was robust in answering the research questions, there are things he would do differently with the benefit of hindsight and learning which has resulted from undertaking this research.

The researcher opted to undertake a study at one point in time, over two research phases. It was equally possible to arrange the research as a longitudinal study. This, for example, could follow in depth the case of an implementation of an innovation, improvement or EBP in a primary care cluster. This could be compared to other organisations, for example pharmacy or other industries, over same time period.

The framework of determinants of innovation, improvement and EBP proposed by this research, relate to the context of NHS Wales primary care. The next step would be to go beyond Wales. Most obviously, this would mean NHS England however, for example, German primary care is another potential research landscape where there are similarities in the underlying systems. The Japanese draw from a legacy of total quality management and collaboration. This could again be a natural avenue for progression of this work keeping within the arena of primary care.

There are also opportunities for expansion of this research beyond primary care. There is a wider full healthcare innovation ecosystem, for example. Similarly, the private sector now operates more so in the delivery of care and this is the case internationally. Public sector services on a wider basis have similar challenges to those detailed in this thesis.

One improvement which could have been made in methodological terms is in the sample size for the second phase of research. The response rate of 74 is acceptable given the relative size of the eligible population being those involved with an implementation of innovation, improvement or EBP in the primary care sector. This phase of research also took place during the Covid 19 pandemic, making access to a small potential pool of respondents even more challenging. However, if this research were to be repeated more responses would be preferable.

The researcher reflects that to explore the determinants of successful implementation of innovation, improvement and EBP, this research focused on successful projects. This meant that it was hard to really delve fully into the dynamics of failed implementation projects. This is particularly where trust and motivation are playing a part in that failure. A follow up study could look at the framework of trust, participation and collaboration proposed by this research and apply it to failed implementation projects.

This research had a realist-pragmatic agenda, to develop a framework to use in practice. The research has delivered that and there is potential for exploiting the new framework in operational use. Discussions have taken place throughout the research with the director for National Primary Care Pathways at Strategic Primary Care Wales. This is a national strategic organisation with the reach and objective of improving primary care delivery. It is hoped the framework and recommendations of this thesis can be of use to this unit as a basis on which up to date information can be provided to all primary care practices in Wales. There is also the

potential to plan and deliver much needed skills training and mentoring. This research may also be used by leaders at Strategic Primary Care Wales as a basis to begin discussions with Welsh Government leaders about why and how a step change in maturity of relationships with provider organisations is required to meet the objectives of Government. There is also potential for operational use in a further project developing Electronic Patient Medication Administration Records. This project involving Swansea University integrates a holistic primary care record with primary care. The researcher reflects that this is perhaps the most rewarding outcome of the research and will hopefully improve delivery outcomes for organisations and patients.

#### 8.5.5 Final Words

This research has been a long journey, one of ups and downs and the product of years of work. It is the researchers hope that future generations of researcher will find what has been developed here, useful for their own research and beneficial for their studies. Similarly, that it will inform practitioners and policymakers alike and above all, lead to more successful implementations and projects.

## Appendix A: Interview Proforma- Researcher Prompts

To be used as a guide, not to be followed rigidly and as expert participants allow a high flexibility for participant to shape discussion:

1. Please can you describe the patient journey/system of primary care delivery that your practice and the implementation you have undertaken?
2. Who makes up the primary care team at your practice? (internal/external, probe teamwork dynamic)
3. What were the objectives of the implementation?
4. Please can you describe the features of the innovation, improvement or evidence based practice you implemented? (what was it?, how many steps to implement? complexity? Testable or has to be deployed all at once? )
5. What were the main challenges when implementing? (internal context)
6. Did you consult theory or information prior to implementing and if so which sources? Any inspiration from other practices?
7. What steps did you take to prepare the organisation for change? What were the main internal challenges or strengths? (Motivation/people/resistance to change)
8. What planning was undertaken prior to implementation?
9. How did partner colleagues view change and how were any issues identified resolved?
10. What were the main risks of implementing the innovation, improvement or EBP and how were these mitigated?
11. How did NHS Wales or government influence your project? How would you describe the relationship between practices and Government? (trust and collaboration)
12. Do you feel trusted, trust valued or value government and NHS Wales? If there is not collaboration, how would you characterise relationship? (seek examples)
13. Was there an impact of politics and political policy on your implementation? If so what and how?
14. Were there any other external factors impacting implementation?
15. Was the implementation a success? How was the implementation evaluated? (formative/summative/methods)

16. How did regulation impact implementation?

17. Ask about training and support internally and externally

18. Was the implementation sustained/is it still in use? How does it look now?



Appendix B: Qualitative Example of Raw Analysis Coding Table

Below is an example of a theme and coding process including a priori and open codes, higher level codes then leading to the theme:

A Priori and Open Codes (long List)	Higher Level Codes	Themes
Financial Work life balance Patient experience Response to challenges Increased stature or respect Partner resistance Power Voting rights Senior partner Leadership commitment Uncommitted Leader doesn't believe in project Opinion leaders Motivate staff Engage Metrics Patient expectations Internal motivation Workload Team dynamic Working under pressure Teamwork to manage stress Culture of coping with demand Focus on urgent care only Influenced by how they feel Stress Perceive as ever increasing demand Risk management Indemnity Covering insurance Willingness to try new things Managing risk in the contract Proactive monitoring Continual improvement Trying new ideas in practice	Engagement Motivation Culture Attitude to Risk Leadership Commitment Power Dynamics and Authority Collaboration and Teamwork Past Experience of Successful Implementation	Motivation

<p>Relate implementation risk to patient safety</p> <p>Commitment</p> <p>Responsibility</p> <p>Accountability</p> <p>Large part of role</p> <p>Secondary role</p> <p>Minor role</p> <p>Managing expectations in the team</p> <p>Managerial patience</p> <p>Organisational commitment</p> <p>Learning through team dynamic</p> <p>Mix of skills in team</p> <p>Honest discussions</p> <p>Meetings</p> <p>Status</p> <p>Seniority</p> <p>Junior</p> <p>Locum has high degree power</p> <p>Prior experience</p> <p>Learned from last projects</p> <p>Organisational learning</p> <p>Increased confidence</p> <p>We can do this</p> <p>Teething problems</p>		
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## Appendix C: Example of Hand Coding of Participant Response

**So if I start with your systems approach, please can you describe the patient journey within your practice. How do you deliver primary care at your practice, how have you arranged it at the moment and why?**

Ok, so there's a data collection stage or patient demographic collection and I think that is a standard step for most practices, I was going to say all practices. But even that actually is beginning to devolve into several approaches. So in Wales, there is definitely access to the appointment screen only by phoning the surgery and asking for a call back. Now that is 99% done by phoning the surgery in the morning, and then what happens next is the patient's demographics are taking very quickly, name, date of birth, phone number, phone number is very important. The receptionists are highly trained to take the correct phone number. You wouldn't believe how much time can be wasted if that's not done, and then they emphasise a brief description of the problem. So chesty cough, sore throat, that's all we want. Against telephone first, there's a lot of criticism about oh they only know what's wrong with me, it's really invasive. They really don't want to know. They just want the GP to have a brief understanding of what they're likely to be facing when they call back and it helps the GP plan whether it's a face to face and needs to be dealt with quickly or whether it's an administrative task and can be dealt with in the afternoon, it helps us prioritise the order in which we call patients back. There's a secondary spin off for this in that some patients are catching on to the fact that they can book their telephone slots online

**Right**

Which has got to be the way to go. I would be very happy to release all 150 slots overnight if only I could get them to use them. At the moment we only release barely 6 per GP, but we barely fill them, we barely fill one overnight

**So it's either by phone or online are the two ways that they can book the initial contact.**

That's right, using My Health Online.

**Okay, and the receptionist, if it's by phone, they don't they don't have any clinical judgment in the surgery whatsoever and they don't have any, they just simply information gather or do they have a gatekeeping role?**

They have a gatekeeping role, definitely. Because I know they sift out, if it's a straightforward call back for the GP then that's quite straightforward, but of course, they're dealing with hundreds of prescription requests and things that have gone missing and things that aren't right

**So perhaps if it's a non clinical problem, if it's identified as a non clinical problem**

They deal with it, they deal with all of that

**Okay**

But there is also a clinical gatekeeping role developing at reception level so for instance my ears are blocked, I need them sucking. We've got a new service now which is based in our hub, the Neath Primary Care Hub which we triage into, just this last month we've had a new audiology service there which is a health care assistant who is capable of suctioning ear wax which is the new NICE guidance recommended way to remove ear wax. So now, all our practice nurse syringing has stopped. I don't get involved in that, the girls here, oh my ears are blocked I need them syringing, oh we don't syringe any more

**Divert straight away**

They book the appointment down in the hub and tell the patient to oil their ears ready to go, so that's the beginning. And in other practices they are even more robust, if the patient says oh I've got a really sore knee, they'll book the physiotherapy for the patient, the patient won't talk to the

A screenshot of a chat interface showing a list of messages from Alex O'Brien. Each message includes a profile picture, name, and an initial code. Below each message is a text input field with a placeholder "@mention or reply" and a send button. The messages are as follows:

- Alex O'Brien, Initial Code: challenges
- Alex O'Brien, Initial Code: Prioritising
- Alex O'Brien, Initial Code: Preference for online services
- Alex O'Brien, Initial Code: Usability
- Alex O'Brien, Initial Code: Skills
- Alex O'Brien, Initial Code: Source of information
- Alex O'Brien, Initial Code: New step

Appendix D: Qualitative Participants and Mini Cases

Case	Participant Interview(s)	Project or Case Description	Organisation Type	Years in Practice/ Implementation experience	Professional Group
1	P1 P4	Introduction of 'Telephone First' to Neath primary care practice	Primary Care Practice	30+ 5+	General Practitioner Business Analyst
2	P13	Implementation of telephone delivery and new operation at Swansea primary care practice	Primary Care Practice	20+	General Practitioner
3	P6	Introduction of E Consult system in Pontypridd primary care practice	Primary Care Practice	30+	General Practitioner
4	P3	Overcoming internal resistance to implementation of telephone based delivery at Swansea primary care practice over two sites	Primary Care Practice	20+	General Practitioner
5	P5 P9	Local Health Board approach to managing practice improvement and innovation projects	Local Health Board	25+ 20+	General Practitioner/ Health Board Medical Director (P9 deputy director)

6	P7	Modernisation of primary care practice in Brackla, Bridgend, responding to increased demand for care	Primary Care Practice	20+	General Practitioner
7	P2 P8	Introduction and design of Babylon Health digital primary care service to UK market	Primary Care Practice- Digital Delivery	20+ 5+	Chief Executive/ Medical Director General Practitioner
8	P10	Merging of three primary care practices into one 'super practice' in Swansea Vale	Primary Care Practice	20+	General Practitioner
9	P11	Out of Hours redesign project at Swansea Bay University Health Board	Primary Care Practice	30+	General Practitioner/ Medical Director
10	P12	Welsh Ambulance Service NHS Trust redesign of Primary Care relationship	Welsh Ambulance Service Trust	20+	Senior Leader

## **Manuscript: Implementing Innovation, Improvement and Evidence Based Practice in Service Delivery: A Model for the Primary Care Sector in NHS Wales**

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

<b>No. Item</b>	<b>Guide questions/description</b>	<b>Response</b>
<b>Domain 1: Research team and reflexivity</b>		
<i>Personal Characteristics</i>		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Researcher as PhD candidate undertook all field research
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	PhD candidate
3. Occupation	What was their occupation at the time of the study?	PhD Candidate
4. Gender	Was the researcher male or female?	Male
5. Experience and training	What experience or training did the researcher have?	Research methods as part of PhD programme at Swansea University. Qualitative and quantitative methods training as part of
<i>Relationship with participants</i>		
6. Relationship established	Was a relationship established prior to study commencement?	Yes, by personal email or telephone call following introduction from colleague
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Participants were told the purpose of the research, the nature of the research being for a PhD candidature, the objective of improving implementation
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Little information was given other than that researcher was PhD candidate and not connected to any government organisation. Interest in systems theory from a management perspective and no prior knowledge of primary care sector.

<b>Domain 2: study design</b>		
<i>Theoretical framework</i>		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	See Chapter 3; realist pragmatic stance positioned as mixed method, explained in detail.
<i>Participant selection</i>		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Convenience and snowball sampling: referral from participant to participant where eligibility identified
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	email or phone introduction
12. Sample size	How many participants were in the study?	N= 13 Expert Interview Participants (10 mini case studies) N=71 Survey Respondents
13. Non-participation	How many people refused to participate or dropped out? Reasons?	None
<i>Setting</i>		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Meeting room in a primary care practice or by telephone
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	See tables chapter 6 for detailed breakdown
<i>Data collection</i>		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	See appendix A
18. Repeat interviews	Were repeat inter views carried out? If yes, how many?	No
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Audio recorded and professionally transcribed independently

20. Field notes	Were field notes made during and/or after the interview or focus group?	Informal field notes taken but not used as part of data
21. Duration	What was the duration of the interviews or focus group?	Between 29 and 60 mins
22. Data saturation	Was data saturation discussed?	Yes, researcher discussed with supervisors and stopped recruiting participants when no new insight apparent from further interviews.
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No
<b>Domain 3: analysis and findings</b>		
<i>Data analysis</i>		
24. Number of data coders	How many data coders coded the data?	One data coder (Researcher) and sense checking from supervisor (Dr Fern Davies). See methodology chapter for research design and approach to validity and reliability.
25. Description of the coding tree	Did authors provide a description of the coding tree?	Yes, see appendix C for example
26. Derivation of themes	Were themes identified in advance or derived from the data?	Themes were derived from a priori codes generated from a thorough literature review of existing models for a different context as well as from data collected.
27. Software	What software, if applicable, was used to manage the data?	Microsoft Word and Excel were used to organize data and code manually
28. Participant checking	Did participants provide feedback on the findings?	Yes- opportunity to sense check and clarify meaning given
<i>Reporting</i>		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Yes, substantial quotes provided in qualitative results chapter 5 identifying participant and relation to theme
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31. Clarity of major themes	Were major themes clearly presented in the findings?	Yes
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes, each theme has sub themes discussed in detail with definition, descriptor levels and participant quotations



# Facilitation of Innovation and Improvement NHS primary care - Copy

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## Start of Block: Study Information

### **Implementing Innovation, Improvement Programmes and Evidence Based Practice (EBP) in NHS Primary Care**

This questionnaire is part of a study exploring the implementation of innovation, improvement programmes and evidence based practice (EBP) in primary care settings. It's purpose is to better understand the enablers and inhibitors of successful innovative change programmes in primary care.

This questionnaire is part of a second phase of research; testing a model which has been developed in an earlier phase. Your response plays an important role in helping to understand the factors that drive successful projects. It will help to ensure the outcomes of the research are robust and can be of practical benefit to the sector, so that projects are an effective response to the many challenges which modern primary care faces.

You have been invited to participate in this survey as you have indicated an experience of change programmes in the NHS. This might be as a participant or leader of an intervention. You may be part of an independent contractor for medicine, dentistry, pharmacy or optometry services.

Participating in this survey you accept data provided will be used for the purpose of this research as anonymised data and will be stored securely. You may withdraw this permission at any time. There is no identifiable data and your responses will be anonymous. The study has obtained ethical approval with Swansea University School of Management.

Your response is greatly appreciated.

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Do you consent to participate in this study:

1. Yes (1)
2. No (2)

End of Block: Study Information

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Start of Block: Demographics

Q1 What is your job role?

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Page Break

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Q2 Which area of Primary Care Delivery do you work within?

3. Medical (1)
  4. Dentistry (2)
  5. Pharmacy (3)
  6. Optometry (4)
  7. Other (5)
- 

Q3 How old are you?

8. 18-30 (1)
  9. 31-40 (2)
  10. 41-50 (3)
  11. 51-60 (4)
  12. 60+ (5)
- 

Q4 Please describe your gender.

13. Male (1)
  14. Female (2)
  15. Non-binary / third gender (3)
  16. Prefer not to say (4)
- 

Q5 Years involved in leading/managing change in the NHS?

17. less than 3 years (1)
  18. 4 - 7 years (2)
  19. 8 -15 years (3)
  20. 15-20 years (4)
  21. More than 20 years (5)
- 

Q6 Which nation do you work mostly in?

22. NHS Wales (1)
  23. NHS England (2)
  24. NHS Scotland (3)
  25. NHS Northern Ireland (4)
  26. Not NHS but work within UK (5)
  27. International (6)
-

Q7 Which (if any) primary care cluster do you work for?

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Q8 For primary care practices, how many partners at your primary care practice?

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Page Break

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End of Block: Demographics

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Start of Block: How Successful Was Your Project?

Q40 How Successful Was Your Project?

	Disagree (1)	Neither agree nor disagree (2)	Agree (3)
The Project was a Success (1)	28.	29.	30.
The Project Met it's Objectives (4)	31.	32.	33.
There Was An Improvement to Patient Care Outcomes (5)	34.	35.	36.
Patient Access was Improved as a Result of the Project (6)	37.	38.	39.
The Implementation of the innovation, improvement or EBP was a success (8)	40.	41.	42.

End of Block: How Successful Was Your Project?

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Start of Block: Innovation, Improvements and Evidence Based Practices (EBPs)

Q10 Thinking about a change project implementing an innovation, improvement or Evidence Based Practice (EBP) that you have encountered in your professional role.

	Strongly disagree (6)	Somewhat disagree (7)	Neither agree nor disagree (8)	Somewhat agree (9)	Strongly agree (10)
There was a clear advantage to implementing the innovation, improvement or EBP versus an alternative solution or the status quo (1)	43.	44.	45.	46.	47.
The innovation, improvement or EBP disrupted the status quo (2)	48.	49.	50.	51.	52.
The innovation, improvement or EBP could be adapted, tailored, refined or reinvented to meet local needs (3)	53.	54.	55.	56.	57.
The innovation, improvement or EBP could be tested on a small scale in the organization (4)	58.	59.	60.	61.	62.
The innovation, improvement or EBP was expected to lead to an improvement in efficiency or quality (8)	63.	64.	65.	66.	67.
The innovation, improvement or EBP was complex, with many sequential subprocesses or choices to make when implementing the innovation, improvement or EBP (13)	68.	69.	70.	71.	72.

There was evidence that the innovation, improvement or EBP was likely to be effective from, for example: published literature, guidelines, anecdotal stories from colleagues, information from a competitor, patient experiences, results from a local pilot or other sources (14)

73.

74.

75.

76.

77.

The idea from the innovation, improvement or EBP was externally developed (15)

78.

79.

80.

81.

82.

The cost of the intervention, including investment, supply and opportunity costs, was worth its perceived benefit (17)

83.

84.

85.

86.

87.

End of Block: Innovation, Improvements and Evidence Based Practices (EBPs)

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Start of Block: Innovation or Improvement Project



Q11 Thinking about a change project implementing an innovation, improvement or Evidence Based Practice (EBP) that you have encountered in your professional role:

	Strongly disagree (6)	Somewhat disagree (7)	Neither agree nor disagree (8)	Somewhat agree (9)	Strongly agree (10)
Stakeholders were engaged or inspired to take part in the innovation, improvement or change project (2)	88.	89.	90.	91.	92.
The team was motivated to implement the innovation, improvement or EPB (1)	93.	94.	95.	96.	97.
The practice had a culture of improvement, innovation, collaboration or openness (9)	98.	99.	100.	101.	102.
Risks were understood and managed but innovation still encouraged, project participants or other staff at the practice feel able to explore new methods to deliver services (15)	103.	104.	105.	106.	107.
Leaders of the project were perceived to be committed to its success and heavily involved in its facilitation (18)	108.	109.	110.	111.	112.
Project leaders understood power dynamics within the practice and had to overcome resistance to implementation (14)	113.	114.	115.	116.	117.
There was a high degree of collaboration and teamwork to achieve a successful implementation (20)	118.	119.	120.	121.	122.
Leaders of the project had previous experience of successful innovation, improvement or EBP project implementation (19)	123.	124.	125.	126.	127.

<p>Planning included a variety of processes, such as completing a context/needs assessment, developing action items and an implementation timeline, and setting implementation goals. (17)</p>	128.	129.	130.	131.	132.
<p>Project had resources dedicated for implementation and ongoing operation of the innovation, including money, training, education, physical space, time, as well as technical, electronic and material resources (16)</p>	133.	134.	135.	136.	137.
<p>The facilitator (or myself) had the skills to undertake that role including; understanding of organisations they are working with, awareness of competing tensions and how to manage these in relation to implementing innovation and change, understanding of individual and team motivation, team dynamics. Experienced and knowledgeable in local context evaluation, able to assess system-wide activities and influence actions, aware of wider contextual issues and confident in terms of negotiating boundaries and political tensions. (38)</p>	138.	139.	140.	141.	142.
<p>It was clear project leaders used methods to understand the extent to which improvement has been achieved. This could be formative to steer a live project or summative to understand how well a project met its aims. (13)</p>	143.	144.	145.	146.	147.

Project introduced innovation, improvement or EBP through evolving the patient journey, structure or systems used to deliver care at the practice (39)	148.	149.	150.	151.	152.
The project introduced modifications to routine practice and patient journey, to embed innovation and improvement into business-as-usual (11)	153.	154.	155.	156.	157.

End of Block: Innovation or Improvement Project

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Start of Block: Facilitator Relationship with External Stakeholders

Q12 Thinking about a change project implementing an innovation, improvement or Evidence Based Practice (EBP) that you have encountered in your professional role and about the relationships between practices and government or commissioners of primary care services more generally:

	Strongly disagree (30)	Somewhat disagree (31)	Neither agree nor disagree (32)	Somewhat agree (33)	Strongly agree (34)
The relationship between contractors, Government and Health Board is immature; characterised by contractual obligations, working to rule, low trust, low collaboration. (1)	158.	159.	160.	161.	162.
Primary Care practitioners have a high level of trust in government (14)	163.	164.	165.	166.	167.
Your independent contractor's contract is a start point for collaboration where practices and Government work together beyond this (7)	168.	169.	170.	171.	172.
Contractors and Government have shared objectives. (10)	173.	174.	175.	176.	177.

As a contractor we feel engaged by Health Board and Government (15)	178.	179.	180.	181.	182.
Successful projects are imposed by health boards and Government on contractors (16)	183.	184.	185.	186.	187.
Successful projects occur where there is a collaborative approach between Health Board or Government and the contractor (17)	188.	189.	190.	191.	192.

End of Block: Facilitator Relationship with External Stakeholders

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Start of Block: The external context of facilitating innovation, improvement and EBP

Q13 Thinking about a change project implementing an innovation, improvement or Evidence Based Practice (EBP) that you have encountered in your professional role.

	Strongly disagree (6)	Somewhat disagree (7)	Neither agree nor disagree (8)	Somewhat agree (9)	Strongly agree (10)
It was a policy priority of the government or health board commissioning primary care (1)	193.	194.	195.	196.	197.
The project was incentivised or mandated by government or the health board commissioning primary care services through; recommendations, guidelines, pay-for-performance or collaboratives such as primary care clusters (2)	198.	199.	200.	201.	202.
The project was supported incentivised by quality mechanisms at practitioner or organisational level within which innovation and improvement projects much operate (4)	203.	204.	205.	206.	207.
The purpose of the project was to improve compliance with regulation or quality procedures (5)	208.	209.	210.	211.	212.



The project was supported by the agreements between primary care providers and commissioners and government who pay for these services. (6)	213.	214.	215.	216.	217.
The project responded to a political or public priority, for example access to services (7)	218.	219.	220.	221.	222.
The project was a response to a specific government or commissioner policy (8)	223.	224.	225.	226.	227.
The project was a response to an evolving requirement which the service had to meet, eg long term increase in demand, COVID 19 (12)	228.	229.	230.	231.	232.

End of Block: The external context of facilitating innovation, improvement and EBP

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Appendix G: Categories for Participant Perspectives Example of 'Engagement' Theme

<b>Level</b>	<b>Description</b>	<b>Example</b>	<b>Justification</b>
Low	There is little or no congruency between the concept and observation.	Stakeholders are uninspired by the outcomes of implementation and/or do not participate in the process of its implementation.  Experienced by P6 and P7	These participants described how they were demotivated to implement. There was a clear resistance to some projects and the benefit of engaging was questioned.
Medium	There some congruency between the concept and observation.	Stakeholders are partly inspired by some of the outcomes of implementation and/or participate in the process of its implementation.  Experienced by: P11, P5, P9	These participants gave mixed views about the value of e engagement in implementation and could describe at least some examples of where they had included engagement in their implementation
High	There substantial congruency between the concept and observation.	Stakeholders are inspired by the outcomes of implementation and/or participate in the process of its implementation.  Experienced by: P12, P8, P2	These participants placed a high value on engagement and were able to describe multiple examples, in detail, of where engagement had been a major part of their implementation.

**SCHOOL OF MANAGEMENT, SWANSEA  
UNIVERSITY**

**FIRST STAGE ETHICAL REVIEW FORM**

*To be completed for all research involving human subjects OR  
datasets of any kind OR the environment*

<b>Name of PI or PGR Student</b>	Alex O'Brien
<b>Staff Number or Student ID</b>	██████
<b>Supervisors*</b>	Dr Gareth Davies
<b>Date Submitted</b>	1 <sup>st</sup> March 2021
<b>Title of Project</b>	Enablers and Inhibitors of Strategic Improvement Projects in Primary Care
<b>Name of Funder / Sponsor*</b>	KESS 2
<b>Finance Code / Reference*</b>	
<b>Duration of Project</b>	

Aim of research project (250 words):

This research aims to explore the enablers and inhibitors of service improvement programs in NHS organisations. Review of three areas of literature (innovation, operations management and change management) suggest theory is deficient in explaining how service improvement programs are influenced by enablers and inhibitors. This includes the differences between when change programmes are autonomous and when they are imposed in an NHS organization by a government department.

The research will address this gap by creating a new model and building new theory based on two stages of research. Initially following a review of the existing theory in literature, experts who have undertaken a high level service improvement program will be interviewed to identify variables not currently featuring in existing theory. This will be developed and refined in a second quantitative stage of research.

\* Complete if appropriate

**Risk evaluation:** Does the proposed research involve any of the following?

✓ **Tick** those boxes for which the answer is **YES**

X **Cross** those boxes for which the answer is **NO**

## Participants

- x Will the study involve recruitment of patients or staff through the NHS or the use of NHS data or premises and/or equipment? If this is the case, the project **must** be reviewed by the NHS. Please see the following NHS online tools for help with this <http://www.hra-decisiontools.org.uk/research/> and <http://www.hra-decisiontools.org.uk/ethics/>
- x Does the study involve participants aged 16 or over who are unable to give informed consent? (e.g. people with learning disabilities: see Mental Capacity Act 2005. All research that falls under the auspices of the Act **must** be reviewed by the NHS)
- x Does the research involve other vulnerable groups: children, those with cognitive impairment or in unequal relationships? (e.g. your students). This **may** require NHS review, and will typically require the researcher to get **Disclosure & Barring Service (DBS) clearance** (formerly CRB checks)
- x Will the research harm or pose any risk to the environment? (e.g. research in environmentally sensitive areas (e.g. SSSIs); permission needed to access field sites; transport of samples between countries (e.g. soil); sampling of rare or hazardous material (e.g. invasive species) that could deplete or endanger)

Please describe the participants involved in your research (if no participants, state 'none'):  
*max 250 words.*

Participants will be invited from the following groups based upon their activity in the field relevant to the research.

- Academics
- Professional NHS staff
- NHS staff with innovations
- Staff from support organisations (financial, Intellectual property, Welsh Government etc.). Accelerate programme, AgorIP
- Experts in innovation processes and facilitation.
- Researchers

## Recruitment

- x Will the study require the co-operation of a gatekeeper for initial access to the groups or individuals to be recruited? (e.g. students at school, members of self-help group or residents of nursing home?)
- x Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g. covert observation of people or use of social media content)

- x Will the research involve any form of deception? (e.g. misinformation or partial information about the purpose or nature of the research)
- x Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?
- x Does the research involve members of the public in a research capacity? (e.g. participant research; participants as co-producers or data collectors)

Please explain the recruitment of participants involved in your research (if no participants, state 'none'): *max 250 words.*

For the first stage of research where experts who have been involved in an innovative service improvement program, these are specialist and with few potential respondents relative to the NHS workforce. Therefore the researcher will take a snowball approach where participants refer colleagues who have similar roles until theoretical saturation is achieved. The researcher is aware of five participants who meet the criteria and this introduction to others will yield a further seven participants. These individuals are adults and therefore they can independently agree or disagree to participate in the study.

For the second stage of research, participants will be sent a questionnaire. This will be sent out to persons who are known to the researcher and supervisors with an invite on to send on further to other participants. It will also be published on LinkedIn and sent to participants through industry organisations such as the Bevan Commission.

### Research Design

- x Will the study discuss sensitive topics or require the collection of sensitive information? (e.g. terrorism and extremism; sexual activity, drug use or criminal activity; collection of security sensitive documents or information)
- x Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?
- x Is pain or more than mild discomfort likely to result from the study?
- x Will the study involve prolonged or repetitive testing?
- x Are drugs, placebos or other substances (e.g. foods or vitamins) to be administered to study participants, or will the study involve invasive, intrusive or potentially harmful procedures of any kind? (If any substance is to be administered, this **may** fall under the auspices of the Medicines for Human Use (Clinical Trials) Regulations 2004, and require review by the NHS)

- x Will tissue samples (including blood) be obtained from participants? (This would fall under the terms of the Human Tissue Act 2004. All research that falls under the auspices of the Act **must** be reviewed by the NHS)

Please summarise your methodology in detail and provide reflective comments with regards to the design of your research: *max 250 words*.

The study methodology includes a semi-structured interview to gather data from the research participants. The interviews carried out will align with all COVID-19 measurements to ensure the safety for all participants.

The research approach will allow appropriate initial interviewees to be approached, while those who agree and are interviewed will be asked for recommendations of further potential interviewees to be approached in the same manner. This will be reviewed to support selection of diverse viewpoints and interviewees, while also working towards theoretical saturation. Transcripts will be provided back to all interviewees with the option to withdraw at any time.

All data gathered will be used in a purely anonymised manner with sufficient number of interviewees involved from each group to help protect this. These steps will be made clear as part of the informed permission for all prospective interviewees.

Primary data collection from these interviews will be analysed through coding to identify relevant themes and sentiment and be triangulated with secondary sources to inform findings used to develop a second round of questionnaire that will also be conducted in the manner presented above

### **Data Storage and anonymity**

- x Will the research involve administrative or secure data that requires permission from the appropriate data controllers and/or individuals before use?
- x Will the research involve the sharing of data or confidential information beyond the initial consent given?

x Will the research involve respondents to the Internet or other visual/vocal methods where respondents may be identified?

Please describe how you will store your research data and for how long, and, if appropriate, how you will ensure anonymity of your data subjects: *max 250 words*.

The data will be recorded manually (interview data) and via qualtrics questionnaire. The data protocol will involve 1 year retention after project completion. All informants will be offered the ability to withdraw at any stage. The informant data will be coded so that the identity of the informant cannot be determined.

All information will be held securely on password-protected system. No personal information will be retained beyond the PhD candidature.

The interviews will be recorded for analysis to be carried out appropriately; all recordings will be stored safely and securely to protect the identity of the participants. The recordings will be kept until the mark is awarded for the dissertation. After which all the recordings will be deleted from the device. The device is password protected for added security for these files.

### **Safety and Risk**

- x Has a risk assessment been completed? Yes but unnecessary.
- x Is there a possibility that the safety of the researcher may be in question? (e.g. in international research: locally employed researchers)
- x Will the research take place outside the UK where there may be issues of local practice and political or other sensitivities?
- x Could the research impact negatively upon the reputation of the University, researcher(s), research participants, other stakeholders or any other party?
- x Do any of the research team have an actual or potential conflict of interest?
- x Are you aware of any other significant ethical risks or concerns associated with the research proposal? (If yes, please outline them in the space below)

Please describe the health and safety considerations in relation to both participants and researchers (250 words max): *If there are significant concerns an appropriate risk assessment and management plan must be attached.*

The first stage of research will via phone interview and the second online qualtrics link (not a physical meeting). There are no H&S risks identified.

*Other significant ethical issues or concerns: (If None, then please state 'None')*  
None

If any answer to the questions above is **YES**, then a **Second Stage (Full) Ethical Review MAY** be required.

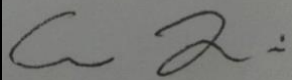
If the project involves **none of the above**, complete the **Declaration**, send this form and a **copy of the proposal** to **Amy Jones the School of Management Research Support Officer: amy.e.jones@swansea.ac.uk**. Research may only commence once approval has been given.

**Declaration:** *The project will be conducted in compliance with the University's Research Integrity Framework (P1415-956). This includes securing appropriate consent from participants, minimizing the potential for harm, and compliance with data-protection, safety & other legal obligations. Any significant change in the purpose, design or conduct of the research will be reported to the SOM-REC Chair, and, if appropriate, a new request for ethical approval will be made to the SOM-REC.*

**Signature of PI or PGR Student**



Signature of first supervisor (if appropriate)



**Decision of SOM-REC**

**Ethical Risk Assessment**

**Green**

**Yellow**

**Red**



<b>Signature of SOM-REC Chair or SOM-REC deputy Chair</b>	
Date	
SOM-REC Reference number (office use only)	

Appendix I: Summary of Supporting Literature for Qualitative Themes

Theme	Main Relevant Theories	Example Literature
<b>Innovation, Improvement and Evidence Based Practice Itself</b>	Innovation, Market Pull/Push Diffusion of Innovation Open Innovation	Damschroder (2021), Gustafson et al. (2003), Christensen et al (2000), Christensen, C.M. (2003), (Greenhalgh et al 2004), (Feldstein and Glasgow 2008), (Damschroder 2021), Nielsen (2021), (Damschroder 2009), (Kochevar and Yano, 2006).
<b>Capability</b>	Service Innovation, Kaizen, Lean, TQM	(Damschroder 2011,2021), (Colquhoun et al 2010), (Davies et al 2010), (Liang et al 2017) (Powell et al 2014), ( Grol et al 2005, 2007), (Mendel et al 2008), (Glisson 2005), (Estabrooks 2006, 2009), (Pronovost 2008), Edmondson et al. (2001); Fitzgerald et al. (2002); Greenhalgh et al. (2004); Gustafson et al. (2003); Simpson and Dansereau (2007); Weiner et al. (2004), Aarons et al. (2011)
<b>Motivation</b>	Service Innovation, Kaizen, Lean, TQM	Damschroder( 2009;2021), Pronovost (2008), Greenhalgh (2004), Rogers (2003)

<b>Facilitator Relationship</b>	New Concept	Not featuring in existing frameworks of implementation. Aarons (2014) is closest concept of collaboration.
<b>External Context</b>	Episodic and continuous change, Kotter 8 stage	Damschroder (2021), (Mendel et al., 2008), Pressman and Wildavsky (1973), (Cairney, 2012), Hanf and Scharpf (1978), Hjern (1982) and Hull and Hjern (1987), Bucknall and Rycroft-Malone (2010); Damschroder (2009,2021); Greenhalgh (2005); Grol (2005); Kitson et al (2008); Nilsen (2010); Nutley (2007), Watson et al (2018), Damschroder (2009, 2021), (Mendel et al 2008), Watson et al (2018)

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