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eHealth Strategy Development and Implementation: Interrelated Factors Impacting the Implementation of a National eHealth Strategy

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A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

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ABSTRACT

BACKGROUND New Zealand has a long history of developing and disseminating national plans and strategies to implement information technology (IT) in the healthcare sector. Health reforms post-2008 resulted in the creation of the National Health IT Board. In their new role, they published an influential iteration of an eHealth strategy in 2010 - the National Health Information Technology Plan. The district distribution of healthcare provision and responsibility in New Zealand increased the likelihood of disparate uptake of eHealth initiatives throughout the country. The National Health IT Plan was implemented with the goal of reducing that disparity to enable a national integrated healthcare model.

AIM This inductive, interpretive research study identifies major factors impacting the implementation of the National Health IT Plan in New Zealand by examining stakeholder perceptions of issues that facilitated and/or hindered the implementation process, with the aim of generating a theory in the substantive area.

METHOD An iterative grounded theory methodology was used to guide data collection, analysis, and reporting. Data was collected from two sources: first, from a public online discussion forum created to garner stakeholder feedback from the draft National Health IT Plan prior to its release. The data collected and analysed from the first phase was used to inform the interview schedule employed in the second phase of data collection. In the second phase, data was collected from interviews with 30 health sector stakeholders over a 10-month period. Analysis methods utilising the grounded theory process resulted in the emergence of a substantive theory grounded in the empirical data.

FINDINGS Through the inductive grounded theory analytical process, four final categories (combined to form the mnemonic GEAR) emerged indicating the interrelationship between key factors that impacted implementation of the National Health IT Plan – Government and Leadership, Engagement of Stakeholders, Aligning the Plan in Context, and Regionalisation to Sustain Implementation. The Government and Leadership category relates to the impact of the direction, control and leadership at central level. The Engagement of Stakeholders category represents the process and
methods by which stakeholders were targeted to influence buy-in to implementation. The Aligning the Plan in Context category outlines the impact of the national health sector context and culture. The Regionalisation to Sustain Implementation category reflects the impact of the existing District Health Board structure on implementation and the move for regional collaboration to promote long-term sustainability of eHealth initiatives.

**CONCLUSIONS** The similarities and contentions that existed between the differing perspectives of the interviewees wove the relationship between the concepts within the categories. This interrelationship, grounded in the data, forms the substantive theory on the influencing factors on eHealth strategy implementation in New Zealand. The presence of the four categories *together* contributed to influencing the implementation of the National Health IT Plan. Leadership at central level played a facilitating role in its implementation, and forward steps were taken in propagation and uptake of eHealth initiatives in the healthcare sector. However, issues of regional collaboration and resource allocation bound to a lack of governance structures hindered aspects of forward movement. Nonetheless, a significant artefact in catalysing progressive changes and engaging stakeholders was the use of strategic tools, used to frame a scope of parameters and to disseminate key aspects during each phase of implementation. As a tenet of grounded theory, these findings were extended with the literature to produce theoretical and conceptual links. It is suggested that a multi-level approach to eHealth strategy implementation requires at least four operative elements: a national leading organisation with a clear strategic vision and responsibilities, targeted tools to influence stakeholder buy-in, contextual alignment with the wider health sector, and clear governance structures to support collaboration at local and national level.

**KEYWORDS:** eHealth, health information technology, health policy, health plan implementation
ACKNOWLEDGEMENTS

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I have to acknowledge and thank my family who have done nothing but encourage me to do well and succeed in all aspects of my life. To my father, I know you wanted me to finish the PhD in one year (I know because you often asked me, ‘are you finished?’) despite me insisting it was impossible. I hope this deadline is still agreeable. Teasing aside, your uncompromising support and all you do to ensure your children get the best education and opportunities available does not go unappreciated. I have to equally thank my mother, who despite still not understanding what I am doing gives her one-hundred-percent attention and unfailing encouragement. She also tells wonderful stories that are a great escape on those days when you need something to distract from the stress and deadlines. To my three siblings – Ammro, Faten, and Aadel – thank you for the encouragement and the competitive spirit, it kept me pushing forward knowing there are two engineers and a soon-to-be doctor in the family.

During any student’s PhD journey, we soon realise that our families and supervisors are not the only ones who help us get through it all. The support groups, discussion groups, and professional and administrative staff at the University of Auckland have always been beneficial in a variety of aspects to support and further my learning. The end of the journey is as important as the beginning; I would like to thank Carrie Turner for her help in proofreading the thesis. Lastly, I would be remiss not to mention the participants who gave a substantial amount of their precious time to share their knowledge. Before I conducted my first interview, Dr Day reminded me that your time
is a gift. The contents of those precious gifts are displayed here, and hopefully I have unwrapped them with care.
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LIST OF ORIGINAL WORK

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CHAPTER

1

Introduction
Chapter 1: Introduction

“By three methods we may learn wisdom: First, by reflection, which is noblest; second, by imitation, which is easiest; and third by experience, which is the bitterest.”
Confucius
Chinese philosopher

1.1 Introduction
In this introductory chapter I formulate the foundations for this research. Using grounded theory methodology, I engage with stakeholders to investigate factors facilitating and hindering the implementation of New Zealand’s national health information technology (IT) strategy. The research culminates in the presentation of one core category – Influencing eHealth Strategy Implementation – emerging through the analytical process resulting in a substantive theory. The research presented will demonstrate the interrelation of the four emerging categories that compose the core category, providing a substantive theory of strategy implementation in eHealth in New Zealand.

1.2 Why eHealth strategy and implementation?
The challenges facing healthcare systems in the 21st century are well documented: an ageing population, increased prevalence of long-term diseases, increased technological developments, and contiguous complexity (World Health Organization, 1999; Kohn, Corrigan, & Donaldson, 2000; Jacobzone & Oxley 2002). In New Zealand, these challenges are compounded by an ageing healthcare workforce and higher use of general practice services by the elderly (over 65 years of age) (Cornwall & Davey, 2004), all of which put increased pressure on the nation’s resource allocation.
Healthcare systems around the world are being faced with rising healthcare costs and limited resources. The availability of and access to good health information allows for better decision making both in the clinical setting and in the policy process (Gray, 2001). The Organisation for Economic Co-Operation and Development (OECD) Health Policy Studies report on strengthening health information infrastructure states:

“Health data constitutes a significant resource in most OECD countries and it makes economic and ethical sense to use this data as much as possible: to improve population health and to improve effectiveness, safety and patient-centeredness of healthcare systems. Rising levels of chronic disease and multi-morbidity; concerns about the quality and safety of patient care; the need to measure and assure value for money for investments in health; and the need to allocate health system resources wisely are all too important to leave without good evidence for decision making.”

(OECD, 2013, p.13)

Health Ministers from the OECD nations that gathered to deliver the report emphasised the importance of better health information systems and noted that the expanded use of health IT, “particularly electronic health records, can help to deliver better quality of care, reduce medical errors, and streamline administration” (OECD, 2013, p.13). Integrated health systems are considered part of the solution to the challenge of sustaining any healthcare system. It is imperative that best practice and means of controlling costs go hand in hand when developing and applying healthcare policy (Hillestad et al., 2005).

Effective health policies are an integral factor in improving public health and ensuring effectual resource allocation. Policy change – referring to macro-level shift in existing structures or creation of new policies – has influenced many of the great health achievements of the 20th century to today (Brownson, Seiler, & Eyler, 2010). Policies that support strategic development and
implementation are related to health IT implementation successes (Jennett et al., 2004; Leonard, 2004). Significant investment in eHealth initiatives has been made globally (Anderson, Frogner, Johns & Reinhardt, 2006). Scott and Mars (2013, p.e155) state:

“Absent, poor, or vague eHealth strategy is a significant barrier to effective investment in, and implementation of, sustainable eHealth solutions and establishment of an eHealth favourable policy environment. Strategy is the driving force, the first essential ingredient that can place countries in charge of their own eHealth destiny and inform them of the policy necessary to achieve it.”

Since 2011, the European Union, the Commonwealth, the World Health Organization (WHO), and the International Telecommunications Union (ITU), to name a few, have revitalised interest in eHealth strategy (Jones, 2011; World Health Organization, 2012). The WHO in collaboration with ITU released the eHealth Strategy Toolkit in 2012, an extensive document providing a general basis for components and processes for strategy development. However, although documents like the WHO’s Toolkit provide insight they do not provide an evidence base, and “specific guidance for individual countries or institutions to design and develop their own eHealth strategy is unclear and is lacking in the literature” (Scott & Mars, 2013, p.e155).

Although eHealth is being applied globally more than ever (Anderson et al., 2006; Scott, Mars & Hebert, 2012), “seldom have health organisations, countries, or geographic regions had a proper eHealth strategy to guide implementation” (Scott & Mars, 2013, p.e155). This prompted me to ask the question: Why have we not seen more successful IT implementation in healthcare, and what role does policy play? Failure is a social construct, perceptions of which can vary over time and between individuals (Larsen & Myers, 1999; Bovens & Hart, 2011). There are controversial international examples of perceived ‘failed’ national initiatives – like the United Kingdom’s
National Programme for IT, largely reported due to its multi-billion pound cost (Comptroller and Auditor General, 2011) – and progressive examples – like the Dutch system (Bhanoo, 2010). However, even those ‘successful’ examples have challenges (Kierkegaard, 2013).

Although many government and international agencies have indicated that IT and broader eHealth initiatives are a key priority of their healthcare agenda, eHealth policy development has occurred with little consideration from policy elsewhere (McConnell, 2004; Scott, Chowdhury & Varghese, 2002). This does not mean that entities, whether countries or healthcare organisations, should emulate or directly apply practice from elsewhere, as solutions and approaches should be context-specific. Rather, Greenhalgh & Stones (2010) suggest using theoretical synthesis (and specific conjectures at a particular time and place) with philosophical roots to support informed judgements on the planning, design, and implementation. Useful strategy can then be developed through further critical examination of what other entities have done and contextually adapting and modifying learnt principles. An investigative strategy adopted here.

1.3 The study rationale: Why New Zealand?

At national level, rules, guidelines, and incentives are used to clarify what the national goals are (Khoja, Durrani, Nayani & Fahim, 2012; Scott et al., 2002). To date, eHealth policy or strategy has been defined at national level in countries including Australia, Canada, Denmark, the United States (US), the United Kingdom (UK), and New Zealand. Federal and local/state support is viewed by many as a strategic priority, especially in countries like Canada and Australia (Scott et al., 2002). The advanced health IT usage reported by Australian, Dutch, and New Zealand doctors reflects national eHealth policies (Jha, Doolan, Grandt, Scott, & Bates, 2008).

New Zealand has a longstanding history of eHealth strategies. This thesis commenced in March 2011, less than a year after the publication of the
country’s 2010 National Health IT Plan. Since 1991, the New Zealand Government has been examining the role of information management systems within the healthcare sector. New Zealand (like the UK, Australia, and Canada) has created standards, funding and communication between health information systems that has allowed it to become a leader in computerising health information (Arnold, Wagner, Hyatt & Klein, 2007). Congruently, and as a result, a series of national strategies have been published with varying degrees of implementation – Health Information Strategy (1991), Health Information Strategy for the Year 2000 (1996), Working to Add Value through E-Information (2001), Health Information Strategy for New Zealand (2005), and the National Health IT Plan (2010), and the National Health IT Plan Update 2013/14 (2013).

The literature on the eHealth strategies in New Zealand is limited. In the past four years the conference proceedings or literature specifically on strategy implementation issues in this country generally result from peer-reviewed work generated from this thesis (namely, Ragaban, Day, & Orr, 2011; Ragaban, Day, & Orr, 2013a; Ragaban, Day, & Orr, 2013b). Much of the research and literature in New Zealand is focused on other aspects of eHealth including particular initiatives (Warren, Yulong, Day, Pollock, & White, 2012), robotics (Jayawardena et al., 2010; Broadbent et al., 2011), and mobile health (or mHealth) (Whittaker et al., 2009; Whittaker, Merry, Dorey & Maddison, 2012). Identifying an existing international gap and further pinpointing a gap in New Zealand, I wanted to take Greenhalgh & Stones’ (2010) suggestion and apply theoretical, informed understanding and methodologies to the implementation of the National Health IT Plan.

1.4 The research problem and questions
My objective is not to explore the multi-dimensional question posed earlier – *Why have we not seen more successful IT implementation in healthcare, and what role does policy play?* Success is a difficult word to define in healthcare
because there are a variety of viewpoints. Furthermore, what measures do you use for success – adoption of IT initiatives, resource allocation, efficiency of care? There are too many factors even to name. Instead we can break the question down further, concentrating specifically on strategy with a focus on New Zealand’s National Health IT Plan. What goes into the formulation of the eHealth strategy? What factors (e.g. historical, environmental, political) impact strategy development? How do those issues impact implementation, if at all? Is the eHealth strategy useful to stakeholders? What impact is the strategy having on the healthcare landscape?

The opportunity afforded by this research is that rather than retrospectively investigating the answers to many of these questions I am able to uniquely apply grounded theory methods during the implementation process and investigate issues as they arise. I am able to explore stakeholder perceptions of eHealth strategy implementation, investigating the research problem through the answering of the following research questions:

1. How do stakeholders perceive the National Health IT Plan prior to its implementation?
2. What are the major issues impacting implementation of the National Health IT Plan?
3. How are these issues impacting uptake of eHealth initiatives?

There is an opportunity to examine factors that facilitate or hinder implementation, and if possible identify resolute measures to counteract these issues. My intent is not to pose a hypothesis, per the grounded theory methodology (Glaser & Strauss, 1967) but rather to answer the questions through in-depth analysis of discussions with stakeholders throughout the North and South Island of New Zealand. The answers to the research questions will be presented in subsequent chapters as they emerge from four months of analysis of an online discussion taking place prior to the implementation of the Plan, followed by a period of 10 months of interviews in the field across both
islands. I resolve to immerse myself in the field to understand and disentangle the patterns and relationships emerging from the data.

1.5 Methodology overview

Grounded theory methodology can be traced to the seminal work “The Discovery of Grounded Theory” (1967) by sociologists Barney Glaser and Anselm Strauss. Grounded theory studies start with relatively open research questions and contend that the researcher should have little to no prior knowledge in the subject field (in this case, health IT and strategic implementation). Through an inductive analytical method, data is simultaneously collected, compared, and analysed (Glaser & Strauss, 1967; Glaser, 1992). For this thesis, data is collected in two ways – via an online forum and through one-on-one in-depth interviews. Through a set of methodical research procedures, the data (contributor feedback and interview transcripts) is coded – a process where segments of data are labelled, which simultaneously categorises, summarises, and accounts for each segment. Categories are subsequently identified and the relationships between them are established (Glaser & Strauss, 1967). The systematic research process results in the generation of a (substantive) theory ‘grounded’ in the data (Glaser & Strauss, 1967). Although Glaser and Strauss later divided due to variation in interpretation of the grounded theory approach, many of the tenets of the methodology are similar. In the Methodology chapter, grounded theory will be discussed further and the choice to utilise Glaserian grounded theory, or classic grounded theory, will be reinforced.

1.6 How this PhD topic evolved

Before starting my PhD thesis I never really understood the idiom ‘in the right place at the right time’ – until I was in the right place at the right time. I was three months away from submitting my Masters dissertation and contemplating the next stage of my life. Through the course of working on my Masters
dissertation, my interest in macro-level decision making in regard to health IT implementation was piqued. In combination with my growing interest, I had just returned from attending the 2010 Health Information Management and Systems Society (HIMSS) Policy Summit in Washington, DC. As a South Carolinian and in conjunction with other HIMSS delegates, I was able to visit and speak with Congressional members (specifically, their representatives) about the importance of supporting health IT legislation in the US. This summit was especially pertinent as the Health Information Technology for Economic and Clinical Health (HITECH) – part of the American Recovery and Reinvestment Act – was approved and the first Meaningful Use stages were being implemented. This multi-billion-dollar stimulus was the first national top-down instance of a unified, and legislative, electronic health record (EHR) policy implementation in the US.

Coincidentally, a few months after returning from the US, the New Zealand National Health IT Plan was put forward for public discussion and I became aware of the town hall meetings the National Health IT Board members, who developed the Plan, were undertaking to present to stakeholders. I was able to attend an event and saw a research opportunity matching my interests. I approached my now supervisors Dr Karen Day and Dr Martin Orr about pursuing a PhD. They also were interested in the topic I proposed, and I submitted a PhD Expression of Interest (a preliminary research proposal).

Initially, the preliminary research proposal was a comparative policy analysis of eHealth policies in four OECD countries: New Zealand, the US, Canada, and the UK. Over the course of the first year of my doctoral studies, I explored this topic and tried to establish guidelines to adequately undertake the comparative analysis. The grounded theory methodology gave reasoning to this type of exploration without getting too engulfed in the literature to cloud conceptions. Unfortunately, the scope was too large and the healthcare systems too disparate to accomplish meaningful results within the allowed time at The University of Auckland. As a result, it was more manageable and had more
potential to contribute to knowledge in New Zealand, where there is a lack of research on eHealth policy and implementation, to focus on the country’s National Health IT Plan. With a justified methodological approach, such as grounded theory, the findings could then be readily and economically modifiable in certain contexts, as will be discussed in more detail in the Methodology chapter.

1.7 Thesis structure

In this sub-section I will briefly describe the following chapters as a guiding overview of the flow of the thesis.

In Chapter 2: Literature Review, the foundational literature is presented. I explore in more detail health sector issues and the rising use of IT to aid in reducing the scale of those issues. I then examine the role of policy and strategy in guiding the adoption of IT initiatives in healthcare. Lastly, I focus specifically on New Zealand’s relevant health system reforms and the impact of health IT strategy over the past two-and-a-half decades in establishing the current health system landscape.

In Chapter 3: Methodology, the inductive research procedures utilised are presented and described. I present my interpretive stance, justified by ontological and epistemological assumptions. I explain the interview study research design and detail the grounded theory methodological processes in informing data collection, data analysis, and theory building.

In Chapter 4: Findings: Harvesting the HIVE, I present the first phase of data gathering, analysis, and findings. I devote this chapter to investigating an online public forum used to gain feedback on the draft National Health IT Plan to answer the research question: How do stakeholders perceive the National Health IT Plan prior to its implementation?

In Chapters 5 and 6, I first establish the foundations for the interview findings. I provide context and detail application of methodological processes. In
Chapter 6: Findings: Issues GEARed Toward Implementation of the National Health IT Plan, I present the findings utilising the canons of grounded theory, presenting the categories that emerged, integrated with quotes from participants.

In Chapter 7: Theory & Conceptualisation, I summarise the substantive theory that emerged from the findings, interrelate the concepts, and theoretically extend the findings with relevant literature. Lastly, in Chapter 8, I present the conclusions. I reflect on the research questions; I state my contribution and the theoretical, practical, educational, and future research implications; and explain limitations of this study. I then evaluate this interpretive field study and make concluding remarks regarding the thesis.

1.8 Conclusion

In this chapter I have given context to and introduced the principal problem and research questions that guide this research study. I then briefly presented an overview of the grounded theory methodology utilised in the collection of, analysis of, and reporting of the findings. I have taken some time to explain the evolution of this research, some of the devolution of which will be presented in the literature review. Lastly, I have summarised the content of the following chapters to give both an outline of the structure and a guide to the flow of the data collection and analytical process that culminated in the emergence of the substantive theory.
CHAPTER 2

Literature Review
Chapter 2: Literature Review

“To know that we know what we know, and that we do not know what we do not know, that is true knowledge.”
Nicolaus Copernicus
Polish Astronomer

2.1 Introduction

In this chapter, the foundational literature is presented to identify pertinent research issues. A key feature of grounded theory methodology is that the researcher “has to set aside theoretical ideas in order to let the substantive theory emerge” (Urquhart, 2013, p. 7). The idea is the literature should be referenced after the researcher builds the theory (Glaser & Strauss, 1967). However, no one enters the research process as a blank slate. Moreover, the University of Auckland’s doctoral process requires that the provisional year be spent on exploring the literature. Rather than cloud my perceptions I used this as an opportunity to build a chapter that first explores the literature to understand the role of IT in healthcare and the impact of eHealth strategy and policy. Lastly, I will focus on the New Zealand context, exploring healthcare reforms in this country, concentrating on previous and current eHealth strategy. In subsequent chapters, the literature will be further utilised to aid in contextualisation and understanding, and in latter chapters to extend the discussion and build the substantive theory as it emerges.

2.2 The impact of eHealth on the healthcare sector

Since the 1960s the use of IT has grown exponentially in healthcare (Maheu, Whitten & Allen, 2001; Dansky, Thompson, & Sanner, 2006). In recent years, the rapidly rising cost of healthcare in most developed nations has raised concerns that despite growing financial resource expenditure, quality and efficiency of care is still suboptimal (Corrigan, Donaldson, & Kohn, 2001; McGlynn et al., 2003). The use of health IT in general and, in particular, the use of EHRs are increasingly viewed as tools useful in
improving the quality, safety, and efficiency of health systems (Chaudhry et al., 2006; Institute of Medicine, 2009; Catwell & Sheikh, 2009; Black et al., 2011). Furthermore, technology has the potential to reduce healthcare expenditure and thus eHealth appears to be a “powerful force of change for the healthcare industry worldwide” (Wickramasinghe, Fadlalla, Geisler & Schaffer, 2005, p.318).

The term eHealth has grown in its use by individuals, academics, professional bodies, and funding organisations since the 1990s despite the lack of an agreed definition. Oh, Rizo, Enkin & Jadad (2005) conducted an in-depth exploration into the definitions of eHealth and found at the time 51 unique definitions of eHealth with no clear consensus on the terms meaning. Essentially, they found that all definitions encapsulate eHealth as the leveraging of IT in healthcare. I present two of the commonly referred to definitions in the literature. The WHO (2005, p.121) defines eHealth as:

“The cost-effective and secure use of information and communication technology in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge and research.”

The WHO’s definition is broad and captures a global perspective, true to the mission of the organisation itself. The oft quoted definition of eHealth in the literature – based on Oh et al.’s (2005) review – is Eysenbach’s (2001, p.e20) still inclusive but slightly more narrowed definition:

“e-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterises not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology.”

Eysenbach states his definition is “broad enough to apply to a dynamic environment such as the Internet and at the same time acknowledges that e-health encompasses more
than just ‘Internet and Medicine’” (Eysenbach, 2001, p.e20). As it allows for this flexibility due to the dynamic environment, Eysenbach’s definition is adopted for this thesis.

As the definition implies, there are a number of components of eHealth. The evolution of digital communication and computerisation has affected almost every aspect of our lives, most importantly in the healthcare sector. EHealth initiatives including EHRs, computer-assisted prescription systems, and clinical decision support systems are transforming health (Haux, 2006). Initially, computer access to information in healthcare was limited to billing and scheduling (Audet et al., 2004). Traditional health information systems evolved from facilitating everyday duties such as admissions, discharges and transfers to more advanced tasks such as clinical information management and the electronic access to and transmission of diagnostic tests (Shortliffe, 1999). Over the past few decades there has been a substantial shift from paper-based processing and patient information storage to computer-based forms of collection and storage (Haux, Ammenwerth, Herzog & Knaup, 2002). Limitations of paper-based information collection are apparent once you realise the vast fragmentation within healthcare and the large volume of information collected (Chaudhry et al., 2006).

2.3 The growing call for eHealth policy

National governments and healthcare organisations are finding it necessary to have health IT systems in place. They are implementing them as useful tools to identify crucial health issues in order to improve strategic planning (Shortliffe, 1999). EHealth policy is nebulous being defined as strategy, principle, plan, road map, and so forth both in the literature and in between different organisational and national documents (Scott et al., 2002). I will call these policies under the umbrella term ‘top-down’ support, which is one of the most influential factors necessary for successful EHR implementation. Kucukyazici, Keshavjee, Bosomworth, Copen, & Lai (2008) conducted a comprehensive study and identified governance – being the goals of policymakers in the pre-implementation, implementation and post-implementation phases – as a critical factor for EHR adoption. Implementation strategies with good governance were six times more likely to succeed than those with poor governance. It
demonstrates that real commitment from the top can either facilitate – progress forward – or hinder – delay or halt progress – implementation (Townes, Benson, Johnson & Vaughn, 2000).

The task of developing and implementing eHealth strategies is not simple. The European Union has argued that implementing eHealth strategies is complex and time consuming despite the progress they have seen (Watson, 2010). Due to the large scale and complexity of health information, the aid of eHealth strategy can be a means through which nations and healthcare organisations can meet their healthcare goals (Kucukyazici et al., 2008). In order to establish an integrated health IT landscape, essential accompanying measures are required. These include policy goals in line with the needs of the health sector and available resources. There has to also be a desire to create an atmosphere that is ready to adopt and implement necessary changes for the better of the provider and the patient (Deutsch, Duftschmid, & Dorda, 2010). Wickramasinghe et al. (2005) indicate that to be more effective in their eHealth initiatives, countries need to develop strategies and policies to effectively formulate and implement appropriate eHealth initiatives. A WHO report further supports this, stating, “the most favourable approach to the implementation of e-health at the national level is to have a framework of strategic plans and policies which lay the foundations for development” (Kay, van Andel, Klint & Tristram, 2006, p.15).

New Zealand has a history of national level eHealth strategies. To understand the various iterations, it is essential to first explore the health system reforms that lead to the formation of each.

2.4 Health system reforms and eHealth strategies in New Zealand

New Zealand is a developed nation with a population of approximately 4.6 million people (Statistics New Zealand, 2015) distributed unevenly across the North and South Island. To understand the health system reforms in New Zealand it is first important to point out that the country has a tax-based health service. Of the total health expenditure, 83.2% is financed from public sources (Ministry of Health, 2012a). The provision of primary healthcare services is through self-employed private practitioners while
hospital (secondary) services are delivered in state-owned institutions (Ashton, Mays, & Devlin, 2005).

2.4.1 Purchaser-provider split and the advent of the DHBs

Like the health reforms sweeping many developed nations around the globe through the 1980s and 1990s, so too was New Zealand facing a public sector reform movement (Gauld, 2009). Before the 1980s, secondary and some community-based services were delivered regionally and were gradually restructured by the second half of the 1980s into Area Health Boards. However, growing problems with the Area Health Boards (Upton, 1991) saw their abolishment by the incoming conservative government in July 1993. Considered “one of the most radical health sector restructurings witnessed anywhere in the world” (Gauld, 2009, p.77), the new system was largely driven by quasimarket theories in which provision of services on behalf of patients would be purchased and provided by separate organisations – known as the purchaser-provider split (Upton, 1991).

Changes and reforms continued over the next few years. On the purchaser side, four Regional Health Authorities were established as purchasing agents (Ashton et al., 2005). By 1997, the Regional Health Authorities were combined to form a single national purchasing agency, the Health Funding Authority. On the provider side, the Area Health Boards went through a series of re-configurations, eventually re-named Hospital and Health Services (Coalition Government, 1996). In 1999, there was a shift in power as the Labour Government was elected. The new Government subsequently introduced a number of national health goals concentrated on making improvements in the area of public health (King, 2001). Among their criticisms of the health system, the Labour Government considered the Health Funding Authority/Hospital and Health Services system lacking in leadership, lacking in clear vision, not accountable to either government or communities due to the funder-purchaser-provider split, and with no clear structure for feeding back advice to government regarding health issues (Gauld, 2009). A year later, the Government abolished the Health Funding Authority and established the District Health Boards (DHBs), replacing the single purchaser model with the DHBs.
Designed to democratise and decentralise planning and decision making, 21 DHBs (becoming 20 in 2010 after a merger between two DHBs) were established, funded according to a weighted population-based formula that takes into account socio-economic status, ethnicity, and age of the local populations (Devlin, Maynard, & Mays, 2001). Figure 2.1 shows a simplified structure of the New Zealand health and disability sector with the advent of DHBs. Under the new system, each DHB dictates the budget and can either provide or purchase primary and secondary services (Devlin, Maynard, & Mays, 2001) while some healthcare services would remain centrally funded (Gauld, 2009). The Government also directed the creation of primary health organisations (PHOs) focused on a series of improvements in the care of patients and their access to healthcare (King, 2001).
With the creation of the DHBs, the Ministry of Health’s (MOH) own responsibilities then shifted to focus more on policy-level issues and ministerial advice. As a result, the National Health Board (NHB), chaired by the Ministerial Review Group, was established at the central government level to assume some of their former functions with full “responsibility for all matters pertaining to monitoring, funding, and organisation of the DHBs” (Laugesen & Gauld, 2012, p.111). The post-2008 reforms also led to the creation of new organisations. The Ministerial Review Group Report,
Meeting the Challenge – also called the Horn Report after the report’s author Dr Murray Horn – commissioned in 2009, resulted in the addition of other organisations including Health Workforce New Zealand, the Health Quality and Safety Commission, and Health Benefits Limited (Ministerial Review Group, 2009). The Horn Report also focused on the health IT sector and the need for change in coordination and leadership stating:

“...the sector is currently inundated with too much information and too many IT projects. Literally each national health programme results in another ‘national collection or database’. These current national collection and provider systems are not easily linked up to provide a ‘patient or person-centred’ view. This ignores the fact that for most people they will have more than one health issue that needs treatment and/or management.”

(Ministerial Review Group, 2009, p.12)

As a result, the National Health IT Board (subsequently referred to interchangeably as the Board) was created to fulfil the leadership role and coordinate IT implementation in New Zealand.

2.4.2 eHealth strategies: From Health Information Strategy to HIS-NZ

With the health system reforms, largely associated with change in central government power, so too were there evolving eHealth strategies in New Zealand. Figure 2.2 presents a timeline of the strategies. Since the early 1990s, the New Zealand Government has examined the role of information management systems within the health sector. There were indications that access to patient health information was not available in a timely manner. This was prompted by deficiencies in accessing reliable information on outcomes, effectiveness, and cost of service delivery. Furthermore, limited national level coordination and expertise in health information management and systems were also evident (Al-Qirim, 2005).
In 1991, the national Health Information Strategy was released (Department of Health, 1991). Soon after the 1993 health system reforms, the New Zealand Health Information Service (an entity of the MOH) was created to implement the Health Information Strategy with the intent to address the lacking relevancy, timeliness, and accuracy of patient health information (Shipley, 1996). Additionally, the National Health Index (NHI) was established in the same year, providing a unique seven alphanumeric identifier for each patient, which plays an important role in the access and exchange of patient health information (Ministry of Health, 2012b). With significant improvements realised, the MOH decided to take stock again five years later, releasing the Health Information Strategy for the Year 2000 in 1996 (Shipley, 1996). The stated vision proposed for the year 2000 was:

“Timely, accurate and robust information appropriate to their roles and needs will be available to all individuals and agencies involved in the provision of health and disability support services, and to consumers with knowledge, agreement and confidence of everyone, which will facilitate the ongoing, continuous improvement in the health and disability status of all New Zealand people.”

(Shipley, 1996, p.6)
In 1999, the MOH was tasked with the role of developing a health strategy for the
country and the New Zealand Health Strategy was launched in December 2000 (King,
2000). The purpose of the strategy was to set guiding principles for the health sector
and for the new DHBs. With the health system re-structuring and realisation that “over
the past six years, the world of information technology has leapt ahead with the
exponential growth of the World Wide Web, networked organisations and universal
acceptance of electronic information ” (p.1) an Advisory Board was created to develop
an IT plan for the healthcare sector (The WAVE Advisory Board, 2001). Named the
Working to Add Value to E-Information (or WAVE) Report, the WAVE Report was
not a detailed plan but rather a presentation of 79 recommendations of main actions the
MOH and the healthcare sector should take to gain better value from the health
information systems (The WAVE Advisory Board, 2001).

Since then, New Zealand (like Canada and Denmark) has created standards, funding,
and communication between health information systems that has allowed it to become
a leader in computerising health information, particularly in primary care (Schoen et
al., 2012). The two most recent health strategies that are poignant to understanding the
current health IT climate are the New Zealand Health Information Strategy (HIS-NZ)
and the National Health IT Plan (and its 2013/2014 update). The HIS-NZ was
developed in 2005 to support the New Zealand Health Strategy and built on the
foundations of the Health Information Strategy for the Year 2000 and the WAVE
Report (Health Information Strategy Steering Committee, 2005). Although primary
care in New Zealand has near universal IT use (Schoen et al., 2012), there is variation
at the secondary and tertiary service level (Jha et al., 2008) and between DHBs. HIS-
NZ points out that IT use and readiness throughout the country is disparate and states:
“organisations are at different stages of evolution in their use of information systems and technology to manage health information. As a sector, we have to support those with less developed capability so that they can evolve, while at the same time allowing more capable organisations to continue to evolve.”

(Health Information Strategy Steering Committee, 2005, p. 14)

HIS-NZ set benchmark targets to be achieved over three to five years from implementation. The strategy was meant to benefit patients, care providers and organisations, funders, and policymakers. Consumers would benefit by receiving targeted care and be more directly and electronically engaged with their care providers. Healthcare providers would have access to evidence-based information on which to base interventions. The goal of HIS-NZ was to support connected and up-to-date information about the population’s health status to better target services aimed at delivering better health outcomes (Health Information Strategy Steering Committee, 2005).

To realise the benefits to the stakeholder, six priorities for HIS-NZ were identified in alignment with the New Zealand Health Strategy:

- The first priority is for the enablement of secure access and connection to health information to ensure secure communication.
- The second priority builds on the first, and is meant to ensure that core national systems that provide shared data are in place.
- The third priority is to create higher-level EHR components to make the sharing and access of key event summaries easier. This encourages improved quality of care and coordination of care.
- The fourth priority picks up from there by stressing the need for broadened dialogue between primary and secondary care so that information is properly transferred in a timely manner.
- Beyond primary and secondary care, there are gaps in other health services where the collection of health information is needed; that is the initiative of the fifth priority.
The last priority is aimed at the bigger field of population health. By improving access to national health information repositories, decision makers can make better evidence-based decisions.

Identifying these national priorities aided the development of ‘action zones’ where effort should be focused to ensure the target priorities are met (Health Information Strategy Steering Committee, 2005).

2.4.3 The National Health IT Plan: Enabling an integrated healthcare model

In September 2010, the National Health IT Plan (subsequently referred to interchangeably as the Plan) was published with the intent of further improving health IT utilisation and the overall performance of the New Zealand health system. The Plan sees the need for a more cohesive programme of implementation to enable an integrated healthcare model. The Plan was created to achieve an eHealth vision for New Zealand:

“To achieve high-quality health care and improve patient safety, by 2014 New Zealanders will have a core set of personal health information available electronically to them and their treatment providers regardless of the setting as they access health services.”

(National Health IT Board, 2010, p.5).

The goal is a sustainable environment fostering quality care while being patient-centred and provider-friendly (National Health IT Board, 2010).

The Plan points out the current issues facing health IT in the country:

- Dispersed disparately across the 20 DHBs, the ecosystem is characterised by a large number of individual systems.
- Attempts to bring patient information into a single patient-centric view are very difficult.
- Certain DHBs where large, integrated systems exist, duplication of data and function are evident.
- Variation exists as patient information is retrieved and processed inconsistently.
• Existence of the lack of compatibility between different organisations when the same IT system is implemented.

To tackle the above issues, the Board specifies in the Plan that consolidation and integration of systems as well as cooperation within the healthcare sector is necessary (National Health IT Board, 2010). Two documents support the Plan’s integrated and coordinated care approach – the incumbent National Government’s ‘Better, Sooner, More Convenient’ policy and a 2010 amendment to the Health and Disability Act. The Better, Sooner, More Convenient healthcare policy aims to integrate healthcare across primary and secondary care with patients at the centre of service delivery (Ministry of Health, 2011a). The regional structure – encouraging geographically close DHBs to work with one another – was supported with amendments in June 2010 to the New Zealand Health and Disability Act to enable DHBs to act regionally (New Zealand Government, 2010). The Plan outlines support for regional and national health system platforms. In Table 2.1 from the Plan, the Board outlines the need for change, specifying what needs to cease and what actions should continue, or commence.

<table>
<thead>
<tr>
<th>Cease</th>
<th>Continue or commence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing solutions in silos</td>
<td>Developing well-designed solutions (that can be re-used) on top of standard foundations</td>
</tr>
<tr>
<td>Making individual (local) investment decisions</td>
<td>Making national and regional investments</td>
</tr>
<tr>
<td>Having too many projects and priorities</td>
<td>Having fewer, achievable deliverables that can be sustained</td>
</tr>
<tr>
<td>Changing systems urgently as a result of policy-driven demands</td>
<td>Aligning policy with overall strategy, and meeting short-term policy needs with appropriate short-term information solutions</td>
</tr>
<tr>
<td>Developing policies and service contracts without taking into account operational realities</td>
<td>Encouraging strong engagement between policy and operational groups in all policy development activities</td>
</tr>
<tr>
<td>Re-inventing the wheel</td>
<td>Sharing knowledge, agreeing on problem definitions and agreeing on the best solution</td>
</tr>
<tr>
<td>Not finishing projects properly (e.g. national roll-outs)</td>
<td>Committing to an agreed implementation plan (with accountabilities)</td>
</tr>
<tr>
<td>Having multiple competing (or isolated) innovation cycles</td>
<td>Recognising and promoting partnerships with centres of excellence</td>
</tr>
<tr>
<td>Piloting projects and then not picking up the outcomes for wider implementation</td>
<td>Evaluating pilot outcomes, communicating clinical benefits and investing in the roll-out initiatives that have convincing and compelling outcomes.</td>
</tr>
</tbody>
</table>

Much like HIS-NZ, the intent is for the Plan to be put to work over the next five years, to be accomplished in two phases. The first phase is the consolidation, cooperation and foundation phase (set for July 2010 to June 2012). It is focused on providing
improvements in current solutions. This includes delivering solutions to provide improved access to health information, better transfer of health information, and capturing clinical information into regional data repositories (National Health IT Board, 2010). The second phase of the plan is focused on ‘shared care’ and higher decision support capabilities (set for July 2010 to December 2014). There are three key concepts covered within this phase. The first is the collection of patient health and demographic information; second, using that information to plan a course of care for the patient; and third, supplying reference information and support to clinicians so that they can create an optimal shared care plan for the patient (National Health IT Board, 2010).

The goal is to provide and implement appropriate health system interventions to optimise the care and health outcomes of the patient. To do so DHBs are to work regionally to consolidate systems in secondary and tertiary care settings into regional and national platforms that align with the Plan’s targets (National Health IT Board, 2010). These systems were later outlined on the Board’s website as shown in Figure 2.3. The figure – also referred to as the ‘window pane’ figure – shows the priority programmes. The Board indicates these “programmes share a common operating environment, national infrastructure, secure connectivity and IT capability and health identify information systems” (National Health IT Board, 2015, para. 1). Furthermore, on 1 October 2010, the Board conducted a baseline regional readiness assessment to map progress of each DHB and region toward consolidating their systems with the Plan's targets and priority programmes. Available online (http://healthitboard.health.govt.nz/our-programmes/regional-progress), the readiness assessments are conducted every three to six months.
Figure 2.3 ‘Window pane’ figure showing priority programmes from the Plan (Source: National Health IT Board, 2015).

2.4.3.1 The 2013/14 Update

In November 2013, the Board released an update to the Plan. The Update was released after the interviews to collect data for this thesis were conducted and were being analysed but is still worth noting here. The National Health IT Plan 2013/14 Update builds on the September 2010 version of the Plan. Taking a lessons learned approach, the document outlines achievements since 2010, prioritised programmes (shown in Figure 2.3), and signals the future direction for 2015 to 2019. Lastly, the Update indicates that there is still work necessary moving forward and will use key performance indicators to continue to monitor and measure implementation progress (Ministry of Health, 2013).
2.5 Conclusion

In this chapter, the literature was examined and presented providing a base of understanding for the relevant research issues. Although grounded theory urges the researcher not to peruse the literature this early, Urquhart (2013) suggests it is acceptable for those who do as “it’s the use to which the literature is put, not the act of searching the literature in itself” (p.7). For this chapter I utilised the literature to gain context and understanding and clarify terminology. As a non-New Zealander it was also important to have some understanding of the historical context as earlier health system reforms impacted eHealth strategies. The process of gaining this understanding has helped establish for me a foundation to make my time in the field more efficient and will make my time during the interviews more lucrative.
CHAPTER 3

Methodology
3 Methodology

“An open mind is not an empty head”
Dr Ian Dey
Professor, Social Policy
University of Edinburgh

3.1 Introduction

In Chapter 2, an introductory review of the literature described the background and laid a foundational understanding of the issues relevant to this research study. In this chapter I provide the methodological procedures, introducing an overview of the research process. The Methodology chapter provides justification for the methods used, commencing from general aspects to a detailed explanation of the research procedure.

Following research design building blocks, this chapter is presented in sections. In the first section, I present my ontological and epistemological assumptions with a justification of the adopted interpretive approach. The second section provides discussion on the use of the grounded theory approach. It outlines the basic tenets of the methodology with a brief discussion on the two divergent streams of the founders of this approach and an explanation of why I chose one over another. In the last three sections, I present and explain the stages of data collection and analysis and the process of theory building. The key stages and cycles are introduced in this chapter and will be discussed in further detail, as they apply, in Chapters 4, 5, and 7.

3.2 Research philosophy

There are underlying assumptions in all research about what constitutes ‘valid research’, the context of the research, and which research methods are appropriate (Myers, 1997a). It is essential to present in this chapter the assumptions being made, and the likely approaches that will flow from them. Crotty (1998) proposes that researchers put effort into answering two questions when justifying research: What methodologies and methods are being employed and how do we justify these choices?
To answer the questions means to outline the research process which Crotty (1998) states is delineated by four elements. The four elements from overarching philosophical assumptions to specific techniques are (Crotty, 1998):

- the theoretical perspective or philosophical stance providing context for the process;
- the epistemology or theory of knowledge embedded in the theoretical perspective;
- the methodology providing the plan of action linking the choice of methods to the desired outcomes; and
- the methods, comprising the technique(s) to gather and analyse data.

Orlikowski & Baroudi (1991) expand on these four elements further. Figure 3.1 outlines an incorporation of the two ideologies, presenting the four elements (by distinguishing ontology and epistemology). The figure provides a diagrammatical presentation of the sequence of this research presented in the discussion to follow.

![Figure 3.1 An outline of the research process sequence of this thesis.](image)

### 3.2.1 Ontology and epistemology

The underlying ontological perspective about the nature of the reality being studied, and the epistemological assumption for this situation, determined the choice of the
research design. It is essential that I clarify my philosophical position regarding the research problem.

Researchers are consistently faced with the basic question of whether the reality to be investigated is of an objective nature and independent of humans, or subjective, and therefore only existing through the action of humans subjectively creating and recreating it (Burrell & Morgan, 1979; Orlikowski & Baroudi, 1991). There are philosophical debates around research, delving into these disputes within information systems (IS) research, and with the extrapolation by Orlikowski and Baroudi (1991), three basic categories have been identified: positivist, interpretive, and critical. The positivist approach assumes an objective social world independent of humans concerned mainly with the empirical testability of theories about cause and effect. The interpretive philosophy on the other hand asserts that the social reality and therefore our knowledge of it cannot be understood independently of the social actors (which include the researcher). Lastly, the main idea within critical philosophy is that social reality is produced and reproduced by humans with the belief that interpretation of the social world is not enough, nor is the status quo. As a result, individuals try to improve their environment as they continually critique their environment and knowledge (Orlikowski & Baroudi, 1991).

Researching the three positions was the first step in how I embarked on designating the parameters around my research problem. In the case of this research the social world was not ‘given’, but produced and reinforced by the humans involved. Therefore, the ontological perspective in this case is one that emphasises the subjective and intersubjective meanings that these humans use to construct and understand their reality, as they interact with the world around them (Orlikowski & Baroudi, 1991). My ontological position is that the social world is locally and contextually constructed (Guba & Lincoln, 1994), “produced and reinforced by humans through action and interaction” (Orlikowski & Baroudi, 1991, p.15). I recognise that the world does not exist in an objective space but is rather bound by time and context, with a historical influence.
This research is presented as an inductive study which builds a theory grounded in the data. I hold the ontological position that the social reality could be constantly constructed by both the researcher and participants, rather than assuming that the phenomenon is separate from those involved in giving meaning to that phenomenon. Given this worldview and in investigating the research problem, an interpretive epistemology which has an emphasis on the understanding of the social world through an examination of the interpretation of that world by its participants sets the foundation for this study.

3.2.2 The interpretive philosophy

Information systems research is an interdisciplinary field that originated with a focus on the effects of IT and how individuals and organisations interacted with it. Over the past few decades, IS research has extended to include not only technological questions but also strategic, managerial, and organisational ones (Galliers, Markus, & Newell, 2006). Orlikowski and Baroudi (1991) identify interpretivism as one dominant strand in qualitative research in the area of IS research. Interpretive methods of research adopt the position that “reality, as well as our knowledge thereof, are social products and hence incapable of being understood independent of the social actors (including the researchers) that construct and make sense of that reality” (Orlikowski & Baroudi, 1991, p.14). Interpretivism contrasts with positivism in that the latter assumes that objective reality can be discovered in research, the findings of which can be replicated by others. As such, the positivist philosophy is not capable of capturing the informants’ point of view since it tends to rely on more isolated, observable behaviours (Guba & Lincoln, 1994). Such weaknesses of positivism are the strengths of interpretivism. As a result, an interpretive approach is used in many studies in IS (Walsham, 1995a).

Information systems research has historically been dominated by the positivist approach. More recent decades have seen a growing shift by authors (including Orlikowski & Baroudi, 1991; Walsham, 1995a; Myers, 1997a; Ciborra, 2004) away from a positivist approach toward interpretivist or critical theory (or a mixture of the two depending on their theoretical definitions). Moreover, this research study has a political component in examining strategy implementation. Interpretive research has a
long history within political science in the form of “community studies, analyses of bureaucratic agencies, case-based studies of policy implementation, field-based studies of conditions for development, and the like” (Yanow, 2003a, p.12).

The shift in IS research toward dealing with social phenomena and accepting contradictions that exist within it as well as the role of actors’ or stakeholders’ input supports the shift away from positivist approaches of statistical exactness or precision (Garcia & Quek, 1997). I strongly identify with the Klein and Myers (1999) statement in regard to IS research being classified as interpretive if “our knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools, and other artefacts” (p.69). Therefore, the methods chosen produce an understanding of the IS or strategy (Klein & Myers, 1999) and the process by which the “system influences and is influenced by the context” (Walsham, 1993, p.4).

The interpretive philosophy has its own criticisms (Bernstein, 1978; Burrell & Morgan, 1979; Fay, 1987). These are summarised by Orlikowski & Baroudi (1991, p.18) into four deficiencies of the interpretive philosophy:

1. [It] does not examine the conditions, often external, which give rise to certain meanings and experiences;
2. [It neglects] to explain the unintended consequences of action [which] are a significant force in shaping social reality;
3. [It] does not address structural conflicts within society and organisations; and ignores contradictions that may be endemic to social systems; and
4. [It] neglects to explain historical change.

These assumptions made about the interpretive perspective are that it only lends itself to explain the status quo, indirectly serving to sustain it rather than critique it (Fay, 1987; Orlikowski & Baroudi, 1991).

It is important to highlight the criticisms above as I am confident I have dispelled them here. I believe that modern constructs of the interpretive perspective counteract the old criticisms of the philosophy. This is why recent studies have been more meticulous in
defining their meaning of the interpretive philosophy, as I have done. In particular, Klein & Myers (1999) identified a set of principles for conducting and evaluating interpretive studies which are presented here and counteract the highlighted criticisms above. The set of seven principles for interpretive field research are (Klein & Myers, 1999, p.72):

1. **The Fundamental Principle of the Hermeneutic Circle**
   This principle suggests that all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole they form.

2. **The Principle of Contextualisation**
   Requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged.

3. **The Principle of Interaction between the Researchers and the Subjects**
   Requires critical reflection on how the research materials (or “data”) were socially constructed through interaction between the researcher and the participants.

4. **The Principle of Abstraction and Generalisation**
   Requires relating the idiographic details revealed by the data interpretation through the application of principles one and two to theoretical, general concepts that describe the nature of human understanding and social action.

5. **The Principle of Dialogical Reasoning**
   Requires sensitivity to potential contradictions between theoretical preconceptions guiding the research design and the actual findings with subsequent cycles of revision.
6. **The Principle of Multiple Interpretations**

Requires sensitivity to possible differences in interpretations among the participants as are typically expressed in multiple narratives of the same sequence of events under study.

7. **The Principle of Suspicion**

Requires sensitivity to possible “biases” and systematic “distortions” in the narratives collected from the participants.

The principles appear to address the criticisms outlined and highlight, for example, the importance of understanding social and historical context in order to understand the emergence of the situation under investigation (Klein & Myers, 1999).

Yanow (2003a) clearly states that if research questions require sensitivity and awareness of contextually specific meanings, then an interpretive method is a more appropriate means of address. The interpretive researcher is aware that reality is socially constructed and that he/she is the means by which that world is revealed (Walsham, 1995a; Cavana, Delahaye, & Sekaran, 2001). That is the role I strive to attain in this piece of work by presenting a logical, concise, and true account of the situation being investigated. This aligns with the ontological perspective that the social world is constructed by the subjective and inter-subjective meanings that humans use as they interact with the world around them (Orlikowski & Baroudi, 1991; Mingers, 2001).

3.3 **Methodology: Using the Grounded Theory Approach**

Having addressed my ontological and epistemological positions, the next stage was to determine the most appropriate choice of methodology. How a problem lends itself carries certain assumptions about the choice of paradigm, methodology, and methods for the study. Interpretive research methodologies and methods are particularly useful when applied to IS research that considers the organisational context of a problem being addressed (Myers, 1997a). They also more readily allow for theory to be generated from the observations (inductive reasoning), rather than as a framework that is created and decided before the investigation is carried out (deductive reasoning). As a result
of the discussion presented in the sections above, I present here my plan of action, or methodology.

In his book on qualitative research in business and management, Myers (2009) outlines aspects of research in IS. He identifies four major methodologies for qualitative research: action research, case studies, ethnography, and grounded theory. Due to the fact that this thesis topic is under-researched, I proposed to conduct an interpretive grounded theory study. A point to note is the grounded theory methodology is philosophically neutral (Charmaz, 2006; Urquhart & Fernandez, 2006). Glaser (1999) even emphasises that “grounded theory is a general method. It can be used on any data or combination of data” (p.842). Here I do not state that grounded theory methodology is inherently interpretivist but rather it is the philosophical viewpoint I chose to best guide the use of the methodology to answer the research questions.

Grounded theory is useful in the development of context-based descriptions and explanations of organisational phenomena (Myers, 1997b). The approach can incorporate qualitative and/or quantitative research methods. One of the main differences between grounded theory and qualitative research methods is the approach toward theory development. Specifically that there should be continuous interplay between the processes and procedures of data collection and data analysis (Myers, 1997b; Myers, 2009). Grounded theory is described as the discovery of theory from data not merely to collect or order a mass of data, “but organizing many ideas which have emerged from the analysis of the data” (Strauss, 1987, p.22). This is a general analytical methodology “that uses a systematically applied set of methods to generate an inductive theory about a substantive area” (Glaser, 1992, p.16). It is important to note that, unlike other experimental researchers who pose a hypothesis and undertake deductive methods to prove or disprove it, the inductive process of grounded theory is the other way around; the researcher (with parameters), observes a phenomenon and tries to disentangle the complex reality to produce a theoretical formulation. The product is a theory about a substantive area under study (Glaser, 1992).

Generally, in business and management research on IS, grounded theory is used solely as a coding tool (Myers, 2009). However, as described, there is more to grounded
The attraction of it to me in relation to answering the research questions was that the theory that will eventually emerge is firmly grounded in the original and rich findings tied to the empirical phenomena (Orlikowski, 1993). This feature highlighted the confidence it gives the research as each concept produced can be directly linked to the data that it relates to (Myers, 2009; Urquhart, Lehmann, & Myers, 2010).

Grounded theory has a rich history in not only its origin but also the evolution of its interpretation and definitions of use by researchers. At this point I will split the discussion of the data collection and the data analysis. I will first describe the split between Glaser and Strauss and the impact this has on data collection and data analysis when using grounded theory. This split is relevant here to clarify my perspective, as the use of coding paradigms vary, sometimes even slightly, between grounded theorists.

3.3.1 Glaserian versus Straussian grounded theory

Grounded theory has its roots in the pragmatist ideology (Hammersley, 1989). It rejects the idea that the formulation of thought is to describe or mirror reality. Instead, thought is an instrument of problem solving. That is where the roots of the methodology began as two sociologists, Barney G. Glaser and Anselm L. Strauss, reacting against ‘armchair’ theories (Dey, 1999), collaborated to develop a methodology that reflected both of their backgrounds in research and analysis (Glaser, 1992). In 1967, The Discovery of Grounded Theory was published by Glaser and Strauss outlining the research methodology that arose because they identified the need for an “explicitly formulated methodology and systematic set of methods for collecting, coding and analysing data” (Glaser, 1992, p.17).

Over time, Glaser and Strauss’s grounded theory became recognised as a viable qualitative research method in many fields including social sciences and healthcare, with extensive use in nursing-related studies (Dey, 1993; Annells, 1996). However, a rift began in 1987 between the original founders after a solo publication by Strauss which was solidified when Strauss and Corbin published Basics of Qualitative Research: Grounded Theory Procedures and Techniques in 1990 (Myers, 2009; Urquhart, 2013). This book is written as a how-to manual of grounded theory,
containing set guidelines and procedures. Although the original 1967 version presents general guidelines, Glaser believed Strauss and Corbin’s publication was prescriptive and restrictive (Glaser, 1992), prompting a series of documented critiques and disagreements between the two.

Original texts by the authors and subsequent literature (Glaser & Strauss, 1967; Strauss & Corbin, 1990; Pandit, 1996; Bryant, 2003; Cutcliffe, 2005; Walker & Myrick, 2006; Onions, 2006) has described and analysed the differences between the two paradigms but it can be pinpointed down to a micro-sociological versus a macro-sociological perspective (Kelle, 2005). Table 3.1 provides a summary of the key differences between Glaser and Strauss’s perspectives on grounded theory. Glaser emphasises emergence while Strauss focuses on validation and a systematic approach. Glaserian grounded theory also has affinity with the more pragmatic ‘problem-solving’ stance, as expressed by Laudan (1977) and Jensen (1995) in terms of focusing on solving empirical and theoretical problems. This was expressed by Glaser (1998) as either “opening up” (p. 78) a new area by providing appropriate concepts or, in a more theoretical sense, synthesising and integrating existing concepts into a broader view.
As Table 3.1 outlines, there are variations between Glaser and Strauss in aspects of both data collection and data analysis. As a result of these variations between the co-founders, a different set of coding paradigms emerged, prompting further disagreement. As a PhD candidate, part of my journey is exploring both of these variations and deciding which of the two best fits what I was trying to accomplish. After examining both, I found the Glaserian perspective was the model that suited my line of inquiry best. In the subsequent two sections below, I will describe why.

### 3.4 Data collection

Grounded theory studies focus on social processes or actions and their complexities (Glaser, 2004). Lines of inquiry focus on what happens and how people interact. As Table 3.1 indicates, Glaser believes that you should engage the research with an open mind (Glaser, 1978). As Dey (1999) points out, “an open mind is not an empty head” (p.229). Having not worked in the healthcare industry in New Zealand, and as a requirement of The University of Auckland’s provisional year, I undertook the task of conducting a literature review (presented in the previous chapter). Although the tenets of grounded theory suggest steering away from doing so as a way of not imposing preconceptions on the collected data (Glaser, 1978), it was useful for me to explore the literature in order to highlight key areas of interest to study. I knew that I was interested
in strategy development and implementation around health IT and the New Zealand context was a good subject, as discussed in the previous chapters. As a result of exploring the literature and examining the strategic planning and implementation process for eHealth in New Zealand (Step 1 in Figure 3.2 below), I became aware of the Board’s draft Plan discussion. This prompted the first phase of data collection and analysis for this study. Figure 3.2 is a figurative representation I developed of the methodological process of this research and will be utilised as a guide throughout this thesis.

**Figure 3.2** A figurative representation of the data collection and data analysis process for this study.

### 3.4.1 Sources of data

The methodical process of data collection is intended to identify the themes and issues related to implementation as a consequence of the publication of New Zealand’s just released national eHealth strategy document, the National Health IT Plan. I followed the suggestion by a number of authors (Creswell, 1998; Glaser, 1998; Myers, 2009) to collect data from different sources. A mixture of online content and published information is used as secondary sources and referenced throughout this thesis. The
primary sources of data were collected in a two-part process which is reflected on and
described in more detail in the following two chapters: the first were through
preliminary examination of an online public discussion forum of the draft Plan; and the
second through in-depth interviews with health IT sector stakeholders. In the two
sections below, I briefly present the sources and process of data collection. In Chapters
4 and 5, I go into further detail and discussion of these processes, connecting them to
the resulting findings.

3.4.1.1 The HIVE forum
The release of the Plan was a two-fold process from the public point of view – first as
a draft document for public feedback and then as a final document. The document was
first released as a “Draft for Discussion” paper on 23 April 2010 and was posted on the
Health InnoVation Exchange (or HIVE) website. In the forum, it is noted that the draft
Plan was being introduced both on the HIVE and at a Partnership Summit (meetings
held between the New Zealand Health IT Cluster¹ and the Board) by the Board. Over
a period of 42 days (from 23/04/2010 to 04/06/2010), 21 individuals participated in the
online feedback process.

Sometime after being online, the draft Plan feedback thread on the HIVE was no longer
publicly accessible. The HIVE, no longer active today but still accessible at
http://www.hive.org.nz, was being run at the time by Dr Chris Paton, who was a Senior
Research Fellow at The University of Auckland. Wanting to use the discussion as a
primary source of data as well as a source of possible participants to approach for the
in-depth interviews, I emailed Dr Paton on 01 May 2012 and was emailed the full
discussion thread as a Microsoft® Word document on 08 May 2012. I used the
document as a data source for the first phase of data analysis presented in Chapter 4:
Harvesting the HIVE.

3.4.1.2 In-depth interviews
The HIVE discussion was a preliminary information source, while the focused in-depth
interviews were the most important data gathering technique for this research. Rubin

¹An independent, representative organisation comprised of New Zealand-based health software vendors,
consultants, and healthcare providers.
& Rubin (2012) expressively state that interviews are like night goggles, “permitting us to see that which is not ordinarily on view and examine that which is looked at but seldom seen” (p.xv). By listening, prompting and directing, the researcher can use the interview as a useful tool to focus on the subject’s world (Myers, 2009) and specifically explore understandings, meanings, experiences and motivations (Walsham, 1995b; Myers & Newman, 2007) around aspects of eHealth strategy development and implementation in New Zealand. The advantage of conducting interviews allowed me to expose and present these underlying reasons and motivations.

Political, economic, social and technological influences shape the role and capacity of eHealth strategy. These influences impact implementation as well as uptake (Murray et al., 2011). As a result, there is a reasonable spectrum of individuals that impact strategy and therefore a good sample base to choose from to build understanding. As the Plan was the primary document being investigated, and as it was (and is) being implemented in conjunction with this research, there were many individuals actively participating in discussions on the Plan. These discussions, both formal and informal, were occurring at places including town hall meetings conducted by the Board, at national health informatics conferences, and during DHB meetings. Attending some of these events helped identify potential people to which to speak. These initial ‘scouting’ exercises were a way of possibly seeing who the key influencers were but also a way of immersing myself into the events encompassing the introduction and implementation of the new national eHealth strategy at the time.

Part of my understanding and requisite to commencing my data collection were supervision meetings to communicate my growing knowledge on my thesis topic. It was over time at these meetings, as I began preparing for the interviews, that I started to create an interview schedule (informed by the HIVE analysis) and formulated a list of possible participants to approach. A preliminary list of individuals was created by my supervisor, Dr Karen Day, co-supervisor Dr Martin Orr, and me as an exercise to identify key informants for this research. Both of my supervisors are familiar with the health IT policy landscape in New Zealand as both practitioners and academics. The HIVE discussion was helpful as a starting point to identify contributors and their openness to inform and contribute to the Plan.
Having obtained ethics approval (Appendix 1) from The University of Auckland Human Participants Ethics Committee on 19 June 2012 (Reference 8251), I was ready to contact individuals on my list to begin the first subset of participant interviews. It was necessary to start with a set of individuals who could establish the landscape as I stepped into the field. As an outside observer, it is difficult to anticipate who will be a good participant to begin the journey of understanding. Morse (1994) appreciates that the researcher should not put too many restrictions on this early stage. Instead, researchers should identify potential participants as ones who have the knowledge and experience for the research required, have the ability to reflect, have the time to be interviewed, and are willing to participate and engage the researcher in their study (Morse, 1994). As a result, the first set of participants (or reference group) was selected to represent individuals and organisations from across the sector and included the following stakeholders: clinicians, executives within DHBs, vendors, and policy and decision makers working at national and local levels.

Being a first year PhD student at the time, I had little rapport with people in the healthcare sector. Therefore, and as part of the University’s ethics application recommendation, my participant engagement strategy began with my supervisors. For the reference group, my supervisor sent a short email with a three-sentence summary of my topic and an invitation for the potential participant to email me if they were interested. That email also included two attachments: the Participant Information Sheet which provided two pages of context and detail about my topic and how meaningful their participation would be, and the Participant Consent Form outlining the rights afforded to them as participants of a research study. All eight participants agreed and the process of setting up interview dates and times began. In total, I interviewed 30 individuals. All subsequent interviews after the reference group were arranged via email by me directly.

This method of conducting interviews took place over 10 months and included people working in DHBs and organisations from both the North and South Island. The original list of 32 individuals created between my supervisors and I was consulted throughout the length of the interview process. At the end of each interview, I would ask if the participant would recommend possible individuals for me to contact who would be
good sources in regard to exploring my research topic. This ‘snowballing technique’ was useful in gathering new names not on the original list and was also useful over time as names started to be repeated as a sufficient level of saturation (described in the data analysis section below) was reached. This is part of the grounded theory concept of theoretical sampling, whereby the researcher is flexible in determining the individuals to include in the research, thus opening up the potential to gather appropriate and valuable data to extend the scope and transferability of the theory and ensure representativeness exists in the emergent categories (Glaser, 1978; Dey, 1999; Urquhart, 2013).

All interviews were audio-recorded, and with each interview, detailed notes – or memos – were taken and reviewed with previous interviews. Memoing is a key concept in the collection and analysis of data in grounded theory (Glaser, 1978; Strauss & Corbin, 1990). This serves a number of functions. Writing is described as being a form of discovery. It is a raw and foundational process to assist the researcher in thinking through new thoughts about the data, working through areas where questions are raised, and identifying areas for further investigation with the aid of the relevant literature (Urquhart, 2013). As grounded theory embraces the idea of the narrative, this process also trails the path taken during the emergence of theory, indicating the way in which theory is grounded in the data. This was a crucial part of my research. It occurred during and after interviews and was helpful between interviews to link concepts or highlight repeating issues. A notebook set aside just for memos was useful in keeping track of concepts and relationships as they emerged at a foundational level. The memoing over the comparative analysis process grew to be more theoretical as the literature was explored to delve into emergent concepts from the interviews. A component of data collection, this is an integral first step in the analytic process. Once the interviews were transcribed, the coding of that data could begin.

3.5 Data analysis: The coding paradigm
The root of Glaser and Strauss’ dissension is in their approach to the coding paradigm in grounded theory research. However, what neither founder will contend is that coding is essential to the development of grounded theory (Charmaz, 2006). As Table 3.1
shows, Strauss places open coding first, followed by axial coding. Thereby, the researcher is seeking causal conditions, interaction between actors and tactics, and consequences while analysing under one category. Strauss is more prescriptive in this regard as axial coding is meant to be followed based on a set coding paradigm (Strauss & Corbin, 1990). On the other hand, Glaser (1978) places selective coding subsequent to open coding to focus the analysis around what he terms a ‘concept-indicator model’. This is a more flexible model where there are key core concepts and sub-variables (or indicators) under each.

Understanding the different approaches and the implication either application has on a grounded theory study is important and I experimented with both approaches. What was useful for me to understand, and what Urquhart (2001) highlights, is the main discrepancy between the two paradigms, stating that it is “the difference between allowing the data to speak to us and coding from the ground up [Glaserian approach], rather than imposing preconceived categories, which is a top-down method of coding [Straussian approach]” (p.129). Although both time-consuming and fruitful, the flexibility afforded by Glaser’s coding paradigm was more useful and convincing in that it was allowing me to draw out more from the data. As a result, the coding process Glaser defines was utilised and is described in regard to this research study.

3.5.1 The coding process

The grounded theory approach involves coding, concept categorisation, constant comparison, and emergence of theory (Glaser & Strauss, 1967). Through the process of theoretical sampling, data is continuously and jointly collected, compared and analysed until theory emerges. Theoretical sampling attempts to discover categories and the interrelationships between them to generate and develop theoretical data (Glaser, 1978). As a result, coding starts as soon as the first data is collected and continues until theory emerges, a central component to theory development (Goede & de Villiers, 2003). Strauss and Corbin (1998, p.3) describe coding as “the analytic process through which data are fractured, conceptualised, and integrated to form theory.” Glaser outlines three stages of coding: open coding, selective coding, and theoretical coding (Glaser, 1978). These forms of coding follow a hierarchy of pattern
development, erudition and abstraction in the analysis process. For this research Glaser’s approach was used where theoretical concepts are derived from data from literature, interviews, and constant comparison; a key set of individuals is sampled; culminating in theory emergence. Figure 3.3 summarises the coding process by aligning them with the steps undertaken to produce this study outlined in Figure 3.2.

<table>
<thead>
<tr>
<th>OPEN CODING</th>
<th>Ongoing Processes:</th>
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<tr>
<td>Data</td>
<td>Theoretical</td>
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<td></td>
<td>Sampling</td>
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<td>Categories</td>
<td>Constant</td>
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<td>Emerging core category (1 or 2)</td>
<td>Comparison</td>
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<td>Memoing</td>
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<th>SELECTIVE CODING</th>
<th>Ongoing Processes:</th>
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<tr>
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<td>Constant</td>
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<td></td>
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<th>THEORETICAL CODING</th>
<th>Ongoing Processes:</th>
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<tr>
<td>Social Process</td>
<td>Constant</td>
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<td></td>
<td>Comparison</td>
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<tr>
<td>Theoretical Model</td>
<td>Comparison with literature</td>
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</table>

Figure 3.3 My figurative representation of the Glaserian grounded theory coding process.

Coding begins with a vague understanding of the sorts of categories that might be considered relevant, called open codes (Gasson, 2004). Open coding is a line-by-line or paragraph-by-paragraph analysis. It is the first step of data analysis where codes are attached to data. This stage involves identifying characteristics, dimensions and properties of concepts by going through the text and allocating names to them (Urquhart, 2013). It is important to note here that initial coding will sometimes be informed by literature reading. However, both Glaser and Strauss argue that the researcher should avoid the literature prior to data gathering to avoid sensitising or sorting data into any preconceptions (Glaser & Strauss, 1967; Glaser, 1978). This is
pointed out here as most PhD students, as in my case, are required to do a literature review as part of their first year of study.

Although I use the literature as part of my early research, I will note that as my research formed and melded in large part due to the interviews that I conducted, I did my best to focus on what the data was telling me and keep input from the literature restricted to the memos (which will be discussed shortly) rather than having it constrict the data. To aid in that thinking, Lowe’s (1995) suggestion of generating a topic guide to direct initial coding of themes and categories based on the research questions was employed. This corresponds with Glaser’s (1978, p.57) concept-indicator model, and he suggests considering three questions with generating open codes:

1. What [is the] data a study of?
2. What category does [the] incident indicate?
3. What is actually happening in the data?

As I applied this process by constant comparison of pieces of data against others, initial codes emerged. Reading and re-reading both the HIVE discussion and interview transcripts as well as listening and re-listening to the recorded interviews was an exercise in discovering emerging patterns within the data and links between indicators.

Although there were two data collection sources (HIVE discussion and the interviews), my coding varied only in whether line-by-line coding versus paragraph-by-paragraph coding was warranted. For the HIVE discussion, I read the text and formed early codes to produce initial concepts following a sentence-by-sentence process. This worked best because the level of input by individuals varied, with some commenting in a few sentences while others contributed paragraphs. Furthermore, contributions by each participant in the forum encompassed a variety of ideas, and line-by-line coding was more appropriate to draw out and emphasise the various points. The interviews were analysed in big pieces, sometimes sentence-by-sentence but often in groupings of sentences as complete ideas or concepts were gathered from the data. In both instances, this form of coding also keeps the researcher on the micro-data level to again prevent the effect of assumptions, preconceptions and frameworks that come from prior
experience, reading or thinking (Urquhart, 2013). It became an iterative process of constant comparison of data as codes emerged.

3.5.2 Categories and themes
As the initial open coding of the data was completed, the next stage was to move to a higher level to discover sub-categories that ultimately would help lead to theory building (Glaser, 1992). Just as open coding allows you to fracture the data to draw out and focus on significant variables, selective and theoretical coding is a means to put the variables back together to constitute the conceptual elements of a theory (Glaser, 1992).

Data is coded by classifying elements into themes or categories and looking for patterns between them (Gasson, 2004). As Figure 3.3 shows, the open codes can be grouped into larger concepts and groups of concepts (or categories) in what is referred to as selective coding. These key categories shape the theory. The categories are then related to one another through theoretical coding (Urquhart, 2013). These stages of coding constitute the act of building theory through connecting and considering the nature of the relationship between concepts. Coding becomes more abstract as the analyst progresses through from open to selective coding while the categories are linked by the process of theoretical coding (Glaser, 1992). Selective coding identifies the core category. This is consistently and frequently apparent in the data and is a dominant means of explaining the phenomenon being researched (Strauss & Corbin, 1998). The coded data is assembled and refined, patterns are discovered, and the data is linked by comparing and contrasting.

In this regard, I used the initial open codes for both the HIVE discussion and the interviews to help identify the issues I was examining. I used the grounded theory concept of constant comparison (Glaser & Strauss, 1967) to compare and contrast the codes and build on ideas that were being drawn out of the data. This method involves comparing people with people, people with their own data, data with categories, categories with categories. Urquhart (2013) describes the constant comparison process as “incredibly simple, but deceptively powerful” (p.17). It allows for meaning and construction of concepts to remain under review to enable fuller understanding of the codes, concepts, categories, and their relationships. Themes are identified from the data.
The interrelatedness of those themes forms the basis of the emergent, substantive theory (Glaser, 1978).

Both Glaser and Strauss account for identifying a core set of categories that highlight the significant variations in patterns of behaviour (Glaser, 1978; Strauss & Corbin, 1990). During the category identification process, the concept-indicator model (Glaser, 1978) was useful in helping me understand the need to compare codes to one another, constantly comparing and contrasting to draw out and refine the emergent categories and their properties. As previously emphasised, the grounded theory approach, and specifically the coding process, is an iterative process, where codes (open, selective or theoretical) are upgraded, merged or are downgraded with each step of data collection.

In the end stages of the process, Glaser (1978) proposes that you seek information until the categories are saturated. Through the process of constant comparison, theoretical concepts are identified across data samples as you compare codes and constructs (emergent theory) and new data. This drives the continuous process of data collection until the researcher feels that the “point of diminishing returns from any new analysis”, or theoretical saturation, has been reached (Gasson, 2004, p.80). Dey (1999) describes this exhaustive process of generating categories and identifying their relation as having connotations of completion rather than just being ‘good enough’. With this process, that is where I felt that a level of sufficient saturation was attained and themes emerged. The emergence of these themes from the data highlighted succinctly the issues and as a result answered the research questions.

### 3.6 Theory building

The final stage of coding is theoretical coding. Theoretical codes are “not mutually exclusive, they overlap considerably[…]one family can spawn another” (Glaser, 1978, p.73). Theoretical codes specify the relationship between two or more codes in a substantive area, occurring when categories become saturated (Glaser, 2005). Theoretical coding is the researcher’s detection of relationships between two or more saturated categories. Theoretical coding provides the researcher with analytical criteria to develop conceptual relationships between the saturated categories and the relevant
extant literature (Glaser, 1992). Glaser (2004) states, “theoretical codes give integrative scope, broad pictures and a new perspective. They help the analyst maintain the conceptual level in writing about concepts and their interrelations” (p.9). Where the initial and selective coding procedures broke down the data and clustered them abstractly, theoretical coding weaves the pieces together to conceptualise causal relationships.

Theoretical codes from more than one coding family may emerge to specify the emergent relationship between the core category, sub-categories, and variables (Hernandez, 2009). In some of his works, Glaser has identified a multitude of theoretical codes and coding families to guide those using the methodology: 18 in *Theoretical Sensitivity* (Glaser, 1978), nine in *Doing Grounded Theory* (Glaser, 1998), and 23 in *Theoretical Coding* (Glaser, 2005). The coding families refer to ontological concepts and are inclusive rather than exhaustive, with Glaser stating in much of his work that many more exist and researchers could derive their own coding families while utilising grounded theory methods (Glaser, 1978).

The substantive, or emergent, theory emerges from the relationships between the theoretical codes and the emergent concepts further extended into the relevant literature. A theoretical code is fundamental to integrating the theory and is a model by which the substantive codes and categories are related to the core category (Hernandez, 2009). The core category – there should be one or two – explains the basic social process, which according to Glaser (1978), allows for a degree of universality. Glaser (2004) states that the grounded theory product is a simple, factual description. At this point, any student using this methodology is faced with wondering what a good theory is. Glaser repeats in much of his writing that if the methods of grounded theory are utilised correctly then the emergent, substantive theory is valid. However, I wanted to apply a deeper level of analysis in order to make conclusions about the emergent theory. Interpretivist research steers researchers to develop theory that is “understanding the complex world of lived experience from the point of view of those who live it” (Schwandt, 1994, p.118). Gregor (2006) examined the structural nature of theory in the IS discipline consistent with this ontological position. He identifies four components common to all theory which I will examine against the emergent theory in
the Conclusion chapter. The four common structural components to all theory are (Gregor, 2006):

- **Means of representation**
  The theory must be presented physically, whether in words, diagrams, or tables. Aids for representation can include pictures and models.

- **Constructs**
  All of the primary constructs of interest to the phenomena should be well defined. Different types of constructs include observational terms and theoretical terms.

- **Statements of relationships**
  These are statements showing the relationships between the constructs. The nature of the relationship between the constructs depends on the purpose of the theory. Different types of relationships include associative, compositional, bidirectional, or causal.

- **Scope**
  The scope is identified based on the degree of generality of the statements of relationships and the statements of boundaries indicating limits of the generalisations.

### 3.7 Conclusion

Chapter 3 has set the philosophical assumptions and methodological foundations that have guided the process of this research study. This chapter in particular makes explicit the rationale for my methodological choice in using the grounded theory approach which directed the methods for data collection, data analysis, and in reporting the emergent, substantive theory. In this chapter these processes were explained in detail to help in understanding the general terminology which will be applied and presented in more detail in the following findings chapters.
Findings: Harvesting the HIVE
Chapter 4: Findings: Harvesting the HIVE

“The tools that a society uses to create and maintain itself are as central to human life as a hive is to bee life. Though the hive is not part of any individual bee, it is part of the colony, both shaped by and shaping the lives of its inhabitants.”

Clay Shirky
Associate Arts Professor, New Media: Interactive Telecommunications Program
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4.1 Introduction

In Chapter 3, the methodological foundations were critically outlined to lay focus on and establish a course of action for data collection and analysis. In this chapter, the findings from the first phase of data collection (Steps 3-4 in Figure 4.1) are presented. Chapter 4 will construct exploratory lines of questioning to lay the groundwork for the second phase of data collection to be presented in the subsequent two chapters.

Figure 4.1 Indication of the data collection and analysis process step(s) presented in Chapter 4.
In April 2010, an online discussion thread was established on behalf of the National Health IT Board to garner public feedback on the draft National Health IT Plan. Through an inductive analytical process, the contributors’ comments were analysed to gain insight on the research question: How do stakeholders perceive the Plan prior to its implementation? Analysing the comments allows for an examination of first impressions of the draft Plan by the public. This contributes to the subsequent phase of one-on-one interviews (Chapter 5 and Chapter 6) in two ways:

- It aids in establishing an interview schedule and,
- it provides a comparison point of public notions of the Plan prior to implementation compared to stakeholder perceptions during the Plan’s implementation.

Following the analytical path of the grounded theory approach, the process begins with extracting open codes, “the initial step of theoretical analysis that pertains to the initial discovery of categories and their properties” (Glaser, 1992, p.39). It is through this process of open, selective, and theoretical coding, described in detail in Chapter 3, that categories emerge. These categories were used as discussion points for the in-depth interviews, to be presented in the next two chapters. For this chapter, this analytical pathway is utilised to identify sector-specific views on the draft Plan. Since there were no rules or guidance on what to give feedback on – instead the document was put forward for open discussion – the discussion thread was a resource for exploration of the topic of the Plan. The lack of constriction is a benefit of the grounded theory approach by allowing the researcher to use a variety of feedback to examine and understand perceptions of the draft Plan.

It is important to highlight, as presented in the previous methodology chapter, that the grounded theory approach emphasises that it is best not to limit the data but rather let it speak for itself. In the course of the interpretive exercise, the focus is purely on examining and analysing what aspects of the draft Plan people were discussing and why, without imposing any pre-identified concepts that I, the researcher, might hope or presume would be discussed. Instead, due diligence to the analytical process of grounded theory will result in findings grounded in the data. This process is an effective
way of generating, through interpretive analysis, a process theory of multiple perspectives that reflect the social reality under investigation (Glaser, 1978) while being used as an exploratory step to delve deeper into understanding the implementation of the Plan as well as for the next phase of the data collection process.

To present the findings, it is more intuitive to present the established categories under which I lay out the path from collected data, to coding, to the categories themselves – what I call the ‘*forest first and then the trees*’. As a result of having an online forum as a public feedback platform the resultant concepts are not stand-alone but rather a connection of the categories (identified through the open, selective, and theoretical coding process) and how they relate to one another. These findings are interspersed with direct quotes as written by the participants of the online discussion. In the subsequent sections, I present the sequential events from establishment of the HIVE feedback thread to the presentation and discussion of the findings.

The chapter is presented as follows: I first provide a context to the role of the draft Plan in the space of eHealth strategies in New Zealand and describe the establishment of the discussion thread on the HIVE for the Board to gain feedback on the draft Plan. I then briefly describe the contributors who took part in the online discussion and their backgrounds. Lastly, using a ‘*forest first and then the trees*’ approach, I present the discovered categories and the open and selective codes used to derive them.

### 4.2 The draft National Health IT Plan and public engagement

The last 15 years have seen an amplified interval of publication for eHealth strategy in New Zealand (see Figure 4.2). In 2001, a little less than a year after being tasked with reporting on a strategic information plan, the Health Information Management and Technology Plan Advisory Board (later renamed The WAVE Advisory Board) released the WAVE Report. The WAVE Report was looked at as an example of recommendations for making more effective use of health information (The WAVE Advisory Board, 2001). A few years after its release (and after continued yet slow progress), the sector was re-evaluated and HIS-NZ was released in August 2005 (Health Information Strategy Steering Committee, 2005). At the time of the release of HIS-
NZ, the Health Information Strategy Advisory Committee (HISAC) was established to provide needed governance and leadership in the sector and to lead HIS-NZ priorities (South Canterbury District Health Board, 2008). HIS-NZ was part of HISAC’s three-step process of implementing ‘Action Zones’ to target activity and implementation of IT in the healthcare sector (Auditor-General, 2006).

![Figure 4.2](image)

**Figure 4.2** A timeline of the history of eHealth strategies in New Zealand since 1991.

After the Ministerial Review Group report was released in August 2009 it was highlighted that leadership of eHealth in New Zealand needed to be strengthened (Ministerial Review Group, 2009). It was recommended that a national health IT board be set up, resulting in the National Health IT Board being established. This organisation was recognised as a Ministerial Committee who would report to the NHB. Created to provide strategic leadership and advice for the health sector on behalf of the NHB, the Board developed and released a ‘Draft for Discussion’ and then the final Plan in April and September 2010, respectively (Ministerial Review Group, 2009).

Public engagement through the MOH in regard to garnering feedback and supporting public understanding of eHealth strategy in New Zealand was generally limited in the past (Osborne, Maraj, & Lockyer, 2010). Appraisal of recent eHealth strategic documents including The WAVE Report and HIS-NZ outlines the involvement of stakeholder groups and participants in the sector with minor or no mention of
consumer/patient/public submissions or input (The WAVE Advisory Board, 2001; Health Information Strategy Steering Committee, 2005). Changes were made in 2008 when HISAC identified the need to create a National Consumer Forum to give consumer groups and advocates a voice in the health information environment. This group, which continued to exist as an advisory committee to the reconstituted Board, was later renamed the Consumer Panel.

The Consumer Panel advised the Board that upon the development of the Plan, direct engagement with the public was necessary (Osborne, Maraj, & Lockyer, 2010). As a result, the Board in conjunction with Telecommunications Users Association for New Zealand (TUANZ) held a series of community workshops in July and August 2010 titled ‘The Future of Health Enabled By Information’. These workshops, or town hall meetings, were advertised through booklets sent to TUANZ members and online distribution including notices in professional association newsletters (e.g. The Royal New Zealand College of General Practitioners ePulse Newsletter Vol.12 #33) and online community outreach blogs (e.g. Tiaho Trust website at http://www.tiaho.org.nz). The Board also created a blog at http://enablemyhealth.blogspot.co.nz to chronicle the town hall meetings, although it was scarcely used. Also, significantly, the Board took the public engagement online, a New Zealand first in respect to garnering public feedback on an eHealth strategy.

4.3 Online public engagement and the HIVE feedback thread

Public deliberation emerges from democratic deliberative theory which is a view anchored in conceptions of accountability and discussion (Chambers, 2003). Public deliberation is the process by which deliberative democracy transpires, through a process of discussion that involves critical listening and earnest decision making (Gastil, 2000; Carpini, Cook, & Jacobs, 2004). Participation is an important issue in strategy research with evidence to show that lack of participation can lead to poorly developed strategy (Floyd & Wooldridge, 2000) and difficulties in implementation (Mintzberg, 1994). A discursive perspective, or discursive participation, through construction of social reality from varying viewpoints is regarded as a strategy to
overcome these deficiencies. Carpini et al., (2004) identify five principal characteristics of discursive participation:

1. It is a primary form of activity concerned with discourse with other citizens.
2. Talk, discussion, debate, and/or deliberation between citizens are a form of participation.
3. It includes but is not limited to formal institutions and informal exchanges.
4. It can occur through a variety of media such as face-to-face exchanges, email exchanges, and internet forums.
5. It can be focused on local, national or international issues.

The technical characteristics of the internet and the asynchronous discussion forum capabilities have led to suitable conditions for a deliberative democracy and discursive participation (Wright & Street, 2007). In an unprecedented move in New Zealand at the time, the Board set out to use an online forum to garner feedback and engage the public in discussion on the draft Plan in 2010. The use of this democratising technology allows leaders (i.e. members of the Board) and citizens’/consumers to interact on a discussion board set aside for this particular topic. There are thousands of different types of online discussion forums ranging from bulletin boards to Wikis, where users can create an environment as they add new features. Nonetheless, at the time of the draft Plan release, online discussion forums were disproportionally used globally (with governments more likely to opt for online consultation instead) (Wright & Street, 2007). This form of discursive participation would be used for the first time in the area of eHealth strategy feedback in this country with the release of the draft Plan.

The National Health IT Plan ‘Draft for Discussion’ document was posted on the HIVE website on 23 April 2010. The HIVE is an online site that has personal pages similar in concept to Facebook profiles but largely sits as an online forum. The HIVE was created by The University of Auckland’s National Institute of Innovation (NIHI) in association with the MOH. Much like other online blogs with discussion boards, the HIVE is composed of discussion threads on singular topics; these threads make up most of the content on the site. After being contacted by Graeme Osborne (Director of the National Health IT Board), NIHI – specifically, Dr Chris Paton, creator of the website
interface – established a discussion thread on the HIVE for the purpose of generating public dialogue on the draft Plan.

The release of the draft Plan was not limited to the online discursive participation. In conjunction with the online discussion, the draft Plan was also introduced at a Partnership Summit – meetings held between the New Zealand Health IT Cluster and the Board. Individuals could also formally submit their feedback directly to the Board via a provided email (enquiries@ithealthboard.health.nz). It is noted in the Plan final document that 200 submissions of feedback were received (National Health IT Board, 2010). However, the discussion available on the HIVE was the only feedback that would be viewable to the general public. Nonetheless, as an open online and easily accessible forum, the benefits to me of accessing this thread were the ability to: 1) see what issues were being highlighted as important (whether they apply to the content of the draft Plan or its implementation), as well as 2) seeing how and if the discussion changed as and when people interacted with one another in the forum.

4.4 Contributors to the HIVE feedback thread

The discussion thread dedicated to the draft Plan was active on the HIVE from 23 April 2010 until 04 June 2010. Over that period of 42 days, 21 individuals participated in the online feedback process, resulting in 47 unique comments. These online participants will be subsequently referred to as ‘contributors.’ Using a series of tables and figures, I will break down the information provided by the individuals to give a better understanding of the types of individuals that contributed and the format for which they contributed, before presenting the analysis of the content of those comments.

In Table 4.1, the country from which contributor’s posted, their job title(s) and the organisation they were working for at the time of posting are listed. The number allocated to each contributor indicates their order based on the time of their first comment to the discussion thread. A majority of the individuals created a username and posted a comment under that login, while a few remained anonymous. Furthermore, a majority of the contributors identified themselves at the end of their comment, listing their job titles and affiliated organisations. Names, where provided,
are not reproduced here. Information from Table 4.1 can identify individuals, however this is acceptable as the data is from a public online forum where contributors provided said information. Job titles for the following were not provided or could not be established: three anonymous individuals (Table 4.1, contributors #4, #10, and #12), one individual who gave a first name only (#2), and two individuals (#11 and #15) who gave full names but not enough information to accurately ascertain their title from an online search. The last two columns under the Comment(s) section of Table 4.1 provide metadata on the date(s) and word count for the comment(s) each contributor made.
Table 4.1 Country of origin and occupation of HIVE contributors and the date(s) and word count for their comments.

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<th>COUNTRY</th>
<th>OCCUPATION, COMPANY (at time of comment)</th>
<th>COMMENT(S)</th>
<th>DATE [dd/mm/yyyy]</th>
<th>WORD COUNT</th>
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<td>Chairman, Health Information Standards Organisation, Doctor, Island Bay Medical Centre</td>
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<td>04/05/2010</td>
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<td></td>
<td>CEO &amp; Director, Ocean Informatics</td>
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<td></td>
<td>Practice Manager, Microsoft Solutions at Dimension Data (Southern Region)</td>
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<td>Senior Lecturer in Health Informatics, The University of Auckland, NIHI</td>
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</table>

For the 15 individuals who did provide their job title at the time of posting, 11 were located in New Zealand. The remaining contributors were based internationally – three from Australia and one from the Netherlands. Based on their comments, only two contributors (Table 4.1, Contributors #2 and #15) gave feedback from a consumer point-of-view. The rest of the individuals (including the three anonymous) commented...
from a sector-specific point of view. That is to say, the content of their comments as well as their provided job title(s) established their background and expertise in the sector incorporated with their comment.

Using the contributor list in Table 4.1, Table 4.2 identifies the stakeholder category or categories for each contributor. Formation of the stakeholder categories emerged from the titles provided by the contributors. These categories are:

- **Consumer** – an individual who is solely a recipient or user of the healthcare system
- **Provider** –
  - Clinical – an individual who is a provider of medical services (e.g. doctor, nurse)
  - Technical – an individual who is a provider of technical services (e.g. IT support)
- **Researcher** – an individual who is part of a higher learning institution undertaking research in subject area
- **Executive** –
  - Government – an individual who holds an executive level (administrative or supervisory authority) position within the government (e.g. CEO of a DHB)
  - Supplier – an individual who holds an executive level position within a private company that supplies IT capabilities to the healthcare sector
- **Management** – an individual responsible for administering a subset of an organisation (distinct from an executive level position)

Not included in this table are the three anonymous individuals (Table 4.1, Contributors #4, #10, and #12) and one individual (#11) as not enough information was available to conclusively classify them, and the content of their comment could not be definitively categorised as a consumer. The contributors in Table 4.2 noted as consumers (#2 and #15) are noted as such based on the content of his/her comment only as no other information is provided about their occupation and/or title.
Table 4.2 Stakeholder categorisation of the HIVE contributors.

<table>
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<tr>
<th>#</th>
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</table>

Although open, free, and publically accessible, the HIVE website is focused on being a place to both “foster discussion and collaboration to promote innovation in New Zealand’s health sector” and act as a “social eLearning network for healthcare students” (The Health Innovation Exchange, 2014). The audience to which the HIVE was geared may have contributed to low input on the discussion thread by a key stakeholder group – the general public of consumers. There are some possible considerations as to why this is so. It is possible that there is a lack of interest by consumers in the topic; or even wariness by consumers to contribute if they were only seeing health sector participants contributing; or, there was a lack of advertising of this online thread by the Board – although there was international feedback even if it was by those working in the health sector. There are various possibilities and it is a point of consideration worth noting here when discussing the findings in the following sections.

The HIVE discussion thread was not the only method of feedback to the Plan. Even though it was the online public discussion thread officially sponsored by the Board, feedback could have been sent formally to the Board via email, post, or during the face-to-face workshop events. Nonetheless, as Table 4.2 shows, there was a variety of contributions from technical experts, clinicians, researchers, and executives from governmental organisations and suppliers, as well as organisational strategy developers in management roles. Furthermore, most contributors held more than one concurrent role.
4.4.1 Contributor commenting and interaction (or lack thereof)

Over the course of the 42 days that the draft Plan discussion thread was online, 21 individuals contributed to the discussion. Figure 4.3 is a screenshot of one contributor’s comment, illustrating the layout of the thread (the name and picture of the contributor has been removed to protect anonymity). As Table 4.1 indicates, the first comment was placed on 27 April 2010, four days after the thread was started. As Table 4.1 also shows, the length of comments varied throughout the time that the thread was active. Some contributors made very brief (yet still thoughtful) feedback on the draft Plan while others wrote long prose supplemented with bibliographical references.

![Figure 4.3 A screenshot of part of a comment made by one thread contributor.](image)

Initially, contributors commented on the draft Plan directly. For the first 16 days of being posted on the HIVE, the pattern of each individual posting their feedback solely on the draft Plan continued. On 09 May 2010, Graeme Osborne2 (Table 4.1, #9), Director of the National Health IT Board and one of the authors of the Plan, began posting responses to the previous comments. This prompted brief responses by some contributors thanking him for his input and/or thanking him for providing such a venue to provide input. The asynchronous nature of this forum allowed other contributors to continue to put forward their feedback on the discussion thread during that time.

As an online discussion thread where there was a potential for individuals to interact, an appropriate analysis method of the interaction and content would suggest the use of social network analysis (SNA). SNA is an analytical method that aims to describe the

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2Permission to use name in the thesis requested and granted via email from Graeme Osborne.
interactions between individuals within a group (Anderson & Jay, 1985; Wellman, 1988) as well as understand their collective behaviour (Laumann & Pappi, 1976). However, outside of Graeme Osborne’s responses, there were only two instances where there was direct interaction between two contributors. The rest of the comments provided were purely feedback on the draft Plan. As a result, SNA would not yield any accelerative results in analysing this feedback thread. Instead, the bottom-up coding grounded theory approach described in the Methodology chapter was used to analyse the thread and construct the categories.

Having established why the HIVE feedback thread was created by the Board, and the contributors to the thread, the next section presents the findings derived from analysis.

4.5 Constructing categories: Harvesting the HIVE comments
As detailed in the Methodology chapter, categories are at the peak of a constructed process of abstraction from conceptually related sub-categories. This inductive, bottom-up process of coding and construction of categories resulted in the emergence of four main category descriptors:

- Planned Implementation
- Stakeholder Buy-in
- Role of IT
- Aim at Completion

To facilitate the flow and understanding of the findings as a signpost connecting each section to the next, I will first outline the categories and their underlying concepts (see Table 4.3).

Within the four main categories, the comments were able to be classified into two divisions of what the stakeholders perceived in regard to the National Health IT Plan: Plan deficiencies – representing the contributor perceptions of what was lacking in the draft Plan, and Plan distinctions – representing the contributor perceptions of strengths of the draft Plan, specifically what they think are positive differences between it and
previous eHealth strategy in New Zealand. The categories and their selective codes are presented in Table 4.3.

Table 4.3 Constructed categories and selective codes from analysis of the HIVE.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>Planned Implementation</th>
<th>Stakeholder Buy-in</th>
<th>Role of IT</th>
<th>Aim at Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficiencies</td>
<td>Ambitious phases</td>
<td>Need for clinician driven input</td>
<td>Technical emphasis on standards</td>
<td>Population health component</td>
</tr>
<tr>
<td>Distinctions</td>
<td>Incremental progression</td>
<td>Patients’ role</td>
<td>As clinical support</td>
<td>Highlighting patient control</td>
</tr>
</tbody>
</table>

Through the analysis process, incipient codes were either positive perceptions (distinctions) of the draft Plan or were highlighting what contributors would like to have seen included in the document but perceived as missing (deficiencies). Nonetheless, these two sides of the argument were not mutually exclusive. In other words, one contributor could, and usually did, comment on what aspects of the draft Plan were signs of progress in comparison to previous eHealth strategy while at the same time stating that deficiencies in the draft Plan still exist.

After constructing the categories, the information was combined into a table outlining the analytical process from coding to the emergence of the categories. Appendix 2 is a representation of the coding process, aggregated into one table, which will be presented individually in the relevant sections below. Appendix 3 marries the contributors with a distribution of the codes exhibited in their comment(s). To deepen the analytical findings, this table was used in re-reading the discussion thread and highlighting contributor comments to the code distribution. These findings are presented in the subsequent discussion. In the following sections, I present the two forms of these tables as a tool to explain the process of constructing the categories from the initial open codes.

4.6 Category 1: Planned Implementation

This category represents the contributors’ views on how the draft Plan will be implemented. The contributors are all individuals who have worked in the health sector in some capacity (see Table 4.1 and Table 4.2) and were inclined to compare their
personal experiences to the current situation in the health sector. Furthermore, many of these individuals (including the four contributing from outside New Zealand) had international experience in the UK and Australia and compared their experience with eHealth strategy implementation abroad to their perceptions of the draft Plan. In particular, through the course of data analysis, a conceptual relation between the ambitious phases and incremental progression selective codes emerged as the codes were derived. The relationship between these two makes up the Planned Implementation category. Table 4.4 provides the compounded open codes used to compose the selective codes to support the formation of the emergent category. The table is presented here as an outline to guide the detailed analysis and discussion below.

Table 4.4 Construction of the Planned Implementation category from open and selective codes

<table>
<thead>
<tr>
<th>OPEN CODE</th>
<th>SELECTIVE CODE</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater challenges of Phase 2, alignment to prevent fragmentation</td>
<td>deficiency</td>
<td></td>
</tr>
<tr>
<td>Ambitious phases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental tasks, monitor targets, structured vision, previous stagnant implementation</td>
<td>distinction</td>
<td></td>
</tr>
<tr>
<td>Incremental progression</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following sections will explain the discovery of the selective codes from the open codes that resulted in forming the Planned Implementation category.

4.6.1 Ambitious phases

The front cover of the draft Plan has a triangle figure diagrammatically representing the two phases of the Plan (Appendix 4) and the time span to attain each. This selective code represents the ambitious time frame within which contributors perceived each phase could be accomplished. The expectations of the time frame required to implement each phase is presented in the figure and discussed in the content of the Plan. From the start of the feedback thread, as early as the fourth comment, it was apparent that contributors were cautious about what was anticipated to be accomplished in each phase of the Plan.

Having two phases was praised but one contributor succinctly stated a deficiency that others echoed, “Having two phases is a good idea. However looks [like the] second phase is more challenging.” The European contributors commenting from the
Netherlands echoed many other contributors’ sentiments that the Plan is “comprehensive, realistic and ambitious.” Their reservations were based on two perceived problems – the overall Plan objective of promising electronic availability of a core set of personal health information to all New Zealanders by 2014, and the complex ‘shared care’ component of Phase 2.

The contributors repeatedly highlighted the wide scope of what falls under ‘shared care’ in the second phase of the Plan. Many suggested that the ‘shared care’ component of the second phase was much more elaborate and complex than the simplistic presentation it has in the Plan diagram (Appendix 4). The diagram shows ‘shared care’ at the peak of the triangle with four components (Patient Vitals, E-events, Care Plans, Decision Support) written to the side. The reservation that was emphasised was the ambitious time frame put forward.

However, the need for clarification extended beyond just the ‘shared care’ component. There were numerous suggestions that further detail and explanation be provided on how to achieve the components of both phases in order to avoid fragmentation and to support the Plan’s vision of enabling integration. As one contributor summarised,

“...we need to clearly articulate how the transformation will be delivered by the 28 projects noted in the plan; otherwise there is a danger of a fragmented health system.”

These words of warning were targeted at two issues – requesting further information be presented on the components of ‘shared care’ and how they align, while also requesting information on how the goal of ‘shared care’ aligns with other health strategies in New Zealand. The wariness expressed within these comments is due to previous experience with other strategy, both in New Zealand and internationally, where ambitious strategy was either misaligned with other national strategies and/or was so fragmented it resulted in stagnation or failure.

4.6.2 Incremental progression

Despite emphasising the ambitiousness of the two phases of the Plan, emphasis was placed on the presence of incremental progression of tasks in the Plan, seen as a possible
way to curb the risk of fragmentation. Most of the individuals classified as Providers (Table 4.2; Appendix 3) focused on the fact that in comparison to previous eHealth strategies, the Plan has set time spans and goals for the two phases of implementation. As one contributor commented,

“...from the Plan we have the phases set out, and in each phase some lists of what needs to be done.”

The build-up of incremental tasks that laid a foundation and built on one another was pointed out a large number of times. It was recognised as a way to be able to monitor progress, a sentiment that Board Director Graeme Osborne reiterated in a follow-up comment.

From the comments, any semblance of incremental implementation was a distinction stressed primarily because this is where many saw the difference between the Plan and previous eHealth strategy in New Zealand, especially on the point of monitoring targets as each component of the Plan was either built on or linked to another to attain a unified vision. A contributor summarised this realisation, stating:

“...unlike previous strategy, I think this is a realistic target for [New Zealand] given the high level of health IT literacy.”

‘Previous strategy’ referred to by three contributors was the 2001 WAVE Report. Referred to as overwhelming in the scope of what it set out to achieve, the WAVE Report and the “various health IT strategies hatched” were viewed as examples of previous stagnant implementation. One contributor commented,

“...there are still things from WAVE that we need to implement. If we had actually done that over the past 10 years the stagnation [mentioned by another contributor] would not exist.”

Nonetheless, two individuals did shift (and end) the conversation around planned implementation by stating that the issue in New Zealand is not the strategies but issues around implementation of those strategies. This was not discussed in further detail but
is an important point to consider in future discussion with interviewees in the next phase of data collection.

4.7 **Category 2: Stakeholder Buy-in**

This category represents the contributors’ views on the importance of stakeholder buy-in during the development and implementation phases of the draft Plan. A third of the contributors were at one time or other clinicians of various capacities (see Table 4.2). Through the course of data analysis, it was apparent that these individuals were more vocal in supporting the stakeholder buy-in with a focus on clinicians and patients or consumers of all ages. The variance was subtle but I discovered a conceptual relation between the *need for clinician driven input* to the Plan and their leadership as well as highlighting how that differs from the *patients’ role* in the process. The relationship between these two makes up the Stakeholder Buy-in category. Table 4.5 provides the compounded open codes used to compose the selective codes to support the formation of the emergent category. The table is presented here as an outline to guide the detailed analysis and discussion below.

**Table 4.5** Construction of the Stakeholder Buy-in category from open and selective codes.

<table>
<thead>
<tr>
<th>OPEN CODE</th>
<th>SELECTIVE CODE</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinician buy-in for success, clinician ownership, clinical value</td>
<td>deficiency</td>
<td>Stakeholder Buy-in</td>
</tr>
<tr>
<td>Patient engagement, allaying patient/consumer concerns</td>
<td>distinction</td>
<td>Patients’ role</td>
</tr>
</tbody>
</table>

The following sections will explain the discovery of the selective codes from the open codes that resulted in forming the Stakeholder Buy-in category.

4.7.1 **Need for clinician driven input**

All the clinicians that commented were overwhelmingly insistent that the clinicians’ role in the Plan is not well outlined. One contributor commented that at first glance, the Plan looks to be clinician friendly. Another contributor picked up on this point but stated,
“...clinician friendly is good – but the reality is that benefits and savings are more likely if it is clinician driven.”

The contention repeated was that clinician buy-in for success was necessary to ensure lasting solutions. Emphasis was placed on the need for clinicians to be front and centre during both the development and implementation process. It was in these comments that a contributor raised the point that the Board was taking a step in the right direction with the Plan by putting it in a forum like the HIVE and allowing all people to contribute. One contributor went so far as to say that stakeholder outreach like the HIVE thread “is how you engage the clinicians – let them specify, design and govern ‘their’ health information.”

Outside of the HIVE thread, however, the need for clinician involvement and their role was noted as important for the Plan to be successful at ground level. This is where a sense of clinician ownership was brought up because

“...if clinical information is not owned and governed by clinicians, then the data is likely to be a lot less useful...”

Mr Osborne was quick to add to this point by stating that they had projects in the works to this effect and the

“...goal is to gain agreement by clinicians on the core primary healthcare information...required to be collected to support delivery of healthcare services.”

This was a forethought by the Board as a way to define information requirements in terms of clinical value. It seems to indicate the Board’s awareness that the Plan was lacking to a degree in clinical buy-in and involvement and was engaging in a number of methods (e.g. the HIVE thread, pilot projects, clinical leadership group, etc.) to improve subsequent iterations of the Plan.

4.7.2 Patients’ role

Despite the request to further involve and increase the role of clinicians, the patients’ role and the patient-centric approach of the Plan was seen as a shift from previous
strategy. A couple of contributors mentioned the issue of patient engagement as an issue that was not unique to New Zealand, going as far as to reference international literature. Mr Osborne shifted this conversation to the patient and conveyed the fact that the Board was running six regional consumer forums with the aim of getting a broad representation of consumers. It was this variety of stakeholder engagement that was brought up again as differing from previous eHealth strategy implementation in New Zealand.

Nonetheless, two issues were raised by contributors as often neglected in New Zealand – engagement of older consumers and modern concerns around privacy. These two issues were linked in the comments. The point raised was that in order to engage the older generation the Board needed to alleviate present fears around privacy of patient data. As a result it was suggested that allaying patient/consumer concerns around privacy and security early on could see better engagement. An important concern is that the Plan aims to allow for more patient access and control of their electronic health information. To illustrate the Board’s awareness of these issues, Mr Osborne made a point of replying that consumers need and should have confidence that their sensitive health information is protected and managed properly. He backed up that comment by mentioning an intention of adding a statement in later iterations of the Plan and emphasising the alignment this has with the New Zealand Privacy Act 1993, “…legislation that supports privacy in New Zealand [and] is very effective in protecting the rights of the individual.”

4.8 Category 3: Role of IT

This category represents the contributors’ views on what degree of emphasis should be placed on the role of IT as discussed in the draft Plan. This was one of the two most commented on topics in the discussion thread. Through the course of data analysis, a divide was apparent between those with a technical background and those without. One can derive from the technical language of the comment those with an IT background and therefore those individuals were more likely to raise the issue. A conceptual relation emerged in the divide between those placing a technical emphasis on standards to be included in the Plan and those highlighting the Plan’s awareness that IT is there
as clinical support. The relation between these two makes up the Role of IT category. Table 4.6 provides the compounded open codes used to compose the selective codes to support the formation of the emergent category. The table is presented here as an outline to guide the detailed analysis and discussion below.

Table 4.6 Construction of the Role of IT category from open and selective codes.

<table>
<thead>
<tr>
<th>OPEN CODE</th>
<th>SELECTIVE CODE</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture approach needed, standardisation necessary</td>
<td>deficiency</td>
<td>ROLE OF IT</td>
</tr>
<tr>
<td></td>
<td>Technical emphasis on standards</td>
<td></td>
</tr>
<tr>
<td>Optimising clinician access, ease of use of health information system</td>
<td>distinction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As clinical support</td>
<td></td>
</tr>
</tbody>
</table>

The following sections will explain the discovery of the selective codes from the open codes that resulted in forming the Role of IT category.

4.8.1 Technical emphasis on standards

All contributors with an IT background, including all but one international contributor, highlighted the missing information in the Plan on architecture and standards. The contributor from Europe wrote approximately 1200 words with technical emphasis on standards and how

“...the current draft does not address the single most important critical issue and risk: the standard to be chosen as basis for an EHR-architecture.”

The comments kept coming in reiterating that

“...there are a multitude of work items that need to be done with a view to underlying standards [and a] main concern is the [missing] Architectural approach and content in the National Health IT Plan.”

It was repeated that there was an architecture approach needed, with, as one contributor put it, a role for “an architecture group that has broad understanding of the information, software, and technology models that are in use by healthcare organisations in” New Zealand. This was pointed out as imperative for establishing the standardisation necessary to achieve the Plan’s aims.
Eventually ending this series of comments was Mr Osborne indicating that the Plan was not the right place for this type of content and the Board had

“...purposely not gone into a great deal of architecture planning as we wanted this document to have a wide readership.”

This was not the audience for the Board to present that level of information. It was useful content for the contributors to comment on, but the Board were trying to reach a wider audience and establish a level of engagement across an array of stakeholders. As a result, technical information was shifted to a separate document and group, thus subsequently taking up less of the content within the Plan. The audience engagement was a by-product of this analysis and noted for further discussion during the interview phase.

4.8.2 As clinical support

The presence of comments on technical language and discussion around standards raised a few comments from contributors who saw IT as there for clinical support. The contributors that were not as engaged in the technical language involved with IT re-focused the discussion on this topic. A contributor commented that

“As a clinician now working in IT, I have some concerns that there is insufficient stress on the fact that...health services are here to provide healthcare to patients...”

The Plan was commended as a good outline that information systems and technology exist in healthcare for optimising clinician access to information to ensure best care for the patient. At times, the conversation did digress to a degree but it was emphasised that the systems should support the clinicians’ work processes, which requires an ease of use of health information systems. A small number of contributors commented that the language of the Plan highlights this fact more than previous New Zealand eHealth strategy.
4.9 Category 4: Aim at Completion

This category represents the differing views by contributors on what the aim should be once the components of the Plan are fully realised. Along with the Role of IT category, this was the other issue that garnered the most comments. Through the course of data analysis, a point of contention arose within the data on whether the health information systems were there to add to a greater Population Health component or there highlighting patient control and accessibility. A conceptual relation arose in the divide between the two, which formed the Aim at Completion category. Table 4.7 provides the open codes used to compose the selective codes to support the formation of the emergent category. The table is presented here as an outline to guide the detailed analysis and discussion below.

Table 4.7 Construction of the Aim at Completion category from open and selective codes.

<table>
<thead>
<tr>
<th>OPEN CODE</th>
<th>SELECTIVE CODE</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wider scope of health information, population health unmentioned</td>
<td>deficiency</td>
<td>AIM AT COMPLETION</td>
</tr>
<tr>
<td>Patient-held record, accessible to patient/consumer</td>
<td>distinction</td>
<td>Highlights patient control</td>
</tr>
</tbody>
</table>

The following sections will explain the discovery of the selective codes from the open codes that resulted in forming the Aim at Completion category.

4.9.1 Population Health component

One contributor (involved as a researcher at the time) was first to mention and open a discussion on the fact that there was an element missing from both the online thread and the Plan – a population health component. Comments thereon were a mixture of longer statements about the wider scope of health information and short statements agreeing with the fact that a population health component is unmentioned. Divergence between contributors came down to where the emphasis was put – the objective being on population health or patient-focused healthcare. One contributor referenced the US eHealth strategic document, which he/she indicates bridges those “two overarching goals...and all objectives relate to both of those goals.” The consensus was the Plan
is only addressing one and leaving out the other and could, as the contributor further stated, “benefit from a greater focus on...population health.”

Others were not as supportive of the idea of having a population health focus, although comments were indicative of the importance of population health. Instead, the contributors perceived the focus should be on getting the right systems in place first. One contributor was part of the opinion that clinicians should govern information so that “it is not skewed towards the needs of [government] data collections rather than patient care.” This side of the argument counters that instead,

“If we get this right, then the data for national collections will be a natural [by-product] of the collection of clinical data during patient care.”

There is an agreement on the matter from both sides of the argument, although they approach it in different ways. Mr Osborne did comment briefly that the Board has not missed this area but instead has built aspects of population health into many of the components of the Plan.

4.9.2 Highlighting patient control

The remaining viewpoints on this issue were acknowledged in short mentions throughout the thread. There was not an intense discussion or supposition on the subject as with previous discussions. Instead there was subtle recognition that the Plan is trying to accomplish something new in allowing patients access to some of their electronic health information. There was recognition of the importance of population health but there was an echo of what the contributor above stressed that the primary focus is that this is a move toward a patient-held record and that is where the emphasis should be. As a result the information and the systems are meant to be accessible to the patient/consumer and thought of as simply data points feeding into national data collections. Most contributors briefly touched on the element of patient control. Mr Osborne conveyed that, more than in previous strategy, patient control is part of the eHealth vision for 2014 and beyond in New Zealand.
4.10 Conclusion

In this chapter I analysed and discussed the HIVE online discussion thread, examining how stakeholders perceived the draft Plan prior to its implementation. The findings were a set of 19 open codes that produced eight selective codes – the conceptual elements for coding composed of segments of data (Glaser, 1992). Four categories emerged from the selective codes indicating deficiencies (perceived lacking in the draft Plan) and distinctions (perceived positive attributes of the draft Plan): Planned Implementation, Stakeholder Buy-in, Role of IT, and Aim at Completion. This range of related topics was discussed over the course of a 42-day period where 21 individuals took time to give feedback and contribute to the document. The purpose of conducting this analysis was to discover codes and categories as a first step in informing the subsequent in-depth interviews. In the next chapter, the categories derived from the HIVE analysis will be used to create an interview schedule to commence deeper discussion on factors impacting the implementation of the National Health IT Plan.
CHAPTER 5

Establishing the Foundations for the Interview Findings
5 Establishing the Foundations for the Interview Findings

5.1 Introduction

In Chapter 4, analysis of an online discussion thread dedicated to the draft National Health IT Plan resulted in the emergence of distinctions and deficiencies of the document, as perceived by 21 contributing stakeholders. The findings from this first phase of data collection (Steps 3-4 in Figure 5.1) are used to inform the interview schedule for the second phase of data collection. In Chapters 5 and 6, the foundations for the interviews (Chapter 5) and the analysis of the findings (Chapter 6) are presented. In this chapter, Steps 5-6b (Figure 5.1) will be addressed.

![Diagram showing data collection process steps](image)

**Figure 5.1** Indication of the data collection process steps presented in Chapter 5.

For this second phase of data collection, a series of 30 in-depth convergent interviews were conducted. Following the data collection and analysis procedure described in detail in the Methodology chapter, the transcribed interviews were coded and through
the process of open and selective codes the categories presented here emerged. Use of
the grounded theory methodology allows for the investigation of reality and analysis of
data with no preconceived ideas or hypotheses so that theory emerges from data (Glaser
& Strauss, 1967). Drawing from the HIVE discussion thread analysis, this second
phase of data analysis delves into issues that arose during the Plan’s implementation
process. In the previous chapter, stakeholder perceptions emerged in regard to the
planned implementation of the Plan, the degree of stakeholder buy-in, the role of IT,
and the aim at completion of the Plan. At this stage of the implementation process, we
integrate those pre-implementation views to explore the following research questions:
What are the major issues impacting implementation of the National Health IT Plan?
How are these issues impacting uptake of eHealth initiatives?

This chapter is presented as follows: I first establish a timeline from when the HIVE
discussion took place to when the interviews conducted for this research commenced
and ended. I then describe the convergent interview process adopted and the rationale
for its use. Lastly, I describe the process of contacting and recruiting participants as
well as presenting participating interviewees. This establishes the foundations for the
analysis of the data and discussion of the findings in Chapter 6.

5.2 From draft National Health IT Plan to implementation

Once feedback from the consultation and discussion phases on the draft Plan was
obtained and completed in June 2010, the Board was tasked with disseminating the final
National Health IT Plan. In July 2010, the first Plan was released with the first phase
of the Plan to start simultaneously (National Health IT Board, 2010). Respective to the
time of the Plan implementation, DHBs were asked by the MOH to plan their services
together as a region (Cameron, 2011). The 20 DHBs in New Zealand were divided into
four regions – Northern, Midland, Central, and South Island (Auditor-General, 2013).
In the North Island are located the Northern, Midland, and Central Regions; in the South
Island the South Island Region only. Figure 5.2 illustrates how the DHBs were
geographically divided into the regions. Grouped into four regions, the DHBs worked
together to create regional IS plans using the Plan as the framework and tying in
regional priorities including funding, building, and workforce programmes (National Health IT Board, 2010).

Between August and October 2010, each region devised their own methods of how they saw fit to interpret and deploy Plan initiatives. The Northern and Central region created standalone IS implementation plans – the Northern Region released the *Northern Region Information Systems Plan 2010-2012* (Manley, 2010) and the Central Region the *Central Region Information Systems Plan 2010-2015* (Ward & Woolley, 2010). By July 2011, these documents were approved by the respective regional executive boards. The Midland and South Island regions integrated the IT strategy component into their health service plan. In 2012, updates were made to the Midland Region’s document to focus on goals and programmes outlined in Phase 2 of the Plan (Midland District Health Boards, 2012). The South Island Region went on to have a couple of iterations to

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**Figure 5.2** The 20 DHBs divided into four regions (*Source: Auditor-General, 2013*).
incorporate Phase 1 and Phase 2 of the Plan with the latest version released in 2013 (South Island Alliance Programme Office, 2013).

From the point of releasing the final forms (July and September) of the Plan in 2010, the Board exerted a lot of effort to present and discuss the Plan with appropriate stakeholders. Much like the strategy used for disseminating the draft Plan, National Health IT Board Director Graeme Osborne travelled throughout New Zealand to discuss the Plan. Video and records online show presentations at regional workshops and national events and conferences including annually at HiNZ, the New Zealand Telehealth Conference, and the Privacy Forum New Zealand. Members of the Board and DHB executives were also present at relevant conferences to present progress and discuss issues with professional groups or consumers depending on the audience. The Board’s online newsletter from December 2011 indicates at the time, further to these public meetings, the National Health IT Board and the National Health Board were engaging with DHB chairs, Chief Executive Officers (CEOs) and Chief Financial Officers to express the goals of the Plan and the value of investing in eHealth (National Health IT Board, 2011).

In the first quarter of 2012, there was a change in Mr Osborne’s presentation of the Plan at public meetings and conferences. Specifically, his Microsoft® PowerPoint presentations evolved to include only one slide – a slide showing Figure 5.3 (also Appendix 4). This figure, sometimes referred to as the ‘triangle diagram’, was on the front page of the Plan document. Although, not inclusive of all aspects of the Plan, the figure titled ‘Enabling an integrated healthcare model’ includes major components of the Plan that the Board wanted to convey to stakeholders (National Health IT Board, 2010). The figure is split horizontally into two phases. The lower, Phase 1, is the foundational phase represented by the Primary-Community component and the Secondary-Tertiary component, where patient care and information (represented by the Continuum of Care) connects the two. Information technology programmes (such as GP2GP) designated as integral by the Board are highlighted as offshoots of those components. At the peak of the triangle, and the aim of the Plan, is the concept of Shared Care with aspects of what would be available under Shared Care (such as Patient Vitals and Care Plans) listed to its right.
Individuals use both internal (stored in the brain) and external representations (documented on paper or other medium) when problem solving. Larkin and Simon (1987) state that external problem representations exist in two forms: in a sentential representation where “expressions form a sequence corresponding, on a one-to-one basis, to the sentences in a natural-language description of the problem” (p.66) and in a diagrammatic representation where expressions correspond to the components of a diagram describing the problem. The triangle diagram from the Plan (Figure 5.3) is a diagrammatic representation of components of the Plan.

![Figure 5.3 The triangle diagram from the Plan (Source: National Health IT Plan, 2010).](image)

Whether diagrams can help people reason has been a question with a long philosophical history. Nonetheless, research has shown that diagrams play a role in search, recognition, and inference processes (Larkin & Simon, 1987; Tabachneck & Simon, 1992; Bauer & Johnson-Laird, 1993). An iconic diagrammatic representation can be recognised faster than a verbal description (Bauer & Johnson-Laird, 1993) and can be an effective tool for causal reasoning of public policy to aid stakeholders in being more effective citizens (Easterday, Aleven, & Scheines, 2007). As an external representation of the Plan, and used as a tool to aid in implementation, the triangle diagram (Figure
5.3) was justified in its use as part of the discussion in interviews with participants in exploring the research questions for this study.

5.3 Conducting the interviews
In Chapter 3, the methodological discussions presented grounded theory as a general research approach that can utilise quantitative, qualitative, and/or a mixed method approach (Glaser, 1992). For this portion of the research, qualitative methods, in particular interviews, were used to collect data. In social research using qualitative methods, interviews are a valued data collection tool (Flick, von Kardorff, & Steinke, 2004; DiCicco-Bloom & Crabtree, 2006). An important use is as a technique for experts to impart knowledge about the research field where the recording and analysis of the informants’ subjective perspective can inform the research question. Qualitative interviews are a research method related to approaches of interpretive sociology because of the possibility of enquiring about situational meaning and the possibility of discursive understanding through interpretations (Flick et al., 2004). In-depth interviews, used to discover shared understanding of a particular group, allow the interviewer to delve deeper into social or personal issues (Rapley, 2007).

5.3.1 In-Depth interviews
In-depth interviews go beyond common sense explanations, aiming to explore contextual boundaries of experiences or perceptions (Rapley, 2007) to “penetrate to more reflective understandings about the nature of that experience” (Johnson, 2001, p.106). Convergent interviewing, an in-depth interview technique, allows for adaptability in the exploration of an area under investigation without predetermining answers (Riege & Nair, 2004). Suitable for theory building, this process permits the refinement of questions subsequent to each interview, allowing the researcher to converge on agreements and disagreements on issues (Rao & Perry, 2003). As a result, more can be learned about the issues being researched in order to converge on a focal point (Dick, 1998). As grounded theory emerges from the process of constant comparison (Bryant & Charmaz, 2010), convergent interviews are a useful technique in carrying out that procedure. Figure 5.4 shows the convergent interview process of constant comparison between data sets. This iterative process – of conducting
interviews, taking notes, identifying agreements and disagreements – is repeated until saturation is reached, seeking understanding through identifying agreements and disagreements while seeking and probing for exceptions and explanations (Dick, 2005).

![Figure 5.4](image.png)

**Figure 5.4** The constant comparison process through convergent interviews, adapted from Dick (2005).

Other qualitative data collection methods are available. In particular, focus groups and case research exist as relevant methods for data collection. Focus groups are useful when group interaction can produce insights that would be unobtainable without interaction resulting from a group dynamic (Morgan, 1993). However, the data for this research study can be obtained without the need for the group setting. The provision of anonymity in a one-on-one individual interview would provide more meaningful data in exploring the research questions. Case research emphasises the importance of pre-structure and prior theory before conducting research and a standard interview guide across the interviews (Yin, 2003) which was inappropriate for this research and incongruent with the process of grounded theory adopted. The progressive nature of convergent interviewing develops refinement of questions and understanding of the
research questions (Dick, 1998; Rao & Perry, 2003), identifying it as a suitable method as an interview technique for data collection.

In-depth convergent interviews are data-driven (Dick, 2012). Paralleling the principles of grounded theory, data analysis occurs after each interview and the agreements and contentions derived from each interview are used to guide subsequent interviews. This process of constant comparison as common themes emerge forces the researcher to probe for explanations. Used to supplement grounded theory methods, convergent interviews aid in allowing theory to emerge gradually through the programme of interviews. The process is structured, systematic, and focused. Dick (1998, 2012) outlines 13 common steps typical of a convergent interview process (where relevant, the complementary grounded theory concepts are cited):

1. **The Reference Group**
   A reference group is a set of people drawn from the group under investigation chosen for their knowledge of the research area being explored who are chosen to provide introductory guidance.

2. **Define the Information**
   Define the nature of the information to be collected. The initial questions can at first be broad. The questions will get more focused as only necessary questions will be asked to define the next step. As a result, the proclivity to ask the wrong questions is reduced due to the open-ended nature of convergent interviewing.

3. **Define the Target Population**
   Define the target population consisting of the relevant stakeholders.

4. **Inform the Stakeholders**
   Inform the target population of relevant stakeholders (and other interested parties) of what you are doing. Be clear and explicit about what you are doing in order to avoid misunderstandings or misconceptions.
5. **Choose the Sample**

Choose the sample, and the first person interviewed should be the person ‘most representative’ of the population. If the information is lacking or if it is difficult to decide who to select first then the reference group is utilised to start this process. Each participating interviewee would then nominate another individual that should be considered for the sample. This parallels the ‘snowball’ sample method in grounded theory (Glaser & Strauss, 1967) and simultaneously enables the researcher to engage the data in finding agreements and disagreements. ‘Snowballing’ is a component of the grounded theory concept of theoretical sampling, whereby the researcher is flexible in determining the individuals to include in the research (based on the emerging theory) opening up the potential to gather appropriate and valuable data (Glaser, 1978; Dey, 1999).

6. **Select and Train Interviewers**

If the sample size warrants, then select and train interviewers. Interviewers should work in pairs to reduce interviewer bias so as not to distort the outcome of the interview. This was not a component of the research process reported in this thesis as only one individual conducted the interviews.

7. **Plan the Interview**

The interview should be planned in two parts:

a. Decide on an opening (open-ended) question to ensure it defines the topic but is not leading the person being interviewed.

b. Determine probing questions for more specific information. These can be used when there are specific questions to which answers are sought or when looking to clarify uncertainties/disconfirmations from earlier interviews.

8. **Conduct the Interviews**

Conduct the interviews following a series of stages:
a. Build rapport by setting the participant at ease. Introduce self, explain the purpose of the interview, and the importance of ensuring their anonymity so that information will be reported in a way that conceals the identity of the participant.

b. Start with the opening question.

c. Keep the participant talking, introducing probing questions as necessary. The interview is typically an hour and is a central feature of the technique as the initial open-ended question(s) should invite discussion.

d. Summarise key issues from the interview. Follow-up on ambiguous issues or unanswered probe questions.

During the interview process, notes and audio-recording can be used to aid in recall, and were both used in this case. This is useful after transcription of the audio-recordings through open coding of the data, which along with constant comparison is a foundational technique of grounded theory (Glaser, 1978; Urquhart, 2013).

9. **Interpret the Interviews**

Interpret the data collected so far and record this interpretation in writing. The report can take into account the recently completed interview and any previous interviews. This incorporates the theoretical memoing and further supports the comparative analysis process of grounded theory.

10. **Compare the Interviews**

Whether comparing interviews individually or between more than one interviewer, compare information which occurs in more than one data set. Note agreements and disagreements as data recurring in more than one interview will logically fit within those two. Examine how widely this is occurring in other data sets to test apparent agreements and seek explanations for apparent disagreements. This step (along with step 12) corroborates the theoretical sampling process of generating theory where data is jointly collected (through convergent interviews) and coded and the analysis guides the next step of data
collection and where to find the data to develop theory as it emerges (Glaser & Strauss, 1967).

11. **Review the Process**

   If necessary, modify the approach used if justifiable changes are necessary for approaches used such as the sample population, interview design, or probes.

12. **Repeat**

   The convergent interviewing technique is a cycle, and central to this cycle is to return to step 8 and repeat. This continues until two successive interviews add little or no new data worth tracking further. This iterative process results in saturation. Through the constant comparison process, theoretical saturation is attained. Undergoing this process, once it yields no new properties, then the concepts have achieved theoretical saturation (Glaser, 2005). The researcher shifts focus toward exploring the theoretical codes to “enable the conceptual integration of the related concepts to produce hypotheses that account for [the] relationships between [them]” (Holton, 2010, para.1). This explanation forms the basis of the emergent, substantive theory.

13. **Report**

   Compile a report of the findings from the interview data.

   This dialectical process of interviewing paired with the grounded theory method uses apparent disagreement to generate agreement at a deeper level (refer to Figure 5.4). The following sections will be presented in accordance with the convergent interview steps outlined above and grounded theory methods. Consequently, the following findings and analysis presented is the emergent, substantive theory, resultant of the convergent interview and coding processes.

5.3.2 **The process**

   Data collection and analytical conceptualisation must be rigorous in all aspects of qualitative inquiry. More so in grounded theory, the two processes of data collection
and analysis occur concurrently and cannot be separated (Bryant & Charmaz, 2010). The quality of the data is obtained through careful sampling of participants. By establishing the research area to be investigated, it was imminently important to create a list of people as a reference group of individuals who could provide the introductory guidance and knowledge in exploring the research questions – What are the major issues impacting implementation of the Plan? How are these issues impacting uptake of eHealth initiatives?

Establishing the reference group and engaging in interviews with those individuals was the first phase of the data collection process. Once the research questions and parameters for the research participants were established, ethics approval was sought from The University of Auckland Human Participants Ethics Committee and acquired on 19 June 2012. Having attained ethics approval, a preliminary list of individuals was generated between the supervision team (Drs Karen Day and Martin Orr) and me of individuals who were well known to be regularly engaged in the healthcare sector and had knowledge of health IT strategy in New Zealand. Over the period of two months, in conjunction with other discussions related to the PhD, a list of 32 potential participants was compiled.

In establishing a reference group it was important to outline specific criteria for a common base. In grounded theory, the first task of the research is to scope the phenomenon by determining its dimensions and boundaries (Richards & Morse, 2007; Bryant & Charmaz, 2010). Identifying the most appropriate participant group is critical in order to maximise variation of meaning to determine the scope of the concept. To maximise variation and scope the phenomenon within set parameters, criteria was created to ensure that the selected individuals helped in providing introductory guidance while being representative of the group chosen for their knowledge of the research area. The established criteria outlined that in order to be a part of the reference group, the individual:

a. had been historically involved in eHealth strategy in New Zealand (>10 years to allow for experience with previous national eHealth strategy including HIS-NZ and the WAVE Report), and
b. he/she had contributed to the shaping of the National Health IT Plan and/or was involved in the implementation of key initiatives.

From the aforementioned list of 32 possible participants, eight individuals from that list met the established criteria for the reference group who would be both a knowledge source and representative of the people drawn from the group under investigation. Establishing these criteria for the reference group would also be useful in identifying key topics to explore with participants in subsequent interviews.

Once the names of the eight reference group individuals were finalised, the supervision team (also in compliance with the ethics committee process) first contacted the individuals with a short email clearly outlining:

- he/she was being contacted on behalf of their PhD student in regard to being interviewed as part of a PhD research study,
- the PhD students name,
- the aim of the research,
- why he/she was being contacted in exploring the research question,
- awareness of two Adobe Acrobat® PDF attachments to the email: The Participant Information Sheet and The Consent Form,
- he/she was not obligated to participate, and
- the PhD student’s contact information if he/she wanted to contact her in order to arrange an interview.

All eight individuals made contact via email over the subsequent two months, with the first interview commencing in October 2012. Subsequent interviews (outside of the reference group) were conducted first via snowball sampling – where each interviewee nominated one to five individuals they thought would be suitable for me to contact – and later using theoretical sampling as the emerging categories and the increased understanding of the developing theory warranted directed sampling (Glaser, 1978). Figure 5.5 aggregates into one timeline the release of the iterations of the Plan in 2010, the outlined five year strategy for the two phases of the Plan, and how the interviews conducted to collect data for this research study aligned with the timeline. The first
one-on-one in-depth interview took place a few months after the foundational Phase 1 of the Plan was intended to have ended and approximately half way into Phase 2.

In-depth interviews are meant to be personal and conducted so that open, direct, verbal questions are used to elicit detailed narratives from the participants (DiCicco-Bloom & Crabtree, 2006). Prior to commencing audio-recording of the interview, participants were presented with and briefed on the Participant Information Sheet and Consent Form and any questions they had were answered before signatures were obtained. Using an unstructured interview schedule (see Figure 5.6 for a general structure of the typical 60 minute interview used throughout the interview process), it was first important to develop a rapport with the participant in a warm-up portion where they could discuss briefly their background to be used as a catalyst to the start of the discussion. Dialogue would subsequently flow into the start of the discussion on the Plan using an open-ended question. This strategy is used to trigger open dialogue from the participant.
Most of the interview focused on the core subject once the participant became more comfortable, delving into the core discussion. The HIVE thread analysis in Chapter 4 highlighted pre-implementation issues that stakeholders pinpointed in the draft Plan document. The Planned Implementation, Stakeholder Buy-in, Role of IT, and Aim at Completion were all points of discussion raised during the first few interviews as probes. The subject matter of this section would become more focused as agreements and disagreements were reached between interviewees with coding and analysis of each interview and the theoretical sampling process. As Figure 5.6 illustrates, the last minutes of each interview concluded with a summarisation of the discussion by the interviewer and a request for any last comments by the participant in case any topics were missed. All but two participants went on to recommend other stakeholders worth contacting as potential participants who could contribute further to the subject matter.

### Figure 5.6

Overview of the interviews.

<table>
<thead>
<tr>
<th><strong>Warm-Up</strong></th>
<th>His/her background in the eHealth sector and current position</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start Discussion</strong></td>
<td>His/her role in producing/contributing/developing the National Health IT Plan (if any)</td>
</tr>
<tr>
<td></td>
<td>If had a role in developing the National Health IT Plan, what were influences</td>
</tr>
<tr>
<td><strong>Delve Into Core Discussion</strong></td>
<td>In what ways the National Health IT Plan contributed to the uptake of eHealth initiatives in New Zealand</td>
</tr>
<tr>
<td></td>
<td><em>Probe:</em> Arising issues (positive, negative, etc.), and their impact</td>
</tr>
<tr>
<td><strong>Summarise</strong></td>
<td>Researcher’s summary of discussion</td>
</tr>
<tr>
<td></td>
<td>Interviewee’s last comments</td>
</tr>
</tbody>
</table>

5.3.3 **The participants**

Over a period of 10 months (from October 2012 to July 2013), 30 interviews were conducted with stakeholders working within the healthcare sector involved in developing and/or implementing the Plan and its initiatives. In compliance with The University of Auckland Human Participants Ethics Committee and in preservation of
participants’ anonymity in order to gain open dialogue, participants’ real names are not used in connection with quotes in the presentation of the findings in Chapter 6.

A majority of the individuals interviewed were from the Northern Region (refer to Figure 5.2), seven of the individuals interviewed were from the Central Region (including members of the Board who agreed to be interviewed), and three individuals were from the South Island Region. It could be suggested that there are more individuals from the Northern Region as I, the researcher, am based in the North Island. However, the names received of possible participants to approach were of people equally distributed between the North and South Island. Furthermore, in all email contact, it was indicated that if face-to-face meetings were inconvenient, it was suitable to conduct over-the-phone or Skype interviews. The individuals in all regions were contacted and sought for interviews with equal avidity, and interviews were undertaken with individuals who had both the time and willingness to be interviewed. Moreover, the different distribution may be attributed to the previously mentioned differences in regional implementation plan development and will be discussed further in the findings and analysis.

Using the same stakeholder categorisation that emerged from analysis in Chapter 4, Table 5.1 classifies each of the 30 participants into the following categories:

- **Provider** –
  - Clinical – an individual who is a provider of medical services (e.g. doctor, nurse)

- **Researcher** – an individual who is part of a higher learning institution undertaking research in the subject area

- **Executive** –
  - Government – an individual who holds an executive level (administrative or supervisory authority) position within the government (e.g. CEO of a DHB)

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3In two instances where a quote is attributed to a participant by name, permission has been obtained and a footnote is added.
- **Supplier** – an individual who holds an executive level position within a private company that supplies IT or advisory capabilities to the healthcare sector

- **Management** – an individual responsible for administering a subset of an organisation (distinct from an executive level position) providing management of or advice on strategy implementation

As Table 5.1 indicates, the first eight individuals comprising the reference group were participants who had backgrounds distributed along all categories. With the snowballing technique and as each interview was transcribed (by me), coded line-by-line (or in groups of sentences) and analysed, coupled with theoretical memos used to further data collection, the emerging categories and understanding of the developing theory directed the sampling (i.e. theoretical sampling). It is important to note that Consumers and Technical Providers are not represented in the stakeholder categories. The consumer viewpoint is represented as members of the Consumer Panel were interviewed but are classified under their job positions outside of the Panel. Two Technical Providers (e.g. IT support) were contacted for interview but indicated they did not feel they could contribute to a policy discussion.
Table 5.1 Stakeholder categorisation of the 30 interview participants.

<table>
<thead>
<tr>
<th>Reference Group</th>
<th>STAKEHOLDER CATEGORY</th>
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<tbody>
<tr>
<td></td>
<td>PROVIDER</td>
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<td></td>
<td>Clinical</td>
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</table>

Participants were deliberately sought based on the concepts that appeared significant in order to gather appropriate data resulting in theory emergence and to reach theoretical saturation through that process of constant comparison. This worked well as the constant comparison process continues until no new properties emerge (Holton, 2010); as a result, the concept has been theoretically saturated (Glaser, 1978). Geography therefore was removed from being a limitation, with flight travel booked to conduct face-to-face interviews as necessary. As a result, same day return trips were made to Wellington (on three separate occasions) and Christchurch (on two separate occasions) to conduct one-on-one interviews. More than one interview was able to be organised for each trip. There were no pragmatic reasons (cost of travel was not a factor if planned ahead) not to conduct face-to-face interviews versus using Skype or conducting interviews over-the-phone (even though those options were given to potential participants).
Face-to-face interviews tend to obtain the most valid information because it is easier to build rapport (Flick et al., 2004) and were viewed as providing the potential for meaningful data in exploring the research questions. The remainder of the interviews were conducted face-to-face within a half-hour distance from Auckland Central (with two conducted over the phone at the participant’s discretion). The two conducted over the phone were shorter in interval than the other interviews. Over-the-phone and Skype interviews can lose some of the subtleties associated with face-to-face interaction, however the researcher is more likely to avoid imposing contextual information on the data (i.e. remove interviewer bias) (Bryman, 2001; Holt, 2010). I believe a level of richness was still extracted from the data and it was valuable to interview those two individuals as they were at work and could only conduct phone interviews. Overall, interviews ranged from 30 minutes to 90 minutes in length and a majority were conducted in the participant’s place of business (except for three interviews that took place at cafés convenient for the participants).

At the conclusion of each interview, utilising the snowball technique, I asked each participant if they had any individuals that they recommended I speak to. Most of the participants gave one to five suggestions of people from all over the nation, with a lot of overlap in those names. Figure 5.7 is an adapted visualisation of the snowball technique using circles to denote individuals and lines to delineate who they recommended I speak to. In total, I was given 58 different individuals to speak with. The dark circles with numbers in the centre are those who were interviewed and the participant number aligns with the participant’s number in Table 5.1. The colour of the outline of each circle refers to the region from which each participant is from – purple is for the Northern Region, yellow for Midland Region, orange for Central Region, and red for South Island Region.
The centre of Figure 5.7 originates with the eight members of the reference group and then connects out in layers to the subsequent individuals interviewed (most of whom were recommended by the reference group) and so on. With each layer outward, I achieved increased data saturation. Although 30 participants were interviewed, many more were contacted via email. Of the 58 names given, 45 were emailed as their experience fit within the parameters of the research. If an individual replied that they were busy (shown on the figure as a circle with X across) and could not participate then they were no longer contacted (11 individuals). Those that were emailed and did not reply (shown on the figure as a circle with a dash across the centre) were emailed three times over a period of two weeks (four individuals). If they did not reply to the third
email from me or the supervisors then they were no longer contacted. The rationale was if the individual did not respond, then they were either not interested, could not contribute, or did not have time to participate. As the figure illustrates, all of the regions were well represented except the Midland Region. Effort was made to contact a majority of the Midland Region contacts but either there was no reply or they were busy.

The process outlined above was repeated methodically; concluding after three successive interviews resulted in no new data emergence as a level of saturation of the concepts was reached.

5.4 Conclusion

In this chapter I established the foundations for the interview findings to be analysed and discussed in Chapter 6. I first gave an overview of the transition from the draft Plan to implementation of the Plan and the four regions (Northern, Midland, Central, and South Island) in which the DHBs were geographically divided to coordinate implementation efforts and cooperation. I then detailed specifically the data collection technique – convergent in-depth interviews – and how its use in juxtaposition with the grounded theory methods will aid in data analysis and reporting. Finally, I presented the participant recruitment techniques that in correspondence with theoretical sampling yielded interviews with 30 participants over a 10-month period. In conjunction with the coding analysis of the transcribed interviews theoretical memos created during the interview process were part of the comparative analysis process. In the next chapter, the analytical findings emerging from the data outlining these components are presented in detail.
CHAPTER

Findings: Issues GEARed Toward Implementation of the National Health IT Plan
6 | Findings: Issues GEARed Toward Implementation of the National Health IT Plan

6.1 Introduction

In Chapter 5, I established the contextual foundations for the findings and described the data collection decisions and processes. In this chapter, I present the findings from the second phase of data collection, which formulate the categories that establish the beginnings of the emergent, substantive theory (Step 7 in Figure 6.1). In analysing the findings and relating the theoretical codes, four categories emerged organised around one core category – factors influencing eHealth strategy implementation.

![Figure 6.1 Indication of the data collection and analysis process step(s) presented in Chapter 6.](image)

Drawing from the distinctions and deficiencies that stakeholders perceived from the draft Plan as derived from the HIVE discussion, this second phase of data analysis delves into what issues arose during the implementation process. In Chapter 4, stakeholder perceptions emerged in regard to the planned implementation of the
National Health IT Plan, the degree of stakeholder buy-in, the role of IT, and the aim at completion of the Plan. In this chapter, further into implementation of the Plan, I integrate those pre-implementation views to explore the following research questions: What are the major issues impacting implementation of the National Health IT Plan? How are these issues impacting uptake of eHealth initiatives?

This chapter is presented as follows: I adopt the same ‘forest first and then the trees’ approach to how convergence emerged as interviews progressed by first presenting the discovered categories to demarcate the rest of the chapter analysis. After the discovered categories are introduced, the process from open codes to selective codes to category is presented in detail, grounded in the data from the interviews. This follows the process of inquiry resulting in the emergent categories and the interrelationship between them leading to the emergence of the substantive theory discussed in this and the following chapter.

6.2 Category development: Issues GEARed toward implementation

As detailed in the Methodology chapter, categories are at the peak of a constructed process of abstraction from conceptually related sub-categories. Theory building is a result of relating categories whose interrelationship is justified as it is grounded in the data (Glaser, 1978; Bryant & Charmaz, 2010). The iterative interview process and the inductive, bottom-up method of coding resulted in the emergence of four category descriptors whose interrelationship identifies the significant issues arising during the implementation of the National Health IT Plan in New Zealand and how these issues influenced uptake of the Plan:

- Government and leadership
- Engagement of stakeholders
- Aligning the Plan in context
- Regionalisation to sustain implementation

A simple mnemonic model has a longstanding history of being used to aid memory and recall (Bower, 1970) and is seen in much of the health and business literature and white papers. The GEARed mnemonic is used to summarise the significant categories and
bridge those issues. The mnemonic also underscores the interrelatedness of the issues and how they can have an impact, positively and negatively, on one another.

To facilitate the flow and understanding of the findings, and as a signpost connecting each section to the next, I will first outline the categories and their underlying concepts, utilising the ‘forest first and then the trees’ strategy. In Table 6.1, the selective codes and the four emergent categories are presented.

Table 6.1 Constructed categories and selective codes from analysis of interviews.

<table>
<thead>
<tr>
<th>CORE CATEGORY</th>
<th>Influencing eHealth Strategy Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATEGORY</td>
<td>Government and Leadership Engagement of Stakeholders Aligning the Plan in Context Regionalisation to Sustain Implementation</td>
</tr>
<tr>
<td>SELECTIVE CODE</td>
<td>Complicated sector, simple message Government body providing follow-up Need for clearer governance structures Directorate leadership and communication</td>
</tr>
</tbody>
</table>

Through the iterative analytical process, the emergent categories were constructed from the data. After constructing the categories, the information was combined into a table outlining the process from coding to the emergence of the categories (grouped into Table 6.1 above and presented in more detail for each category in the sections below). The four categories relate to the core category of ‘Influencing eHealth Strategy Implementation’. The analysis leading to the emergence of these categories will be discussed in detail in the following sections. Furthermore, analysis will include discussion on interrelationship of the concepts, adding to the strength of the substantive theory. As a result, some common threads will recur within and between categories. Figure 6.2 is a figurative cohesion of how each category interlocks and influences the other – this figure complements the idea of interrelatedness of the categories, the underlying concepts, and bridges the GEARed mnemonic. Figure 6.2 shows that the four categories fit together like pieces in a large gear. Along the borders the pieces
have boundaries signifying unique characteristics to that category. Yet, in the centre, the issues mix as overlap occurs.

**Figure 6.2** The interrelationship of main issues GEARed toward the implementation of the Plan.

Appendix 5 marries the participant discussion points with a distribution of the codes exhibited in their interviews to represent the analysis presented in this chapter. The findings, utilising grounded theory methods and the processes outlined in section 5.3, integrated with relevant quotes from the interviewees, are presented in detail in the following sections.

The interviewees will be interchangeably referred to as participants throughout the following text. To preserve anonymity, and in accordance with The University of Auckland Human Participant Ethics Committee guidelines, quotes are not attributed to the participant number (from Table 5.1). By not linking the two, it reduces the
possibility of deducing who took part in interviews or made certain statements. Furthermore, as the participants are high profile individuals in a sector of relatively small scale where individuals tend to know one another, it was important to preserve anonymity. This allowed individuals to speak to me in confidence allowing for a rich and unconstrained conversation, the findings of which are presented here.

6.3 Category 1: Government and Leadership

This category represents perceptions on the influence of government in implementing the National Health IT Plan relating to direction, control, and leadership at central level. Implementation of the Plan impacted how prioritised projects, programmes, or initiatives were adopted nationally, regionally, and locally. Furthermore, accompanying governance structures (i.e. authority, oversight) were necessary to manage those changes. The resultant reforms in the healthcare sector surrounding IT implementation were repeatedly indicated by participants to be as a result of not only the Plan but also leadership and direction from the Board.

During the process of analysing the data, it was identified that there was a conceptual relation among the complicated sector, simplified message, government body providing follow-up, need for clearer governance structures, and directorate leadership and communication selective codes. Table 6.2 provides the compounded open codes used to compose the selective codes to support the formation of the emergent category. Included in the table is a summary of the theoretical memos adding a supporting link to the category formation. The table is presented here as an outline to guide the detailed analysis and discussion that follows.
Table 6.2 Construction of the Government and Leadership category from open and selective codes, integrating theoretical memos.

<table>
<thead>
<tr>
<th>OPEN CODE</th>
<th>SELECTIVE CODE</th>
<th>ABRIDGED THEORETICAL MEMO</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare system complexity, complexity of previous eHealth strategy, Plans simple message, distancing from previous strategy, simplified message through singular vision, ensure common direction</td>
<td>Complicated sector, simplified message</td>
<td>Simplified message of the Plan is doing what previous strategies were perceived could not in regard to national progress in the sector. Reducing complication in the sector with a unified vision seen as a different approach to prior eHealth strategy implementation in New Zealand. Previous lack of central body is perceived to be a reason why DHBs previously continued to follow their own agendas with disconnect.</td>
<td></td>
</tr>
<tr>
<td>Previous lack of cohesive directionality, DHB standoffishness, lack of follow-up, monitoring, and progress, central organisation to monitor, central government engagement with DHBs, pronounced role of National Health IT Board</td>
<td>Government body providing follow-up</td>
<td>Lack of a previous directionality has led to different levels of IT capability and readiness throughout the country. There is a growing need that is necessary to meet targets and priorities of the Plan.</td>
<td></td>
</tr>
<tr>
<td>Governance structure lacking, need for defined roles, authority between national government and DHB, delegation of responsibilities</td>
<td>Need for clearer governance structures</td>
<td>Governance is a concern. Leadership and direction exists but formal structures lacking. Having governance structures in place indicated as important for accountability and strategy enforcement. Some structures are in place but some still lacking especially regionally.</td>
<td></td>
</tr>
<tr>
<td>Graeme Osborne as lead, communication style, leadership availability, improved accessibility, open communication, reciprocal communication</td>
<td>Directorate leadership and communication</td>
<td>Graeme Osborne is overwhelmingly mentioned whose leadership and communication as Director has influenced uptake of the Plan. Communication style is perceived as different to predecessors in that there is a face to the organisation. The availability and two-way communication has allowed for discussion and debate.</td>
<td></td>
</tr>
</tbody>
</table>

The following sections will explain the discovery of the selective codes from the open codes that resulted in forming the Government and Leadership category.
6.3.1 Complicated sector, simplified message

In delving into the research questions I wanted to understand what major issues are impacting the implementation of the Plan. To do so, I engaged each participant at the start of the interview in discussion about their background in the health sector and their involvement in prior or current New Zealand eHealth strategy (see the overview of the interview discussion shown in Figure 5.6). Initially, each interviewee reiterated, without disagreement, the complexities within the New Zealand healthcare system – not unique to this country alone. Nonetheless, participants emphasised that, compared to its predecessors, the Plan put forth a simplified message in a complicated sector. Consensus between participants is twofold – one, a simplified message was necessary in order to engage the sector; two, it is seen by some as the first step or by others as one of the first steps in providing foundational changes necessary in developing and reinforcing national and regional governance models to deliver on the Plan.

Reducing complexity in the content of eHealth strategy is integral to its adoption. Participants working in the health sector during periods of previous eHealth strategies – the WAVE Report (2001) and HIS-NZ (2005) were mentioned by name – indicated that the multiple messages in those documents only added to the complexity. All but three individuals mentioned previous strategy. Seven of the interviewees mentioned directly, and four indirectly, that even the document size muddles the messages being conveyed. Examining those documents for context indicates: the WAVE Report (2001) is 87 pages long, HIS-NZ (2005) is 107 pages, and the Plan of 2010 is 69 pages. The content of those strategies is emphasised by participants as even more relevant. The WAVE Report is lauded for being a strong document. However, it is similarly critiqued as not a detailed plan of action, communicating an imposing 79 recommendations for the sector. HIS-NZ is also supported for emphasising 12 Action Zones of focus, but little progress was seen.

Communicating a simplified message was both deliberate and meant as a deviation from previous strategy. The purpose in doing so emerged from the interviews in statements linked to a directive from the MOH. To progress and make changes, the Plan was apparently being marketed differently – starting with the title. As one interviewee put it, “It’s not a plan, by the way, it’s a strategy. It never was a plan.”
Calling it a plan is a complete misnomer.” A participant stated the shift in language was purposeful and came about because “the Minister [of Health] said he was sick of strategies – ‘I don’t want a strategy, I want a plan’ – so it wasn’t allowed to be called a strategy… it had to be called a plan.” His specification aided in also streamlining the message. In combination, participants saw this as sign from the MOH that things are different this time around. Furthermore, those familiar with the MOH added this included differences in development of the Plan, its implementation, and management.

The shared perspective by participants was that forethought went into planning how the Plan would be disseminated by having a simplified message and a way to communicate that message. A majority of participants indicated that what allowed the Plan itself to stand out, compared to previous strategy, was a clear and bold vision statement and diagrammatical portrayal of how to enable that vision (i.e. the triangle diagram, see Appendix 4). In combination, the shared opinion was this is a means of ensuring a common direction for the healthcare sector while supporting and nurturing the current landscape in New Zealand. As one participant stated,

“The National Health IT Plan in its current form isn’t too different from what we’ve been trying to do for 10 years…ultimately, what the Plan tries to do has been on the agenda for ten…at least ten years, if not longer. But the problem is the Government has expressed that same agenda in at least four different plans with a whole bunch of different people [before].”

There is alignment with this statement across a majority of participants. Consensus is the Board was using the Plan to try to do better what previous strategies had failed to do before. A few participants emphasised that the Plan does bring new initiatives outlined in Phase 2, the ‘shared care’ aspect of the vision, but agreed that the Phase 1 foundational initiatives were all at some point components of previous strategies.

The Plan’s message was simplified, all the more essential in a complex setting. In doing so, the sector was brought into alignment with a central vision, whether there was agreement on it or not – all integral to making transformative change. What is the catalyst for this change? The answer did not need prompting during the interviews. As discussed above, the Plan itself was one aspect in instigating changes in governance.
The single recurrent stimulus for change and point of difference to previous eHealth strategic implementation cited is the Board, their role, and their leadership.

### 6.3.2 Government body providing follow-up

Analysis of the findings indicates participants agree that IT implementation and preparedness vary throughout New Zealand. The historic cyclical pattern of strategies, both national and local, is specified as a leading possible cause for the existence of this variability. Mention is made of either the MOH (or one of its designated sub-committees) or DHBs given the directive to take initiatives/focus of an eHealth strategy forward and implement them, with little to no direction or consistent follow-up and communication from that national body. As a result, examples are given of DHBs piloting projects and re-piloting those same projects eight to 10 years later, even when they had already shown the first venture was worthwhile. A point repeatedly raised in conjunction with mention of previous strategy is that an incremental process is necessary to advance the uptake of eHealth initiatives in the sector. However, lack of directionality to evoke leadership, follow-up, and/or capital are indicated as three leading and persistent reasons implementation of previous strategies did not fully move forward in some localities and DHBs, or at all in others.

Further analysis indicates there is disagreement between participants about the root cause of the historic lack of directionality. Specifically, the contention is whether this was a result of the history of DHBs – over the “past 20 years, as a broad generalisation, DHBs have done what they wanted. And as a result we’ve got a complete mess in the sector, a very inefficient way of doing things” (as one participant stated) – or the lack of national leadership and cohesive directionality. Another interviewee explains the issue by stating,

“...it was more standoffish in the past. It was more, ‘we have written a national plan and you just...need to do that.’ And then every DHB was left to its own devices to do it and once a year or maybe once every half year you got asked to report on what have you done. But there was little coordination or drive behind that and therefore [DHBs] just fell back into their own local challenge they have.”
Analysis of the data shows two things emerging hand-in-hand – when the point of lack of prior leadership is discussed, what is different now is simultaneously described. At this point, participants highlighted why the Board and their role are defined as important. Furthermore, they emphasise reasons why the existence of a central body and their provision of a framework influenced the progressive changes, enabled by the Plan. A participant stated, “It wasn’t just the Plan… [the National Health IT Board] actually stayed actively involved to facilitate what we need to do…” It is important to specify that the Board is lauded unanimously by participants for their role.

Playing a high profile and more prevalent role, the Board therefore is not without its critiques. In some cases, they are both praised for some of their efforts and criticised for others by the same interviewee. Examples are given of early shortcomings including one in 2010 when the Board (believed to still be setting its own parameters) was perceived as overstepping their bounds by getting too involved between a DHB and a vendor. Further analysis indicates a lot of the concerns are rooted in governance planning issues around organisational structures and responsibilities. Some of these accountabilities were not clearly defined and planned early on and as a result participants perceived some DHBs felt it was an affront to their autonomy. The agreement is that the Board has made some strides in clarifying the boundaries but there was still work to be done. It is important to note that two participants who work for vendors for IT software companies felt the Board was putting their vision forward and the DHBs had the Plan imposed on them. Although a minority opinion, it does, however, mimic what other participants perceive in regard to previous strategy implementations. The motivation for vendor critique is linked to and understood better in the context of later emergence of funding and investment pressures.

Despite the early missteps, with some mention of current reservations, the Board is recognised positively more often than not for their role. One participant summarised what is influential this time,
“The existence of the National Health IT Board! I like the principle that there is a central organisation that reinforces the [Plan] and ensures consistency across the country. And then has in place monitors to say how are you all going against the strategy, what investment are you making towards your next level as you can only achieve so much in certain years financially and change-wise, and make sure that you’re continuing to invest to get higher up the triangle.”

This is reiterated by other participants and stipulated as a variant from its predecessors. Integral to reinforcing the Plan is a central (i.e. government) organisation now engaged in following up on progress and engaging in, and with, the sector. Specifically highlighted is that the Board themselves followed up on progress of initiatives. A few examples are given, but often discussed is the use of the readiness assessments mapped to the Plan’s nine work streams (the ‘window panes’). The value of its use is both at a regional and national level to monitor progress. Analysis suggests this provision of follow-up also ensures oversight and accountability as the readiness assessment is posted online on the Board’s website, publically accessible, and conducted prior to implementation and progressively throughout the process⁴.

6.3.3 Need for clearer governance structures
The role and presence of the Board is clear and substantiated by all participants. However, beyond that, there is a lack of unified understanding among some participants about governance structures as the Plan brought about associated changes and reforms; specifically, the Board and advisory bodies and how those affected the DHBs below them. Furthermore, DHBs have to institute some changes to their management and organisation to be able to work with one another regionally. The perception is this can and has had an influence on DHB decision making. In certain regions, this lack of understanding is implicated as one of the causes of delay in implementing initiatives. The reasons for this are pared down to two specific governance issues – the boundaries of roles and responsibilities between DHBs (and DHBs and the Board) are sometimes

⁴Available at: http://healthitboard.health.govt.nz/our-programmes/regional-progress
not clear, and the delegation and authority between DHBs in some regions is not clearly defined.

The governance structure is mentioned directly by eight participants as still a work in progress, with one participant trying to place the Board while outlining this structure, stating,

“We’ve got the National Health Board which has below it the National Health IT board and Health Workforce New Zealand, and the Health and Disability Commissioner. You’ve got the Health, Quality, and Safety Commission, which is coming from left field and on the face of it seems to overlap with a lot of the other organisations…

If you take the [National] Health IT Board, for example, Graeme Osborne is the Director there…On the one hand he’s the member of the executive team at the Ministry of Health and reports to the chief executive there. On the other hand, he reports to the National Health IT Board…And on top of that he reports back to the National Health Board which has a different director…Now many of these chairs have a particular linkage to the Director General of Health, its CEO. My observation…is there is no one person in charge because successive governments have created this hodgepodge of structure.”

The issue of governance structures and further work needed in the area is therefore raised with interviewees directly involved in impacting these issues. Work on governance structures is outlined as important and ongoing. Furthermore, of the eight interviewees who mentioned governance structures directly, five discussed Dr Murray Milner (Chair of the National Health IT Board) as leading work in this area with a focus on regional governance. Other interviewees mentioned the development of a national DHB CEO information group to clarify national governance around who is in charge of implementing the Plan. However, the biggest distinction is made in respect of the regions, where interviewees indicate that governance structures need to be made

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5Permission to use name in the thesis requested and granted via email from Dr Murray Milner.
clear. Specifically, participants stated the importance of clarification now as their experience indicated these could be issues further on in the implementation process, impacting delivery on the Plan.

The governance structures are still a work in progress. Regionally, participants in each region stipulated they were working on structures which suit them best. Nationally, clearer structures have been put in place and interviewees familiar with the planned 2013 update to the Plan indicate that a clear outline of those organisations will be presented. Furthermore, utilising the two-way communication, criticism regarding governance and planning was recognised early on by the Board. As a result, the Board created or integrated panels and forums to have an advisory role and add an extra dimension to governing. A quarter of the participants interviewed indicated that, due to that process, they were part of bodies including the Consumer Panel and National Information Clinical Leadership Group.

At this stage of the implementation process, despite the ‘hodgepodge’ of structures, Graeme Osborne\(^6\) as the Director of the Board is mentioned as influential in providing direction and leadership. His role and, based on participant perceptions, he himself is seen as the face of the national organisation and crucial to its governing ability.

6.3.4 **Directorate leadership and communication**

The complexity of the healthcare sector and role of IT in that environment is repeatedly found as a layer to all four categories. Analysis of this sub-section yields an effect of these complexities faced by the direct leadership of the Board. Specifically, indicated as the face of it was Graeme Osborne and his leadership and communication style. Mr Osborne and Tony Cooke\(^7\) are mentioned by those participants who are aware of the Plan’s development as the two co-writers of the Plan. Mr Cooke, Board Manager for Funding and Planning, is cited for his leadership, to a smaller extent. Nonetheless, Mr Osborne was mentioned synonymously with the Plan; and as a result the bearer of both grievances and commendation.

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\(^6\)Permission to use name in the thesis requested and granted via email from Graeme Osborne.

\(^7\)Permission to use name in the thesis requested and granted via email from Tony Cooke.
Twenty-seven participants intimated that what the Board is trying to undertake is no simple task, directly crediting Mr Osborne’s leadership and availability in placating any early fears that implementation of the Plan would be no different than previous strategic endeavours. Over the course of the implementation process, that perception was substantiated by most participants (across all stakeholder groups). The main influential difference seen as dynamic to changes in the eHealth sector was Mr Osborne’s communication frequency and style, although discrepancy on this issue was raised by two participants working in the vendor space. Compared to previous leadership, a participant stated,

“His predecessor worked on the basis that he ran health IT and therefore if he told everyone what to do they would go on and do it. In practice though he failed completely because they yessed him and then went their own way and did their own thing and he had very little influence...When Graeme...came in his approach was very much to influence people and it was very much more about providing people with a path that was helpful to them both on the provider side and on the vendor side...he used his influence and he used it in an intelligent way.”

This comment supports further interview analysis, showing lack of national follow-up and a set DHB culture were two of the main hindrances to previous eHealth strategic implementations. Mr Osborne’s leadership and communication style was pinpointed as one of the tactics used to circumvent and mollify those old perceptions.

Overwhelmingly, the word communication is repeated in all but three interviews when mentioning Mr Osborne’s name. It was clarified best by one participant who compared Mr Osborne’s direction to predecessors stating,

“I think the one difference has been the communication...I think we’ve now seen a very focused communication. And we’ve got a very able communicator in Graeme Osborne. He resonates with people at the right level. Mind you, you can argue that he’s alienated people at lower levels who are going to have to implement [the Plan].”
It was further along the implementation phases and further into the interview sets that the role of communication was emphasised more and more for that reason. Specifically, emerging later in implementation, the earlier warnings by participants of the importance of clear governance structures and the role of communication and leadership had their influence. ‘Listening’ was mentioned to a smaller extent and may be where some of the breakdown is occurring by those who are more critical. However, the repetitious phrase of ‘local champions’ was brought up in conjunction with these discussions. Effective communication by Mr Osborne extends as far as he is there, was repeated by some. The reiteration was that delegated leadership at the local level is then meant to drive that message and vision. This was not always occurring so as a result some of the related negative criticisms were attributed to Mr Osborne.

The role of politics was interestingly not brought up in any of the interviews except by a few people and only when discussing the Board. There were three individuals from the reference group who mentioned the political aspect of the role of the Minister of Health. Health IT failure is a very politically volatile topic with national (especially in public-funded health systems) and professional implications. Participants mentioned attaching one’s name to a strategy has its own repercussions if failure of the strategy, or any of its IT initiatives, occurs. Upon further analysis, a linear connection was made in comparison of ongoing interview sets as criticism and support of the Board were expressed, specifically when criticism arose around its leadership and certain individuals were mentioned by name. More often than not, Mr Osborne was implicated as he became known as the messenger and face of the Plan.

6.3.5 Category summary
The participant perceptions are rich in depth and the convergent interview process aids in uncovering the layers as the government and leadership category emerged. It is clear that governance and leadership arrangements are important and necessary in not only clearly defining the vision but also in overseeing implementation of the Plan and its progression through delivery of the initiatives under its work streams. There is agreement on the prevailing issues, but views on the degree of impact they are having varied. With governance and leadership, the engaging aspect is that often the
A comparison is to previous strategic implementation – with mentions of The WAVE Report (2001) and HIS-NZ (2005) specifically – and prior leadership. A variety of conclusions can be drawn but based on the findings from interviews, it is the variety of changes discussed above that prompted the need for change in the healthcare sector, and specifically in eHealth.

The complexity of the healthcare sector is reiterated and the simplified message of the Plan and its reiteration by national leadership is regarded as one of the contributors to its wide distribution. That message garnered agreements and disagreements but it was a unified vision compared to previous eHealth strategies with not many recommendations or a number of action zones. It is poignant that follow-up by the Board was seen as a simple, positive yet marked departure from previous implementations. The Board published, are implementing, and are responsible for the Plan; and are not short of criticism and support in each of those endeavours.

The level of engagement participants had with previous strategies and with the Plan affected their view of the Board and the Plan. Furthermore, that opinion swayed throughout the process of implementation and as the interviews progressed and reflected on Graeme Osborne as Director of the Board. As a frequent campaigner and purveyor of the Plan and its initiatives, Mr Osborne and the Plan became synonymous. Nonetheless, his leadership and communication style supported the change in culture to lead and to influence what a majority of participants believe are not only necessary changes in the sector but also engage stakeholders from national policymakers to consumers. This created what can be classified as leaders at the DHB and local levels who could then communicate the Plan’s message and garner participation among stakeholders to further implementation and uptake of initiatives.

6.4 Category 2: Engagement of Stakeholders

This category represents the process and methods in which stakeholders were engaged and targeted by national leadership in order to influence buy-in to implementation. The governance structures and central leadership influenced one aspect of communicating the Plan. How do you get from a shared direction in forming a simplified message to
implementation of initiatives and meeting of deliverables? An answer and key influential factor that emerged is engagement of stakeholders and use of tactical tools directed at stakeholders from strategy development to implementation.

During the process of analysing the data, a conceptual relation was identified among the *engagement through input/feedback* and *engagement through use of strategic tools* selective codes. Table 6.3 provides the compounded open codes used to compose the selective codes to support the formation of the emergent category. Included in the table is a summary of the theoretical memos adding a supporting link to the category formation. The table is presented here as an outline to guide the detailed analysis and discussion below.
Table 6.3 Construction of the Engagement of Stakeholders category from open and selective codes, integrating theoretical memos.

<table>
<thead>
<tr>
<th>OPEN CODE</th>
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<th>ABRIDGED THEORETICAL MEMO</th>
<th>CATEGORY</th>
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<tbody>
<tr>
<td>Known clinical and consumer resistance, draft feedback and communication, public consultation, town hall meeting discussions, previous lack of transparency, literature and research incorporation, trust building, pilot projects</td>
<td>Engagement through input/feedback</td>
<td>Traditionally, clinicians and IT mutually struggle to involve one another. Common problem, repeated in the literature regarding IT in health. Elements of evidence-based decision-making as research and clinician input incorporated. Buy-in of stakeholders, with focus on clinicians and consumers/patients important to achieve aims through giving sense of ownership. Apparent engagement levels by providing decision-making opportunities through input, options through feedback, and conveying information/gathering feedback via forums and town hall meetings. Stakeholder engagement went beyond communication and used a brand of sorts. Early strategy triangle as artefact, embodying The Plan’s vision statement. Triangle was seen as utilitarian by a variety of stakeholders in different aspects. The repetitious use made it dynamic on its own. Misunderstanding with the triangle; not prevalent but when it is present it is highly detrimental to delaying uptake. Shift in audience warrants new diagram as go from an executive/process-oriented group (Phase 1/triangle) to consumers (Phase 2/tree).</td>
<td></td>
</tr>
<tr>
<td>Triangle was a simple, recognisable, and adaptable message, triangle fitted well with the Plan concepts, readiness report in addition to the triangle put meat on bones, readiness report for follow-up and progress, conceptualisation of the system as specifics were lacking, shift in focus using tree diagram</td>
<td>Engagement through use of strategic tools</td>
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</tbody>
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The following sections will explain the discovery of the selective codes from the open codes that resulted in forming the Engagement of Stakeholders category.

6.4.1 Engagement through input/feedback

Certain participants, both those with a clinical background and those working on the IT-side, raised the issue that traditionally in eHealth clinicians and IT struggle to
become effectively involved with one another. That climate is indicated as shifting. The participants’ stated cause for this shift is diverse but not contentious. The recurrent emerging topic is involvement – in particular, improved involvement and support from clinicians, those working at the DHBs, and those at the Board. As one participant stated, “there’s a serious attempt at the moment to try to change [previous attitude]. That’s why you have National Information Clinical Leadership Group,...the Telehealth Forum.” There is also the Consumer Panel and a variety of other panels and forums to engage stakeholders. It became apparent in interviews and further analysis that the issue is beyond simply the Board communicating the Plan. Communication is one component. Keeping people interested and invested in the change required is a step further.

Integrating a variety of groups to the Board in some way, whether directly or as an advisory body, emerged from early interviews as one way of influencing and ensuring communication and feedback to the Board and the Plan. Integration of clinicians into the Board and into associated bodies was how participants indicated that changes were occurring and how stakeholder buy-in was shifting. Many participants were noticing the difference. As one explained,

“[The Board] have been very adept at communicating with clinicians and engaging clinicians and trying to interest clinicians in health informatics in the broader sense. So, I think that’s been different, I think that’s really different. I think if I went to a HiNZ® conference five years ago, which I did, it’s mostly vendors and Chief Information Officers and people that worked in IT departments and District Health Boards. Whereas [at a recent HiNZ conference], its many more [that are clinicians]. Docs, nurses, you know, a vast array of people with clinical backgrounds and that’s fantastic. I mean, there has been a recognition by the National Health IT Board to lift and engage the clinical community, which is great, because it’s important.”

HiNZ, or Health Informatics New Zealand, is a non-profit organisation that supports the field of health informatics in New Zealand. They have held an annual conference in New Zealand since 2005.
From the interviews, it is apparent that the clinical community was recognised by the Board as an important stakeholder to engage early in the process and in different aspects – for example roles in leadership and management, feedback and discussion workshops. Through the interviews and constant comparison, it further emerged from the analysis that discussion of engagement and trust-building of the wider health sector was necessary and occurred at two phases – during feedback aspects generated through the public consultation workshops/town hall meetings and through the online draft Plan discussion; and during the first year pilot engagements. These would subsequently evolve into the use of strategic tools to engage stakeholders which carried over to later stages of implementation.

Seventeen of the participants indicated in interviews that they were aware, took part in or remember aspects of the development of the draft and final Plan. Within their discussion of involvement it emerged that there are contentions on how engaged and reciprocal the process was between the Board and stakeholders. As mentioned, three significant series of events were raised: the Board’s national town hall meetings, the online HIVE discussion thread, and the first year pilot programmes. The public consultation process is discussed as extensive and more inclusive, compared to previous consultation processes which are viewed as not as transparent or were limited to input from DHB members and policymakers.

Perceptions are that the Board realised early stakeholder participation and contribution was important to improve decision making and accountability. In mid-2010, the Board in conjunction with TUANZ put together a series of national town hall meetings to distribute the Plan’s vision and to gain public input, particularly on any issues of concern. Some participants indicated they attended or directly aided in running some of these workshops/seminars. These town hall meetings were no small feats, as one participant directly described:
“…they were, from memory, three hour sessions and open to the public, in about 10 or 12 different cities [on both islands]. And they comprised...Graeme [Osborne] talking to [attendees] about what the Health IT Plan was and particularly the focus on shared care records...And then we broke them up into breakout groups... [on] a whole lot of quite complex and demanding issues. So, we threw open discussion on those things and consolidate the results and summed up. Then at the end of the 10 or 12 venues there was a report written up which basically attempted to sum up how this small cross-section of New Zealand actually viewed this whole concept....”

Those directly involved in the national town hall meetings indicated the benefit of being able to engage with the public. When probed as to the attendance at these events, it was stated there were typically 25 to 50 individuals at each seminar across a wide stakeholder spread. One participant indicated that this process was repeated again in 2012 further into the implementation process.

For those who indicated they attended the town hall meetings, not all were in agreement of the implementation process and/or clear about what ‘shared care’ was at the time. Nonetheless, there was collective agreement among them around the fact that they felt there was active engagement from a central organisation leading the vision and openness through those forums for reciprocal discussions. The importance of that combination was highlighted differently, and a pattern emerged based on the region a participant had been working in. In analysing the data, the engagement and openness around IT implementation and investment is explained as such: generally leadership rests on the CEOs as final decision makers within DHBs. Their interest or lack thereof in the space of IT and IT investment is often described as changing as a new CEO stepped into the position. Those working in the regions, particularly Auckland DHB, indicate that IT investment has always been supported and therefore the sector continued to be engaged and even more so with the Plan. This was mentioned to be evidenced by the region’s Regional Information Strategy for 2010-2020 (RIS 10-20) which was published shortly before the Plan and aligned strongly with the Plan’s goals. Participants who had experience working in smaller DHBs indicated changeover in CEO philosophy dampened engagement in IT previously described as energised and
challenged. These various means the Board was using to mobilise engagement are indicated as a way to re-energise those groups once again.

Promoting this re-energising and widening the net of those previously involved in strategic planning, participants with experience as researchers describe how they also came to be involved in the Plan. In particular, how they and those working with them created resources that contributed to both the Plan and buy-in from stakeholders. The role of NIHI at The University of Auckland is discussed in particular. During the planning phase, before publishing the document, examples were given of the Board commissioning NIHI to create literature reviews and research to inform the group. For example, NIHI composed a literature review on eHealth (Warren, Paton, Day, Reedy, & Pollock, 2009) and the understanding by one participant was “it was quite obvious that what [was being done] was contributing towards thinking that would contribute to the strategy or plan.” Furthermore, it was explained that NIHI had been approached by the Board leadership to provide a unique venue (the HIVE) for a national and international audience to contribute feedback and engage in discussion⁹. Interestingly, a few individuals highlighted that since traditionally input to such strategy was made by CEOs or Chief Information Officers rather than Chief Medical Officers or Directors of Nursing, for example, there was hesitance by some of these groups to initially get involved. The HIVE was one referenced as one mode to try to engage those individuals.

Engagement through feedback is used here to influence decisions and implementation of the Plan but is also integral to building trust – a significant point as the Board heralds a new era of increased central government involvement with their stated role and responsibilities. As over half of those interviewed are involved in a Board panel or group, they mention that the Board also utilised them to build trust. It is an inception of engaging further these multi-disciplinary groups and forums as they are composed of individuals with established networks in the sector. These individuals indicate they further engaged stakeholders at the DHB and grassroots level, sharing the message of the Plan. Through this level of propagating the local champions, the Board hoped to spread the message of the Plan.

⁹See findings from the HIVE discussion thread presented in Chapter 4.
Building trust was also facilitated through engaging DHB members in pilot projects. The general example mentioned was that the Board and/or adjacent groups and their members would build and develop trust with DHBs by aiding in pooling resources and coordinating pilot projects. These projects are stated as locally important to the DHB yet with potential for national application. During this discussion topic it was reiterated that this was different from prior top-down implementations. As one participant stated,

“If you start from the beginning...top-down, and say ‘this is what you must do’, it doesn’t work in health...If you can develop those relationships and particularly in face-to-face and meetings and make the case and develop...I think there’s a year where we had to develop trust.”

The interpretation is that it was a collaborative engagement process that influenced the Plan’s implementation. This occurred at all levels, from research contributions to the development of the Plan, to input and feedback during the consultation of the draft, and then to building trust and engaging DHBs through pilot projects. Furthermore, there were key strategic tools used to not only further engage but also target stakeholders.

6.4.2 Engagement through use of strategic tools

Engagement through feedback by the Board and the networks of its members and associated groups is always discussed hand in hand with what is considered a powerful tool – the triangle diagram (Appendix 4). Mentioned by and recognised by all participants the triangle diagram became a dominant point in discussions. Originally, the diagram was going to be introduced as an interview question. However, it was brought up through the course of discussions, becoming a talking point organically. The topic point throughout the interview process became the use of strategic tools in presenting the Plan to aid in communication and drive stakeholder support for buy-in and implementation – specifically the triangle diagram and later, the tree diagram (see Appendix 6).

The substantial role the triangle diagram played emerged during the interviews and upon subsequent analysis. First, as a diagrammatical representation of a simplified message of the Plan and then as a tool used as a strategic driver by the Board to engage
a variety of stakeholders. This diagram, a strategy ‘artefact’, became a significant carrier of meaning for prioritised policy issues. All 29 of the 30 interviewees reiterate the fact that they saw the triangle diagram many times and still continued to see it used throughout the different phases of implementation. The point is made that, at first, it was a repetitive tool used by the Board leadership, noting specifically that Mr Osborne used it at as part of the presentation at the town hall meetings and DHB/local workshops. Over time, the triangle diagram grew to be so synonymous with the Plan that interviewees intimated that they attended meetings and HiNZ conferences where Mr Osborne only used one slide in his discussions – that of the triangle.

The repetitive presentation and utilisation of the diagram to outline the key concepts was outlined by one interviewee stating,

“...I think what Graeme was doing with [the triangle] and he has consistently done it and he used it...I must’ve been to 30 presentations where he used this diagram or someone else used this diagram. There were several things that triangle was trying to do. One of them was in a very complicated sector, complicated IT architecture, they needed to develop a certain message...he was using it across a whole range of audiences – IT, CIO, clinicians, managers, researchers, whatever. And it was completely consistent. So the idea that everyone got the same message and it was a simple message about the subject matter was important. And it’s been consistent...It’s a simple presentation. But it also ties in, although simple, ties in the most significant manifestations of the IT strategy.”

The simplification of the message in the form of the triangle diagram used consistently by the Board when discussing the Plan was a recurrent theme with many participants. The utility of the triangle is unprecedented. However, a few participants indicate that the use of a triangle in a New Zealand eHealth strategy is not new. Similarities are seen in another triangle figure in HIS-NZ (see Figure 6.3). However, the HIS-NZ figure is identified as more broad in its portrayal of strategic initiatives in comparison to the triangle diagram. The HIS-NZ has a triangle shape within the document to illustrate a component of the strategy, so the concept was not new. How it was used effectively
was. Specifically, how the Board was utilising that strategic tool repeatedly and as a symbol of key aspects of the Plan was emphasised as uniquely different. Nonetheless, as one participant states, the connotation when seeing a triangle shape is it is a way to "demonstrate a grassroots collection of data and information richness and then a graduation up."

![Figure 6.3 Triangle diagram from HIS-NZ](Source: Health Information Strategy Steering Committee, 2005).

As the triangle diagram was a topic of discussion, it was important to understand why it originated and how the message and the vision of the Plan were being communicated differently to galvanise stakeholders. A couple of participants outside of the Board allude to seeing pencil drawings of the triangle diagram in its early form. In speaking with the Director of the Board, Graeme Osborne\(^{10}\), the formation of the diagram is explained:

\(^{10}\)Quote attributed here by name, with permission via email, as necessary to describe the factual origin of the triangle diagram.
“I had to come up with something because I was in front of a chief executive...The way I work is that I had the framework right, and I knew that I wanted to be consumer-orientated, and I wanted an action planning response. I was looking for a mechanism that I could leave behind. Because the true thing about leadership is what people do when you’re not there. We had a clear vision and we had a starting point. What we needed was a plan on a page, and as...the Japanese say, if you can’t put it all in one picture on a page then stop because you haven’t understood what you’re trying to do. We had been refining, and refining, and refining our thinking to get it all on one page. And then...I was in front of a chief executive and I didn’t have access to a projector to present my slides, so I turned to the whiteboard and drew a picture.”

The triangle diagram originated out of necessity to communicate a vision. As Mr Osborne indicated, he and Tony Cooke (with a directive from the MOH) then refined the diagram further, driving the point through the triangle’s continual use in presentations as a communication aid. For Mr Osborne, the diagram added an additional layer by engaging regional and organisational ‘champions and leaders’ (as the Board members tended to reference those) who would take the Plan and engage their colleagues and members. Interviewees from the Board and those who attended presentations where the triangle diagram was used indicated its simplicity made it recognisable and added to the adaptability of its message. Furthermore, a majority of participants indicated its use introduced a degree of alignment in terms of prioritising certain work streams within the Plan.

The triangle, therefore, can be considered as a successful strategic tool in impacting implementation of the Plan. It is described specifically by four people as an ‘anchor’ and alluded to by a majority of participants as such. One interviewee put it succinctly stating, “I’ve used it a lot as an anchor. You just need to pop the [triangle] diagram up and they know what you’re talking about.” Essentially, this was utilising the diagram in the same way the Board had, just at a different (local) level. Its consistent usage is indicated as allowing stakeholders (many participants included themselves while saying this) to understand the priorities set forth by the Plan, and further, where
stakeholders fit in the scheme. Interestingly, by having a figure representing the key vision of the Plan, it also became a point of discourse in the discussion.

The perceptions toward the triangle are largely supportive although contention is still prevalent and relevant to note. The stakeholder categories of those who are more critical are mixed. However, often it was participants working at the local level and some clinicians who were more critical of the triangle diagram when they first saw it. One participant’s first impression was, “It’s not mapping processes. It’s not mapping interactions. It’s not mapping databases... This is a classic ‘centralised everything, standard all, stop those buggers from making systems that are incompatible.’” Disagreement concerning the triangle diagram centred around three issues:

- It did not embody all aspects of the Plan, making conceptualisation difficult, as details and specifics were lacking,
- it is not stand alone, and/or
- it is perceived to be technically focused and not patient-centric.

Mr Osborne in his quote above discussing the origin of the triangle diagram addressed the three points above. Nonetheless, misunderstanding stemming from the disagreements outlined in the three points above did lead to hindrance in implementation in some DHBs.

Some criticism toward the triangle diagram is referred to by participants who provided examples of individuals who had the misconception or misunderstanding that the triangle diagram portrayed all initiatives of the Plan. As a result, individuals at certain DHBs and organisations focused only on the initiatives shown on the triangle diagram. In further analysing the data, it emerged that some of the issues surrounding misuse of the triangle diagram were indicated in DHBs where governance deficiencies were highlighted. Specifically, a participant had an example of early on in the implementation process where prominence of and reference to the triangle diagram facilitated a delay to implementation at some DHBs:
“I think that’s what the [triangle] diagram has done really well – as a communication tool, a recognisable brand...yeah, that was really good. And unfortunately, because it got so prominent, that’s what DHBs started to really focus on. And it’s not until a little bit later that everyone realised that’s only one of the four quadrants [or ‘window panes’] of the strategy because there’s another diagram in the strategy of the four quadrants...And it was not until about a year later that people realised, well you’re only doing this and not the other stuff. So, that subsequently got addressed and shared care became much more prominent.”

As described, the example illuminated why other participants would have some reservation about the triangle diagram. Especially as there could be (and were) unintended consequences if the diagram was perceived to embody all aspects of the Plan. However, the majority of the participants who looked favourably on the triangle diagram countered that a diagram including all facets of the Plan would be too complex.

In further analysing the examples given, there was a level of connection between the governance deficiencies recognised in some DHBs and the misuse of the triangle diagram. Some participants indicated that they realised early on that the triangle diagram did not depict all components of the Plan after reading the full document. The nine work streams of the Plan (sometimes referred to as ‘window panes’ by participants in reference to how they were drawn out into four quadrants like a window) were highlighted as to be used as a framework for creating regional implementation strategies. The triangle diagram was not stand alone, only representing foundational aspects. The work streams in conjunction with the triangle were meant to drive implementation in a symbiotic way. Many participants were very blunt about this fact, but some DHBs were caught out, one participant having stated,
“You almost need this [triangle diagram] plus the ‘window panes’. And I suppose the strength of the Plan...is that it sort of allowed some of development work to get on to some of the implementation plan. The ‘window panes’...they then put the meat on the bones of [the triangle diagram] and that then became something that was consistent with the strategy...So, it’s the two together which are powerful. Just [the triangle diagram] without the ‘window panes’, I don’t think would have progressed...people would have looked at it and said, ‘yeah, wishy-washy. How is it going to be implemented?’ But with the ‘window panes’ you can start drilling down the detail. Then you can also start saying how do they all fit together...”

Participants giving examples of regions with clearer governance structures and/or decision making bodies highlighted more utile use of the triangle diagram and ‘window panes.’ The Board leadership used the triangle diagram to communicate a vision and DHBs/local organisations used it in these cases to influence those implementing initiatives on the ground level. Explicitly, the Board used the triangle diagram to share and communicate the vision and key aspects were succinctly embodied in the diagram. By then tasking DHBs and regions with creating implementation plans using the Plan (and the triangle diagram) as the framework, they would tailor it their region and in turn get further stakeholder buy-in at a deeper level. One participant indicated the latter was exactly what they did:

“The next most helpful part of it is, and I’ve had to do my own, is putting the work streams, lining them up next to each other so that...I always have the diagram and the second thing is I always put the work stream boxes and I zero in on the one I want to talk about. So, the staff have asked that every time we meet, we focus on one aspect of the strategy so that they are continually engaged in understanding their purpose and direction...I put the diagram up...and I would anchor that to the work stream and the initiatives they themselves were investing in...”

The triangle diagram in combination with the work streams became a template for moving forward. In conjunction, participants explained the two are used to show
progress and follow-up and to safeguard against lag or disengagement and one of the ways to sustain implementation. The readiness assessments were used by both the Board and the DHBs to plot progress regionally against the work streams. For those working at DHBs, this is discussed as galvanising their commitment to IT investment. However, there is recognition that the patient is still missing from the diagram and, consistent with the 2010 draft feedback thread on the HIVE, it is lacking a patient-centric focus. As a participant stated,

“I use [the triangle] to explain the bigger picture to people. I think what’s missing in here is the person. But it wasn’t designed for that, it’s more the next level over here in the shared care onwards. So, the bottom of the triangle, in any triangle that you draw in terms of anything – food triangle, model of care triangle – it’s always about that foundation at the bottom, isn’t it. That’s why I quite like [Phase 1 is] about the foundations moving towards a central repository or linked repositories and out toward a different model of care.”

Recognition is given by participants that the triangle diagram is focused on mobilising a different audience – an audience more involved in processes and interested in timelines and systems. A pattern correlating with this sentiment, largely supported by those with clinical backgrounds, unsurprisingly, is reiterated through the latter series of interviews indicating the triangle needed updating to include a different and more important stakeholder group – the patient.

Several months into the interviews the impact of the triangle diagram was still relevant, yet a new strategic tool, a new diagram, began to be mentioned. Some interviewees stated that the audience was shifting and as implementation moved closer to the ‘shared care’ aspect (Phase 2) of the Plan, a tool was necessary to engage that audience just as the triangle had done. Other participants mimicked what one interviewee stated, “[The triangle] made sense, it took you on a journey, and I think it probably needs a refresh now. I need a bit more ‘now what?’” Three participants indicated this is the reason the Board ran a new series of town hall meetings in 2012. The rationale for the series was to engage patients/consumers throughout the country in conjunction with organisations like the Consumer Panel, with a focus on taking a patient-centric
approach. As a result a new diagram was introduced into discussions – the tree (Figure 6.4; Appendix 6).

![Tree Diagram](image)

**Figure 6.4** Tree diagram (*Source: Ministry of Health, 2013*).

The tree diagram depicts four levels of an interconnected ‘root’ and ‘branches’ that build on one another. Each branch and limb represents the way a patient/consumer’s health information is shared, connected, and flows throughout his/her lifetime. These levels are imposed over a picture of a Pohutukawa, a native New Zealand tree. Not surprisingly, participants with clinical backgrounds (except one) and those working closely with patients/consumers in most cases spoke more favourably about the tree than the triangle diagram. The one clinician who communicated scepticism toward the tree indicated there is still lack of clarity about what this diagram is trying to depict. Probed further, the participant still did not see the patient and indicated the figure highlights a disconnect in information. Nonetheless, participants working with or part of organisations like the Consumer Panel and the National Clinical Leadership Group indicated that they also contributed feedback to the Board during the development and refinement of the tree diagram. This could explain their partiality toward the tree. The focus was to build on the triangle, aspects of which are mentioned numerous times by
participants as depicted in the tree, while transitioning the audience and the move toward the ‘shared care’ view of connected health. A few participants emphasised that the triangle is the foundation and embodied Phase 1 of the Plan, and the tree diagram is a shift in focus towards Phase 2.

As important as it is to understand the triangle diagram development and its influence, so too is it important to understand the tree diagram’s development and its perceived role in implementing the Plan. Mr Osborne explains:\n
\[\text{The plan on the page is called the triangle diagram. It helps people understand where we started from and how we get to the vision. The tree diagram is a destination statement. Visions are interesting. As you get close to them, you need to refine them a little more. A lot of people were starting to say to me ‘what’s it going to look like? Where’s all the information being collected?’ A lot of people said, ‘you’ve got to put the data in one place.’ And I knew in my mind that that wasn’t what we were trying to do.}\]

\[\text{So there were lots of versions of this diagram...that we weren’t happy with. In fact, for some time it was a ‘sandwich’ diagram. We couldn’t get the analogy going for a sandwich so the reason the tree came about is a little bit like the triangle. Late on a Sunday night, I had to create something that was going to be the basis for our town hall meetings last year...we had town hall meetings in 2010 with the triangle. The second set of town hall meetings were in 2012 and I really felt we needed to define the outcome of the vision more clearly. And the sandwich wasn’t working so I just imagined what a New Zealander who is maybe a little older in life, who lived a busy life, having a period of illness, what would they see. I saw an old tree, and next thing I went on the internet, did a search, found a Pohutukawa tree that was over 100 years old. The idea built from there. But the best way I can define it is the ‘tree’ diagram sets out a destination statement and to give more clarity to what achieving the vision really means over the longer term.”}\n
\[\text{11Quote attributed here by name, with permission via email, as necessary to describe the factual origin of the tree diagram.}\]
Although the triangle diagram was still incorporated in discussions it was apparent that as implementation phases progressed the audience was transitioning. Now consumer buy-in, mentioned by participants to be as important as clinical buy-in during the development phase of the Plan, was crucial. As one participant stated, “I think that’s what we need to get the Health IT Plan implemented...we’ve got to get the community enthused about the benefits of this thing so that they can push...clinicians and cross the line for the consumer perspective.”

The tree diagram is a new way of representing an aspect of the Plan. The tree diagram is an additional layer of conceptualising the system and the specifics of the system that some participants indicated were lacking in the triangle – all while using a more New Zealand-centric, colourful schema to engage the consumer. This is emphasised by participants at the DHB level and is in alignment with Mr Osborne’s explanation about the tree diagram above. Other participants agreed that it is a slightly different way of communicating the same vision – the triangle from an IT-perspective and the tree as a consumer-friendly figure. However, there is indication stakeholders are not ready to let go of the triangle just yet. One participant summarised it well, bridging the concepts discussed in this sub-section by juxtaposition of the triangle diagram and its contribution further to the tree:

“It is interesting...I think it’s a concept diagram, isn’t it. It’s a way of showing that we’re all connected, that’s one thing. I think the second thing, that we’re on a continuum. The third thing is that if you have all the elements, the tree is going to be stronger...Some people have come back and said, ‘well look, I like the triangle’...But I think...again it’s going to need a plan that translates this...in what does this mean. But it’s raising an awareness that [the triangle] didn’t...”

Although still new and the stakeholders being interviewed were not necessarily the audience for it, contention about the tree diagram was minimal. Two participants stated they still wanted the patient mentioned in the diagram and one thought it looked more like an environmental plan. Nonetheless, if the tree diagram was to have an impact it
was still early. Participants understood what the diagram was trying to achieve but outside of a few opinions about it, discussion shifted to other topics.

6.4.3 Category summary
The planning that went into developing and implementing the Plan and the role of the leadership and governance structures is displaying its impact on the engagement of stakeholders. Just as the complexity of the sector was reiterated before and the need for a simplified message and structure was pertinent, it became even more important when participants discussed engagement and sector buy-in to the Plan, as this had a variety of effects, both facilitating and hindering, on implementing initiatives throughout the country. The leadership from the Board was participating in open discussions, not just written consultations where feedback is mailed and sent to an address or email, and contributing to two-way communication. This is important to engage individuals at all levels by building trust through a reciprocal relationship of feedback and through judicious use of strategic tools to communicate priorities for implementation. Moreover, these tools were used by the Board for follow-up and monitoring of progress.

Following the stages from strategy development to implementation, the participants’ perceptions indicate there is recognition that prior eHealth strategies had not included early clinician input. Interviews with the Board members, researchers and advisory groups who participated in early development indicate that as a result clinicians were this time actively engaged early. The Board was hoping this would pay off two-fold – ensuring buy-in and ensuring that the stakes for clinicians were significant which would give a level of ownership, thereby driving uptake of programmes and initiatives. The Board widened the range further and used unique mechanisms like the national town hall meetings and online public consultation via the HIVE website to gain further deliberation and input and engage a multi-disciplinary audience. During the implementation phase, the Board recognised that reciprocal feedback was still important and continued to utilise the town hall meetings.

The Board faced some negative response during the implementation process and that criticism is evident in the interviews. However, many participants specify the Board
stayed on message and kept moving forward with what they were trying to achieve. They introduced the readiness assessment prior to implementation to gauge a baseline of the IT system landscape across all DHBs to measure the work streams and priorities of the Plan which, along with the work streams, would be used as a tool for feedback and progression. Along the way these tools came to be utilised by participants working at all stakeholder levels not only for that purpose but to further drive engagement. Two strategic tools emerged as aiding in driving that message further – the triangle diagram and the tree diagram. Both diagrams have had a positive and negative impact on progression of uptake of initiatives. Both diagrams were somewhat contentious. However, there is no disagreement about the fact that the triangle was influential to implementation by bringing people together toward a unified vision. Priorities were recognised and outlined in the triangle diagram and it became a symbol synonymous with the Plan. Whether a negative response or a positive one, it is engaging.

The tree diagram was introduced to build on the triangle and move forward the concepts outlined in the Plan. Furthermore, widening the stakeholder target was a way of ensuring that the consumer would also buy in to the implementation as the eHealth vision of the Plan is to achieve by 2014 for all New Zealanders a core set of personal health information electronically available to them. This is in line with the shift in commitment to a more person-centred model of care that the wider healthcare environment in New Zealand is moving toward.

**Category 3: Aligning the Plan in Context**

This category represents the Plan’s alignment with the national health sector context and culture and how this impacted implementation. Change and reform is a component of the previous two categories. While necessary to progress uptake of initiatives, there is insistence during the iterative interview process and in deeper analysis that the Plan drew from the wider health sector environment in New Zealand. As a result, these factors had influence on the implementation of the Plan.

During the process of analysing the data, a conceptual relation was identified between the *aligning the wider environment* and *matching the culture* selective codes, which
built up the concept. Table 6.4 provides the compounded open codes used to compose the selective codes to support the formation of the emergent category. Included in the table is a summary of the theoretical memos adding a supporting link to the category formation. The table is presented here as an outline to guide the detailed analysis and discussion below.

**Table 6.4 Construction of the Aligning the Plan in Context category from open and selective codes, integrating theoretical memos.**

<table>
<thead>
<tr>
<th>OPEN CODE</th>
<th>SELECTIVE CODE</th>
<th>ABRIDGED THEORETICAL MEMO</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>National consistency toward patient focus, mission alignment, complementing what is already been done, balanced end-game, holistic approach not big bang, Horn Report engaged the Plan</td>
<td>Aligning the wider environment</td>
<td>Different system approaches existed as to whether to go ‘big bang’ or decentralised/DHB-level. Initial explanations indicate big bang support by individuals at some DHBs. Collaborative is revealed cautiously. More important in discussions of the topic is its influence on the Plan. Collaborative ideas supported but do not fit the environment/Ministry who is aware of risks. The Plan is to balance and align the environment more ‘holistically.’</td>
<td>Aligning the Plan in Context</td>
</tr>
<tr>
<td>Plan scope is sufficiently broad, incremental model suits culture, maintaining autonomy</td>
<td>Matching the culture</td>
<td>New Zealand attitude not suited for a prescriptive strategy, especially if DHB/regional implementation is the course of action. Incremental implementation of IT systems matched culture (cautious). Economic context a factor due to the scope of the policy, although generates a mixed response (depending on which end economic benefit).</td>
<td></td>
</tr>
</tbody>
</table>

The following sections will explain the discovery of the selective codes from the open codes that resulted in forming the Aligning the Plan in Context category.

6.5.1 **Aligning the wider environment**

In analysing the interviews, the wider environment (i.e. the health sector context) emerged as a factor which had both facilitating and hindering effects on
implementation. All of the participants interviewed have a long and rich history working in the New Zealand health system and consistently mentioned the changes in health, both positive and negative, occurring over the years. There are clear indications that work is yet to be done. New Zealand is ‘ahead of the pack’ (repeated verbatim by about a quarter of participants) in some respects in comparison to other countries. However, strong perceptions of why change was necessary in healthcare and the importance of investment in IT are a recurrent thread in interviews. The reasons for that pressure, particularly in eHealth – indicated strongly by participants with backgrounds as clinicians, DHB executives, and at the Board – are the healthcare system cannot continue to sustain wastage of resources and system duplication.

In some form or another, all participants spoke of the strains on the overall healthcare system. The ageing population and ageing staff are concerns mentioned by those with clinical backgrounds and a few DHB executives. Overall, the two leading issues that emerged are increasing public and health sector expectations for IT and growing financial pressures in healthcare. The Plan is specified as a possible balancing factor. To do so, those working with the Board indicated a strong shift in focus toward a patient-centric model of care, a concept perceived to be echoed in the Plan and consistent with health strategies in the sector. Furthermore, it is a focus that some participants mentioned is not new in eHealth. The HIS-NZ from 2005 is cited as having a similar focus by three participants. Nonetheless, the resurgence of the patient-centric model in the Plan is perceived as a movement in the right direction to progress implementation – especially as the Board is now at the lead, accountable for guiding, driving, and following-up implementation.

Alignment of mission statements and vision for healthcare across interdependent central organisations is one way of aligning the environment. Interviewees who are members of advisory groups linked to the Board and working at the local level heralded alignment of mission statements and the healthcare sector as necessary to foster uptake of initiatives. It also reinforces IT is not separate to, but rather an enabler of the healthcare model; unfortunately, a perception many indicated is a common viewpoint in the health sector, although it appears to be progressively changing. What is highlighted is the alignment at this higher level is essential as issues like national health
targets, including immunisations, and privacy of patient information are important aspects of the Plan.

One participant continued to state how early coordination of mission statements between central organisations became an influential factor in the sector:

“Coordinating the issue with the three big players, which I see as being The Health Quality and Safety Commission, Health Workforce New Zealand, and The National Health IT Board. If all those can be aligned…it also gives more confidence in the regions to say well they’ve got their act together up here…they know what they’re doing in presenting this, we can go along with that. But if you get a message from one group which is different from the message from the others…if they can’t agree then I just carry on doing…while they sort out what they’re trying to achieve.”

Over the course of the interviews, the growing agreement is this early coordination and alignment from the top also had influence on engaging stakeholders across all levels. It seems to further illustrate one of the ways the Board demonstrated the importance of the Plan – it is in league with higher level organisations, not to be ignored. As the participant quoted above mentions, the consistency of message (outside of the triangle or tree diagrams) across health was a fundamental shift to showcase that there is alignment at the top level.

As the discussion on the topic of alignment of the Plan and the relevant contributing environment grew, it was important to seek understanding of why this is significant, especially beyond merely stating pressures on the healthcare sector required these changes which impacted the Plan’s implementation. Here two influential factors emerged, setting the landscape for the Plan and affecting its later implementation— the Health Management System Collaborative (HMSC) and the Horn Report.

 Mention of the complexities existing in the healthcare sector in addition to the existence of duplicate and unsustainable IT systems are examples of growing concerns existing even before the Plan. This is not unique to New Zealand, as one participant explained:
“...health IT is extremely complicated and there are few if any really good exemplars we could follow. So everyone, not just in this country, right across the world, is struggling to find the answer to how you actually follow the mantra ‘the right information, the right people, the right time.’ Which is the overall mantra and obviously for most IT projects, how do we do that?

Well, very few organisations have been doing this well and New Zealand is no exception. And where they are doing it well it tends to be for very particular reasons. They tend to be doing it well where they own the whole ecosystem. So, the most commonly quoted examples of good health systems from an IT point of view is Kaiser Permanente and Veterans [Health Administration]. And both of those are able to dictate what goes on in their ecosystems. So the big problem we have is that no one owns the ecosystem. It’s owned in different parts by different organisations, some of them commercial, some of them publicly owned.”

A few participants went on to explain that in 2008 during a HiNZ conference, presentations were made by large integrated healthcare delivery consortiums including Kaiser Permanente. Members from some DHBs in attendance at the conference were apparently enthusiastic about the discussions on improving models of care with a patient-centric vision and using IT to enable that healthcare delivery. Those DHBs explored what those organisations were doing with their IT capabilities and discovered that they procured end-to-end (system-wide) integrated systems from a single vendor. In exploring this option, those DHBs created the HMSC.

As one participant explains, HMSC intentions were to make big changes in the sector, to make it more holistic:

“Holistic as in end-to-end. That became the core of the HMSC vision. Let’s get away from primary system and secondary system and look for something more holistic. So HMSC became a movement... So that led seven DHBs then collaborating...Canterbury then joined, that gave it some size. And then seven DHBs said we are going to collective go to market and do a [Request for Proposal] process.
The Northern region couldn’t convince the DHBs to formally commit to it so [they] started observing the process. So then in the end it became seven plus three...That meant that it became 60% of the New Zealand population.”

Seven DHBs (Northland, Whanganui, MidCentral, Wairarapa, Nelson-Marlborough, Canterbury, and South Canterbury) led the tender process requesting proposals and received a significant response from national and international vendors. Two participants specified that this ‘big bang’ approach – of assimilating the sector under one system – faced scepticism early on. As a result, some DHB executives took an observational, cautionary stance despite some stakeholders pressing for HMSC involvement.

In 2010, the Ministerial Review Group Report (or Horn Report) was published and is cited by interviewees as the reason the HMSC process was halted. As a result, the collaborative was dismantled. An interviewee explained the rationale, stating,

“The Horn [Report] happened, they looked at the sector and they looked at IT...and they just killed the HMSC thing. Murray Horn said, ‘too big, too scary, too much.’ Big IT investments, too scary...a multi-billion-dollar investment, New Zealand is never going to do that.”

The Horn Report supported the patient-centred view and heralded the establishment of the Board and the Plan as a result to further that sentiment. Additionally, the UK’s headline-grabbing ‘failure’ of the billions spent on their large eHealth system occurring at the time is also cited by participants as an example supporting the Horn Report’s recommendation. Furthermore, particularly participants working as vendors/suppliers expressed the view that the New Zealand market (including from the vendor side) is more suited for an integrated, ‘federated’ (as participants tended to phrase it) response. In other words, joined but separate. Those involved with the HMSC are cautious about speaking of it, and for good reason. There is indication this caused early hindrance to implementation of the Plan at some HMSC-cooperating DHBs. The attitude now toward the HMSC came across in two ways – it was done, and they just had to get on with it (a typical New Zealand outlook) and/or why not take these ideas and scale them down (i.e. regionally instead of on a national scale).
In further support of the shift from a big bang approach to a regional one, the Northern Region is often used as an example, especially signifying what was happening more or less throughout New Zealand. Those interviewed at the Northern DHBs mentioned the long commitment the region has had to IT investment and strategy development dating back to the early 1990s. Two participants referenced in length the RIS 10-20, written and published by the Northern region DHBs in 2009 (released a few months before the Plan). Those two participants indicated they saw a lot of influences of the RIS 10-20 in the Plan (some participants involved with the RIS 10-20 mentioned submitting the RIS 10-20 to the draft feedback process). Some regions were also following some of the work in the RIS 10-20 and participants working closely in its development indicated the HMSC vision is encapsulated in the strategy – they just promoted it in a regional model. As a result, the perception is there is an alignment with what was trying to be accomplished and what is already being done because as one participant stated, “[the] Plan needs to reflect the current environment. It needs to be evolutionary, not revolutionary...”

6.5.2 Matching the culture

A repeated statement by interviewees is that although the Plan is aligned with the wider environment, the culture is as important in context. Although there was background given on the HMSC and its role by some participants, the major perception that emerged is the culture was more suited to a holistic approach – an approach providing a broad, rather than prescriptive strategy, and an incremental implementation model. A holistic vision is perceived as congruent in sentiment to what the HMSC was proposing. Furthermore, participants at central government level indicate implementation needed to be done incrementally and to be federated to preserve autonomy of the DHBs. Five people mentioned HMSC in later interviews in support of this view, indicating that although there was substantial DHB support, it was unsustainable long-term and for a small country with limited financial capability, a standpoint echoed by participants at central government and Board level.

The broad language of the Plan and the incremental implementation are two discussion points connected to the DHBs and their capabilities. In particular, there is recurrent
mention that DHBs were at different readiness levels and IT capabilities (at the secondary and tertiary levels) and therefore the Plan corresponded to the fact that those two were necessary to establish a foundation before the ‘shared care’ vision of connected health could be attained. This was brought up by a few participants as a stumbling block for progress with previous strategies. As one participant stated, “...for years we’ve talked about mountains and waterfalls and all sorts about building a foundation and then incrementally building on that to reach a different way of working except we always seem to get stuck in the foundation.” Some of those incremental changes were occurring, and because of this, the Plan supported that progression forward. A minority of participants, most of whom were from the South Island Region, were less favourable about the incremental process, reasoning that stitching of data and systems as people keep building and procuring new systems is not the right strategic direction. This was a valid reason others raised as a concern. However, the rationale is not supported by a substantial set of participants as a criticism of cultural preference.

A holistic approach was necessary in coordinating a unified vision, a fact clear in the statements from participants. Furthermore, the DHB structure required maintenance of autonomy and a federated model suited that culture, especially as the levels of IT maturity, or readiness, were so disparate throughout the country. This is at the point where disagreements would surface, and the HMSC topic would re-emerge. In particular, regions ‘lagging behind’ in IT investment are indicated to have had the greatest potential of benefitting from the HMSC model. Others are quick to pose the idea but swiftly indicate it would not fit, it does not match the culture. Interestingly, a few participants noted that it does not mean the culture is always right, but the knowledge in supplementing that caution existed and support for incremental change should be, and was, trusted.

What also needed to be supported was the ‘get on with it attitude’ that many participants stated was indicative of the culture in New Zealand. One participant added to the narrative, explaining why this is different from previous strategies but necessary to get right in order to implement the Plan:
“...there had been previous strategy documents. The WAVE document, HIS[-NZ] 2005, and so there was very little debate about the opportunity and potential benefits. But everyone agreed that it hadn’t happened. So, just talking about it is not enough. It needed to be about execution. So, it was very clear that the IT Plan was an action plan and it was trying to create a sense of something of reality that people could stop arguing about who would do what and start to work on a set of principles in order to get action. So, it was about shifting from strategizing to action planning, it was about making sure people were clear about who was going to do what.”

In shifting to action planning, there are threads corresponding to this view by a variety of participants. Furthermore, the participants were largely cautious and indicated that an incremental model matched the New Zealand culture. Cautionary examples including the UK are mentioned again as is the fact that New Zealand would never have the funding to support this approach, as one participant stated:

“They saw that it was a nightmare... there was no big government bucket of money was ever going to be thrown on this in New Zealand unlike the 11 billion pounds they threw in England...These big bang IT projects were a nightmare. Talk to Professor Gauld at Otago University who wrote a book about why big IT projects fail and one of the case studies he uses is a project they did at Waikato DHB they did 10, 15 years ago. His theory is that these big IT projects are loaded up for failure let alone if they’re in health or IRD or courts or justice or whatever.”

The single nationwide system is reiterated as politically unappealing. Consequently, it is incongruent to what would have been approved by the MOH anyway.

There are participants – largely vendors and those who interacted with them – who had a mixed response, with the direct statement by some that commercial imperatives drive those views. Those interviewed who indicated support of a single national system had no direct economic benefit but insisted that if the ecosystem could be managed, the system would have been beneficial. Those who support the federated model of information exchange appreciate the model in place now because they indicate they are
either individuals benefitting from it or their experience helps them realise it is more beneficial systematically and for the New Zealand economy. The language from two different system implementation ideologies indicated agreement in what they were trying to deliver (i.e. using IT to enable a patient-centric model of care) but with different views on the implementation process. One participant indicated that this is nothing new and that in his experience “generally, people agree on 80, 85% around things and there’s a 10 to 15% they don’t agree…You’ve got to get the discussion back to the 85% they agree on and get that bit done.”

Although there is disagreement on how to get there, there is agreement that a foundation was necessary. The Plan was to support that through setting priorities that regions could then implement incrementally.

6.5.3 Category summary
The complexity of the healthcare sector is repeatedly highlighted and it is more significant when realising the role of the Plan in the wider healthcare sector. There existed a lot of history in previous strategy and healthcare reform in the country that dictated the environment and culture that was in place. EHealth strategic predecessors in New Zealand are recognised for their role and importance but are seen more for their inaction in recent years. The Plan needed to align with and reflect the current environment. It also needed to reflect the health strategies to show correspondence among the MOH organisations and their initiatives.

A big national system promoted by the HMSC was not sustainable or politically feasible and that directive was supported by the Ministerial Review Group Report (Horn Report). Although there was major support from a large subset of DHBs, there was not central government support for a big bang approach to implementing health systems in the country. Furthermore, it did not match the culture which supports instead an incremental, federated model of implementation and management of health systems. The Plan presented a vision that was incremental and built a foundation which was indicated to match the culture of New Zealand and was suitable for DHBs. This has allowed the landscape to be set for a regional model whereby DHBs can integrate their local priorities and capabilities to create regional plans to implementation the Plan.
6.6 *Category 4: Regionalisation to Sustain Implementation*  

This category represents the regional collaborative configuration of DHBs employed and represents the perceptions of the impact of this structure in implementing the Plan and the long-term sustainability of its programmes and initiatives. Building on leadership, engagement, and sector alignment, the Board’s support and promotion of regionalisation was a related influential factor in the implementation of the Plan. The consequential effects of this collaborative structure to plan and deliver services continue to have an impact in the sector.

During the process of analysing the data, a conceptual relation was identified among the *shifting perceptions, promoting collaboration* and *funding and investment distribution* selective codes that built up the concept. Table 6.5 provides the compounded open codes used to compose the selective codes to support the formation of the emergent category. Included in the table is a summary of the theoretical memos adding a supporting link to the category formation. The table is presented here as an outline to guide the detailed analysis and discussion below.
Table 6.5 Construction of the Regionalisation to Sustain Implementation category from open and selective codes, integrating theoretical memos.

<table>
<thead>
<tr>
<th>OPEN CODE</th>
<th>SELECTIVE CODE</th>
<th>ABRIDGED THEORETICAL MEMO</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funder-provider split, DHB wariness of central government, historic competitiveness between DHBs, underlying politics within and between DHBs, establishing boundaries</td>
<td>Shifting perceptions</td>
<td>Previous healthcare reforms lead to a culture of competitiveness between some DHBs. Rooted historical perceptions impacted interaction with the Board and may have impeded early implementation efforts at some DHBs. The importance to shift perceptions builds upon the central leadership and engagement but requires highlighting the importance of collaboration.</td>
<td>REGIONALISATION TO SUSTAIN IMPLEMENTATION</td>
</tr>
<tr>
<td>Different levels of readiness, regional alignment, reducing competition, working to meet regional targets</td>
<td>Promoting collaboration</td>
<td>Regional collaboration is important to economic development and to sustainability within health sector. Fostering accountability is important but less of an argument here; focus is more on reducing competition and meeting targets.</td>
<td>REGIONALISATION TO SUSTAIN IMPLEMENTATION</td>
</tr>
<tr>
<td>Funding necessary to do what needs to be accomplished, veto control by the Board, slowed decision-making, under-resourcing leading to resentment, stagnation is major obstacle</td>
<td>Funding and investment distribution</td>
<td>Accountability and governance issues are re-emerging and the lack of clear structures raises sustainability issues. Uneven distribution of cost and benefits between DHBs leading to impeding circumstances. Lacking economic and governance structures causing slowed decision-making and stagnation.</td>
<td>REGIONALISATION TO SUSTAIN IMPLEMENTATION</td>
</tr>
</tbody>
</table>

The following sections will explain the discovery of the selective codes from the open codes that resulted in forming the Regionalisation to Sustain Implementation category.

6.6.1 **Shifting perceptions**

The Board released the Plan in 2010 and in conjunction supported a model whereby implementation of initiatives would be coordinated regionally. However, this change, and the resultant impact on governance structures, required time and effort to shift perceptions that this is a practical option. Regionalisation was described emphatically by one interviewee as a way to “centralise where [the sector] must and distribute where
they can” in order to mobilise capability better. To do so, DHBs within each region need to cooperate with one another because as one interviewee so directly put it, “[we are] short of money and workforce and we need to simplify and establish a foundation as a region.” Additionally, another interviewee remarked, “with no clear [regional] direction, it is harder to get engagement”. Yet regional cooperation is a struggle for some DHBs. One participant explained that there “were lots of politics [because there was] lots of prior competition between DHBs.” Before the Plan, it was explained that different DHBs were simply doing their own thing and had their own interests. As a result, each DHB had their own clinical pressures and drivers with pockets of innovation resulting in different levels of IT maturity or capabilities throughout the country.

During the interviews and in further analysis it emerged that a lot of the early hesitance in some regions is rooted historically. Those discussions related to the history both between DHBs and between DHBs and the central government, and the resultant impact now. A few participants explained the importance of the historical complexities, and one participant dates some of the most recent issues originating with the funder-provider split in 1991, stating:

“...the problem we have is that in 1991 the Government introduced a concept that put in arm’s length the spending of funds which is what they are responsible for and the delivery of services, so called funder-provider split. And the consequence of that is the centre gave up the ability to have direct influence over the way services are delivered. They had lots of things that they could do and some things they took on board themselves but very few like the national vaccinations services and so on. But most of the key health delivery in this country is done by District Health Boards who in that sense are primarily around hospitals, primary healthcare organisations which are funded 70% by the Government, and that funding goes through the DHBs. But the DHBs have very little influence over what the primary practices do and how they spend their money. That’s changed but certainly been the case for a long period of time.”
The suggestion is made that the funder-provider split contributed to two things – a commencement of competitiveness between some DHBs and continued wariness in interaction between DHBs and central government. The analysis of the interviews indicates, and is confirmed with the last interviews, that the Plan itself and engagement efforts and leadership from the Board helped in facilitating change in some regions.

The wariness in interaction between DHBs and central government emerged sporadically throughout the interviews. For most participants, the main issue is DHBs’ fear of infringement on their autonomy. Specifically, there is discourse at the DHB level and those working with the DHBs of their worry about the misaligned priorities. Some participants describe DHBs as having a lot more concerns and operational issues to consider outside of IT investment. This is explained as one of the reasons why some DHBs historically lagged behind, and was a common perception held by many of the interviewees. Furthermore, the way in which DHBs were funded and made decisions has preserved their autonomy. Each DHB has been, and continues to be, responsible individually for their spending and IT implementation, operations, workforce, and so on. Initial fears of challenging those conditions meant it took some time for people to get on board with the Plan.

A majority of participants indicate the threat to the DHB’s independence is warranted. Other participants are more critical, indicating that some DHBs recognise the importance of IT investment but choose to spend elsewhere. As one participant states:

“...The reason for that is, being cynical, if you’re in the DHB and you get a choice between the new hospital ward or a big software investment, the hospital ward is a lot more alluring...So, for lack of better terms, it’s sexier to put money in real estate than into the IT. Now the CEOs and the senior managers of the DHBs get that and are coming to the party and moving the investment up the pie but sometimes the elected leaders can be a bit of an obstacle.”

There is a status quo that exists and there was some indication that the Plan and the Board were shifting some of those behaviours in some regions. However, it is the DHBs’ prerogative to choose how to divest funding. It is at these discussion points that
the rationale for the pushback from some DHBs came to light in regard to the Board – specifically, their lack of mandate.

The Board has no history with the health sector, and its predecessors (i.e. HISAC) were stated to have no “teeth in the game” by one participant and therefore could not yield any power. Many participants in the early interview sets believed it would be no different this time. As one participant stated, that is possibly why there was initially, and to some degree continues to be, some pushback by DHBs:

“...When the National Health IT Board tells them to do something, it’s kind of ‘why are you telling me? I don’t answer to you. As a DHB, I don’t answer to you.’ So, there’s been some pretty strong letters back that said, ‘No, I won’t be doing that for these reasons.’ And maybe [the Board’s] role is to challenge and push and if they get a negative response it’s validated, I suppose.”

The analysis of the interviews shows that attitudes toward the concept of regionalisation began to shift. Participant responses indicate perceptions shifted partially as the Board leadership made themselves more available and open to stakeholders and engaged the sector. As one participant mentions, despite initial reluctance, the Board continued pushing for regionalisation to achieve the Plan’s specified vision, stating:

“No doubt in the sector you get all kinds of criticism of ‘they could’ve done this better or that better’ but I really think we should give credit where credit is due...to the National Health IT Board, to Graeme [Osborne], and Tony [Cooke], and the team to take that simple message and be quite dogmatic about that. Regardless that they got pushback or constantly harassed by ‘what really do you mean’. At the end of the day they achieved a hell of a lot by just sticking to their guns and saying, ‘listen, I don’t have all the answers but we just need to do this.”

For other DHBs, regionalisation was already a mode of operation. Some participants strongly hypothesised the work in those regions as the rationale for the Board supporting a regional model. Specifically, participants stated that prior to the Plan the Northern Region already had a history of working regionally, which supported the
environment of creating the RIS 10-20, despite statements of competitiveness between DHBs in the region. Participants in the Northern Region and the Central Region specified that, for them, when the Plan was released it was a logical next step for their DHBs. There is agreement that the regional structure has created tension in other regions (none would state specifically which ones) and there are still issues to be worked out there. Nonetheless, the Plan has helped provide a framework for the regions. Through cooperation, regional issues including workforce capabilities, funding availability, and operational issues specific to the region can be aligned to their implementation of the Plan.

6.6.2 Promoting collaboration

Regionalisation has its obstacles and, much like implementing the Plan, it seems regional collaboration is an incremental process. Once perceptions shifted and cooperation with the Board grew, the need to work in a regional manner became both a priority and an issue in the regions. Participants recognised it would not be sustainable in the long term for the nation or the DHBs to continue in the manner they were. Individual pockets of progress or 20 DHBs each having a range of systems – strongly supported by one interviewee stating that he/she has heard of “500 plus systems in one DHB” – is not going to be sustainable for the healthcare sector. Therefore, promoting collaboration in a regional model was integral.

Using the Plan as a framework, regions were meant to collaborate to create regional implementation plans. One participant explains:

“Every region was tasked to do [an implementation plan]. Now the National Health IT Plan has been published and now every region...So, when this Plan gets published a very big change in New Zealand was with that Plan came a commitment, or a task or an order for each region to develop an implementation plan for that. A regional one, not a DHB one. So, for most regions, that was the first time they wrote anything regionally.”
The reason for supporting this structure and this implementation strategy was strongly supported by many participants. The main reasons for this support are echoed in one participant’s statement:

“…the National Health IT Board who are responsible for the National Health IT Plan was trying to bring some sense of synchronicity across the sector. Certainly at the regional level but quite often at the national level where there’s a debate as to what’s regional and what’s national. So, the National Health IT Board is comfortable that at the regional level, there might be different answers regionally within the same broad architecture but they are very uncomfortable that we should have 20 versions of this for every DHB. So, they are looking to create strong regional strategies and in some cases strong national strategies and this is part of that process of herding those sheep into a pen.”

The agreement to a large extent has been that one of the big successes to drive this change is convincing Chief Information Officers in the DHBs (where that role was available) to start working together in regions. Furthermore, as IT investments were going to be judged on a regional basis one participant felt that there is even “regional culture in the IT area”.

Once there was a movement toward regional collaborative efforts to create regional implementation strategies there was a promotion of regional alignment. The Plan set out the priorities as a framework and regions created implementation plans to put those into action. However, outside of funding issues, the discussion is positive because of the benefits of promoting collaboration in the regions. Participants from almost all regions indicated there is a reciprocal communication maturing. One participant is enthusiastic about this level of communication, stating it “encourages collaboration between regions. Yes, they certainly come talk to us more. We certainly talk to them more…the other regions. So, yeah, no, it’s good. The country feels smaller, put it that way.”

To facilitate some of that collaboration, some regions realised early that supplementary governance structures were needed to be put in place. Participants from the Central and
South Island Regions spoke of a more pressing need for change in their regions. Participants from both regions mentioned the concept of the ‘burning platform’ indicating change was necessary and collaborative efforts were the way forward. This was more pressing in the South Island Region, specifically in Canterbury DHB, due to the devastating Christchurch earthquake in 2011. The earthquake is given as a major force in galvanising the healthcare sector into collaborating and increasingly realising it was imperative to enable an integrated system in the region.

Collaboration is described as continuous effort with a variety of obstacles. The example given repeatedly in interviews is that different levels of readiness or IT maturity at each DHB can be impeding. However, a few interviewees consider it an advantage. Participants at some of the smaller DHBs (some specifically mention experience in the Midland Region) or where IT investment was not significant indicated it created an environment for them to learn from their neighbours and progress. One participant remarked that “it can be seen as stability, a way for sustainability.” This ‘alliancing’, as one interviewee referred to it, was also reiterated as beneficial to cost advantage when procuring systems – economies of scale is mentioned by a few individuals – because, as another participant stated, DHBs would “share pain [and] share gain.”

Competition also interestingly emerged as a topic linked to promoting collaboration, specifically in regard to the readiness assessments used to implement prioritised targets from the nine work streams of the Plan (or meeting the ‘pizza’ as they came to be called in later interviews because of the red, pink, orange, yellow, and green colours used to indicate progression along each work stream). It was thought that targets would breed further competition, especially where progress is publically updated online. However, participant perceptions are mixed. Some participants stated there is no competition, mirroring what one participant said about using the readiness assessment to learn, engage, and collaborate:

“I don’t look at the other regions. I look at it in terms of you’re obviously going through a journey in that area, I’ll need to talk to you at some point and not repeat any…lessons learnt, how’d you go. No, I really like to talk to the other regions…no competition.”
Other participants, more so at the executive level, state their experience is DHBs take pride in meeting the targets and see positive competitiveness as a result. It results in DHBs working with rather than against each other, in order to make progress. The importance of this is emphasised as participants indicate some DHBs relay progress at target meetings and some CEOs are known to monitor improvements daily. The unintentional by-product inadvertently mentioned is this led to local level change in the engagement of stakeholders as that information was fed down, especially in the growth of clinical involvement and leadership.

6.6.3 Funding and investment distribution

Commonly discussed as a substantial drawback of the regionalisation structure influencing implementation is the issue of funding and investment distribution. This issue is highlighted in early interviews but grew in contention in later sets. During the interviews and in further analysis of the data, the issue lies along three major factors – flow-down impact of governance issues at regional level, development of new issues between DHBs and the Board, and stagnation perceived by vendors.

The importance of the need for clear regional governance structures became apparent in later interviews when the regionalisation issues were emerging as an influential factor on the implementation of the Plan. The importance of this is especially significant as funding and investment distribution necessary to procure systems has to be shared between DHBs. One participant explains:

“... [One] big challenge is finding the money for a regional plan or regional project. Particularly when the money has to be shared and one of the DHBs or two of the DHBs in the region believe that the system they invested in before – which may or may not be providing a reasonable job but probably not as good as what it could be – say that the cost of improving are not where they want to be investing their money. They want to try something else...so that becomes the challenge of...if there is going to be regional cooperation...”

Lack of clarity of accountability and decision making between DHBs in some regions impacted implementation of initiatives; some regions initially had no structures in
place. An example given by most participants is regions with Chief Executives from four or five different DHBs, depending on the region, who now had to make decisions collectively, which inevitably slowed the process down. The issue is not collaboration but that the management of that collaboration is lacking, leading to slowed decision making on IT investment. Nonetheless, over time, regions are mentioned as having created different structures to work with one another to circumvent some of these issues. Central Region formed Central Technical Advisory Services to help coordinate operations management and provide what one participant called “programmes that add value for money for the Central DHBs.” Midland Region is mentioned to have HealthShare (which existed prior to the Plan) to coordinate regional planning and coordination including IT delivery.

The Northern Region participants mentioned healthAlliance in aiding the coordination of some of the shared services between DHBs. This includes finance and procurement, as these “functions of DHBs have now been centralised into healthAlliance”, as one participant described. Like HealthShare, healthAlliance existed prior to the Plan but indications are its role is now more pronounced. In the South Island Region they formed the Alliance Leadership Team (ALT) made up of CEOs and chairs of all of their DHBs. Unique to the other regions, the South Island Region sends all business cases to the ALT which makes final decisions and feeds them down. One participant describes this as a structure “much less complex than the other regions. That’s allowed us to take the regional stuff in [the Plan] and frankly implement it…much more [swiftly].”

An issue growing in discussion around funding and investment distribution then shifted on the topic of disagreement between some regions and the Board. One participant summarised that although not mandated (i.e. not an official policy order), there was reliance that the Board would help in resourcing initiatives, especially priorities from the work streams, stating:

“[The National Health IT Plan] set the strategy and the prioritisation. It certainly has an important role in the prioritisation. Now it’s not mandated. It’s not exclusive so that no one…it’s not that you have to do that and nothing
else. But there’s certainly an expectation that the National Plan will guide the funding and resourcing of the regional plan, which is a little bit tricky.”

Early missteps by the Board with vendors further soured some relationships with DHBs and may have added to delays in implementation. One participant gave one example that occurred:

“[The Board] say to the DHBs, ‘we’ll develop some requirements nationally’ – great – ‘we’ll work some areas’ – I’m really pleased – ‘we’ll work with the vendors so that they’re not double charging you all and we’ll get some standards in place. Now DHBs you go and implement’…that sounds great. But then [the Board] get a little bit confused. They do the requirements. They start negotiating with the vendor. They say DHBs ‘you go’ and so DHBs go. And [DHBs] come back in and go, well where are you because we’re still here. Which one do you want? You either finish the job and then give it to [DHBs] or you say ‘here are the requirements, now you go and do it.’”

This was reiterated as an early issue that occurred and another participant surmised that the Board quickly learned from this. Not all participants agreed. Some indicated that the Board still interjected in these matters in later stages of implementation, an opinion dominant among participants from the supplier/vendor stakeholder group.

The lack of mandate was raised as an issue by a few participants and over the course of the interviews the Board’s role and power became more defined. The Board is described as gaining greater authority over time, yielding it in two ways to influence implementation – both of which have an impact on funding. To support the priorities of the Plan, the Board is mentioned to have a small budget (stated and emphasised by almost all participants). One participant explains how despite the small budget, the Board uses that to influence and yield some power in the regions:

“...You’re gradually getting at the regional level, where the regions are getting encouraged to start looking at things regionally, with variable success. Some success, some less successful. But all being encouraged and this is where the Plan comes into place because [the Board] are trying to get them
to prioritise around things that are in the Plan. What they then did was to actually fund some things directly themselves. Some of the things on [the triangle] diagram are funded directly from the budget of the National Health IT Board, which is not a large budget, it’s a very small budget. But they use those funds sparingly to seed things into the system and sometimes do things directly...which gives them influence and power. Its then, ‘if you want my money, you’ll listen to how I say it should be done.’ So, I sense that has been helpful...It hasn’t worked completely but it certainly has been helpful.”

A majority of participants perceived that with the limited authority the Board has on the sovereign DHBs, that budget proved influential. The other influential way of yielding some power is labelled by some participants as the ‘power of veto.’ The label is given in reference to the Minister of Health directing the Board to review all IT investment business cases over NZD$500,000. The Board decides whether or not to issue approval. Three participants interestingly used the same vernacular, stating it is one of the ways the Board can yield power without much ‘stick.’ In analysing the interviews, there was debate about the Board’s influence, mostly by those employed at the DHBs and suppliers/vendors. The reasons for this did not emerge until later interview sets when connections to stagnation in implementation in the sector were growing in the discussion.

Threads of slowed progress were appearing throughout the interviews but the reasons had not emerged until all of the interrelations between the influences of implementation of the Plan began to weave together. The main influential reason growing in impact is experience of slowed decision making and its consequence on IT investment. It is just perceived as diametrically different. One interviewee states, “I think in the first two years from when that Plan came out was [DHBs were] worried that they weren’t going to be able to do what they wanted to do therefore they’d be held back...” This slowed decision making is indicated by participants across all regions. A variety of reasons were given, specifically delays in getting “alignment of different points of view” within and between DHBs in each region. As a result, a participant believed that “local investment in IT slowed up.” It emerged that other participants are in agreement that in fact, prior to the Plan and the Board’s involvement, IT systems and projects would
be funded at the discretion of each DHB. With implementation of the Plan, investment in IT systems and projects had to align with the nine work streams and priorities or face scrutiny, which is indicated as one reason why some may feel negatively toward slowed investment. Although given as a criticism this seems to be one of the purposes of the Plan – reducing IT system duplication and establishing alignment to support sustainability.

One participant captured well what three quarters of those interviewed implied, by stating:

“So the progress has been slow. It’s been faltering. It’s worked well in some areas and rather poorly in other areas. Could [the Board] have done it better? Well of course they could have done it better. Everyone can do everything better in hindsight. Could they have reasonably expected to do it better? No, I don’t think so.”

Almost all participants intimated some slowed progression but the impact it is having is growing with later phases of implementation. Vocalised by vendors/suppliers and yet also recognised by a majority of participants are the repercussions on the market. In analysing the interviews, there were two points of view on this, one looking at the long-term positive impact and others the short-term financial impact. DHBs collaborating regionally to procure systems will sustain implementation largely because of the cost advantage (economies of scale) and in return will support future IT investment. Other participants outline impact on the market as some vendors are facing some financial impact. Specifically, they are not getting 20 DHBs individually seeking IT solutions. All participants held different views on these two issues but not one participant disagreed this is occurring in the sector.

One participant summarised the software industry in New Zealand and the impact the Plan and the Board has had:
“...We’ve got a reasonably significant health software industry with a whole lot of companies that are all competing against each other, in most cases exporting as well, who want to be seen as centres of the New Zealand market. In some respects the...Plan is a constraint on them rather than a support because up until now...you had 20 or 21 different DHBs all of whom were working individually with the software developers and a whole range of different solutions with the health applications. That is a far more dynamic and profitable market for the software vendors to work in. And now some nasty person [laughs] in Wellington pulls it all together and says, ‘alright we’re only...one national plan for a maternity programme or long-term conditions programme’...So, the National Health IT Board has made quite an impact in the way in which the market for health software is structured and that hasn’t necessarily sat very well with the agendas of the vendors.”

There is awareness by participants that this is an influential issue on implementation as things are moving slowly. Some participants lay the cause with the Board, others with the DHBs. There is a suggestion by a couple of participants that as a result, the Board has recommended a shift from the roughly 2% current investment in IT to 4% investment in IT by DHBs to support procurement of regional shared services. Those who are aware of the push for increased investment mention that is a necessary step forward. In most interviews, this is where discussions would devolve to other topics. It is important to note that before doing so, many participants made a point about slowed progress. They warned that it is when progress or forward movement in implementing initiatives and meeting targets completely stops that people should get worried.

6.6.4 Category summary
Regionalisation is an integral component to the implementation of the National Health IT Plan. There was a realisation by the National Health IT Board that a country of this size could not procure a large nationwide system because of fears of failure and the level of investment necessary. An incremental, federated model is instead seen as best and the Board requested regions use the Plan as a framework to create implementation plans particular to their regions. The findings and analysis presented in this section
represented the perceptions of the impact of the regionalisation structure on the implementation of the Plan and the influence of that on the long-term sustainability of its initiatives.

First, a shift in perceptions was necessary as an existing culture bred and reinforced set processes at national and DHB level. Nationally, central organisations outside of the MOH traditionally had little power in DHB matters. The Board had to shift these perceptions to assert their role. DHBs also had a lot to contend with as underlying politics and competitiveness that existed between some DHBs led some to an initial scepticism of the Plan and the regionalisation structure. However, the Board and their influence and reliance on regional and local champions of the Plan promotes collaboration and regional alignment. The readiness assessments worked to generate some positive competitiveness for some and collaboration and a lessons learnt approach for others.

The regionalisation structure does have its critics and a lot of that rests on issues of funding and investment distribution. Governance structures and how to distribute or split funding of IT systems between DHBs still requires some clarification in some regions. The added issue is that without some of these structures in place, there are more decision makers and therefore more time is spent in making decisions than in implementing programmes and initiatives. This has had some impact on the sector, felt largely by vendors in the economic sense. DHBs are also feeling the effect as initiatives are taking longer to be realised. The perceptions are mixed in regard to these issues but a majority of individuals indicated that slowed progress is better than no progress.

6.7 Conclusion

In this chapter I have presented and analysed the findings from the in-depth convergent interviews. Analysis of the data resulted in the identification of 59 open codes – labels for segments of data – grouped into 11 major selective codes – emergent conceptual elements (Glaser, 1967). The four categories – Government and Leadership, Engagement of Stakeholders, Aligning the Plan in Context, Regionalisation to Sustain
Implementation – were the conceptual elements at a higher level of abstraction (Glaser, 1967).

The substantive theory, grounded in social situations, is discovered through “the formulation of concepts and their interrelation into a set of hypotheses for a given substantive area based on research in the area” (Glaser & Strauss, 1967, p.5). In the following discussion chapter, I use the emergent categories to abstract the conceptual elements further, outlining their interrelations with analysis and discussion connected to wider literature and theory.
CHAPTER

7

Theory & Conceptualisation
7.1 Introduction

In Chapter 6, discussion and analysis of the findings was presented. Grounded theory is often adopted to formulate hypotheses or theory grounded in the views of participants in the study (Creswell, 2009). Through iterations of data collection and refinement, a theory emerges through the interrelationships of categories of information (Glaser & Strauss, 1967). In this chapter, the emergent, substantive theory is summarised as the interrelationship between categories is outlined further (Step 8, Figure 7.1). Lastly, as Step 9 in Figure 7.1 indicates, the findings are enfolded with the literature to establish a conceptual link with the empirical substantive theory, thereby integrating the generated theory to show its contribution (Glaser, 1992).

Figure 7.1 Indication of the analysis and theory building step(s) presented in Chapter 7.
7.2 **Building the theory: Bringing it all together**

Grounded theory is a straightforward methodology. Glaser (2004) writes, “It is a comprehensive, integrated and highly structured, yet eminently flexible process that takes a researcher from the first day in the field to a finished written theory” (para. 14). I have followed the process to this point where, following grounded theory procedures based on the constant comparison method, inductive analysis resulted in the generation of a substantive theory grounded in the data. The emergent substantive theory, as Glaser (2004) writes, “has general implications and can easily be applied to other substantive areas by the constant comparative method of modifying theory” (para. 34). In the sections below I will make empirical connections between the emergent categories and then draw out and summate the theory.

7.2.1 **The empirical relations**

As the categories emerged from the same data –through analysis of the 30 in-depth interviews – it implicitly indicates that the concepts are interrelated. The differences between the concepts, presented in the previous chapter, signified the borders between them. It is important as part of the emergent theory to briefly explore the interrelationships adding further to the previous chapter and integrating the literature. The GEARed mnemonic arrived not by manipulating the categories to form a word but rather consequential to the timeline of events uncovered through the data collection and analysis process. These events, linked to the implementation of the Plan, strengthened the interrelationships of the concepts of the categories based on their impact of influencing eHealth strategy implementation. Figure 7.2 figuratively represents the interrelationships between the categories, shown here at the selective code level, to be discussed in more detail to follow. Shown in this figure are the separated “gear” sections (from Figure 6.2), each labelled with the one of the four categories. Under each “gear” is the selective code that emerged from analysis, presented and discussed in the previous chapter. The lines between each selective code indicate an interrelationship presented in the previous chapter and part of the following discussion.
I will first briefly summarise the interrelations then extend the substantive theory to the literature to make conceptual relations. Finally, I will abstract and summate the theory.

The importance and crucial influence government and leadership had on the implementation of the Plan is a concept emerging early in the interviews. Implementation of the Plan is leading to transformative changes in the healthcare sector. Government and leadership from the centre (or national government) swayed the type of strategy to be adopted, whether a mandate existed or not, and how the vision of the Plan would be directed to stakeholders. Key elements of this category had ramifications, positive and negative, on the other categories. The content of the Plan was written in a cohesive manner and communicated in a vision statement with a simplified message – achieving an enabled integrated healthcare model where patients and providers can electronically access and share health information, regardless of the
setting. Graeme Osborne, Director of the National Health IT Board, and fellow members of the Board built support through allowing access to them and communicating much more openly with stakeholders compared to predecessors. These were elements crucial to engaging stakeholders to get involved and achieve early buy-in. Reciprocally, the Board which was a newly formed entity at the time, were able to both garner feedback and examine the culture to suit the national healthcare context. It is not to say that the Board members’ experience did not also impact their behaviour or decisions, rather, the actions they took – garnering feedback, engaging stakeholders, supporting/funding pilot projects, promoting regionalisation – supplemented their decision making.

The negative aspects, primarily the need for clearer governance structures, emerge in interviews early on. However, they are not contextualised by participants until later in implementation when impact of regionalisation is beginning to formulate at deeper levels. At this point, examples were being threaded between the importance of early governance structures to be set in place and regional cooperation. Yes, a culture and environment of DHB autonomy is maintained, yet clear governance structures at this level were lacking in some regions. The power and impact of regionalisation is largely supported. However, lacking those structures – management, responsibility, accountability, funding and investment – between DHBs, regional decision making is slowing. Stagnation is occurring. Some vendors/suppliers are feeling a noticeable shift in spending. This is where it appears that duplicitousness exists. IT investment is considered to be slowing yet participants suggest this can be a good thing as more thought is going into decision making. Nonetheless, with better governance structures in place, informed decision making can occur, just in a structured manner.

The reciprocal conversation between national government and stakeholders is able to take place, in some ways a departure from the previous attitude, as discussed by participants. Furthermore, the array of stakeholders involved is wider than for previous strategies. Clinicians and consumers are now sought out to contribute through public, discursive participation. They are also brought in to contribute early on, not a unique approach but novel to eHealth strategy development and implementation in New Zealand. This allowed for alignment with the wider sector and similarly impacted on
implementation of the Plan. What is the primary motivator? The diagrams or artefacts played a significant role. The triangle diagram and the tree diagram were statements. Some people agreed with the content of the diagrams, others did not. The ‘window pane’ and the ‘pizza’ (readiness assessment) became supplements. When used together they had impact. In combination, the diagrams engaged the wider sector because they became a topic of conversation. The triangle diagram was particularly significant as a result of consistently being used as a singular tool for discussing the Plan – whether to convey its message, its goal, or progress made.

The interrelationships are borne of agreements and disagreements within the data from the interviews. Analysis of the relevant literature allowed me to expand on the categories and interrelationships further to develop theoretical implications. I then distilled from the findings and the interrelationships, sharpened by the literature, a generalised, summated theory presented below.

7.2.2 Theoretical integration: The conceptual relations
The literature is an important component of the grounded theory process. The methodology’s dictum is to not cover the literature in the same field before the research begins (Glaser & Strauss, 1967). To be free to discover, the researcher should be free from claims of literature and assumption so that data is not rendered to fit with these preconceptions. However, during the process of data collection, analysis and constant comparison, the literature can be integrated by the researcher in a variety of ways. I utilised the literature in the previous findings chapter as a reference in understanding and sharpening ideas as one source of constant comparison. Glaser (1992) states, “as these connections occur the researcher must remember his job is to generate, not to verify…Verification begs off the task of constant comparison and theoretical integration; it sets up controversy when it should extend theory.” Here, I use the literature to refine and extend the substantive theory while identifying gaps in the literature to present contributions of the findings.

The substantive theory indicates there are four influential issues that impact implementation of a national eHealth strategy, identified within the macro- and meso-levels of implementation – leadership, engagement, context, and collaboration. The
Plan, although not mandated, is a governmental strategy implemented by organisations at regional and local levels. Historically, it has been identified that when a new policy is formulated and implemented it can result in intra-organisational issues (as new patterns of individual activity required may compete with old ones) and inter-organisational issues (participation of more than one agency in implementation creates situations where coordinating efforts are not controlled by one actor) (Montjoy & O’Toole, 1979). Organisations are littered with the “debris of yesterday’s [change] initiatives” (p. 40) not necessarily due to poor management of change rather lack of effective leadership (Mayo, 2002).

All four categories – Government and Leadership, Engagement of Stakeholders, Aligning the Plan in Context, and Regionalisation to Sustain Implementation – are influential; there is reason government and leadership is the topmost. Leadership makes a difference. It interrelates and connects the categories, and the literature supports the findings. There is evidence that proactive, strong leadership providing clear strategic vision creates an encouraging environment for organisational change (Beath 1991, Kotter, 1996; Van de Ven, Polley, Garud, & Venkataraman, 1999; Ferlie, Gabbay, Fitzgerald, Locock, & Dopson, 2001; Lorenzi & Riley, 2003). An additional layer that is evident from this thesis is that creating this receptive context for change impacts positively on the implementation of eHealth strategy and adoption of initiatives. It helped bind the healthcare sector towards progressive and transformative change, a cohesive stance that was lacking in previous eHealth strategy iterations. Furthermore, the level of impact to bring about change is not limited to national level leadership alone. The central government leadership by the Board - their style and their stated role – introduced the Plan and directed its implementation. The ‘local champions’ carried forth and disseminated the Plan at the local level through professional organisations and DHBs. This was equally an important leadership role worth highlighting as it furthered stakeholder engagement and stakeholder buy-in.

Less discussed was the manner in which the Board led, instead the focus was on the process and tools used through their role as Board members. However, examination of the use of tools in strategy implementation is under researched. Yanow (2003b) indicates that part of interpreting the implementation of policy is examining the
meaning of its artefacts. The triangle diagram as a strategic artefact was one of the most influential factors in disseminating the Plan. The degree to which this diagram was internalised by many stakeholders, to the point where they could draw it from memory, indicates the impact it had. This is evidence of the contribution a diagrammatical representation can have as a carrier of meaning of strategy/policy which can also mobilise stakeholders. Realising the level of impact the triangle diagram had, the Board then created the tree diagram to target and gain buy-in with a shift in audience as Phase 2 of the Plan commenced. This is recognition of the Board’s leadership capacity and strong sense of the vision they aim to accomplish through implementation of the Plan.

The role of leadership, specifically central government direction, is crucial in effectual eHealth strategy implementation. Policies are designed to catalyse change in society. Early literature shows implementing these policies abolishes or modifies old patterns of interaction and institutions (Ranney, 1968). Open systems theory provides a framework for organisations as a system of interrelated components that are embedded in, and influenced by, a larger system. The key to prosperity and sustainability is the state of alignment between the internal components of the system and the wider system it is a part of (Hayes, 2014). In this case, the Plan and the external health sector environment. As a result, when aligned, the components reinforce rather than disrupt one another (Schneider et al., 2003). What additionally emerged from the findings and added further to the literature is that the understanding of the context and culture is an important component in juxtaposition with alignment. Participants indicated there was a history of the clinicians and the IT-side not always cooperating or working with one another leading to barriers in adoption of initiatives, a common thread within the literature (Mair et al. 2006; Gruber, Cummings, LeBlanc, & Smith, 2009; Boonstra & Broekhuis, 2010). Some changes have been occurring in New Zealand with introduction of workforce training in health informatics (Parry et al., 2013) and collaborative efforts at HiNZ conferences to create greater involvement of clinicians and the sector as a whole. This supports the indication that the historical and cultural factors within the healthcare sector are influential factors impacting alignment and are an important consideration both in strategy development and implementation.
What the findings show is that change must be well managed – planned, organised, and directed – requiring effective leadership to bring about transformative change. Effective leaders need to set a direction for change, influence others to make progress, and improve internal (the people and organisations) and external (related strategies and health system) alignment. Traditionally the literature provides arguments that effects of leadership are minimal in comparison to historical, organisational, and environmental factors (Lieberson & O’Connor, 1972; Salancik & Pfeffer, 1977). What I find here is attributing organisational outcomes to individuals alone is an oversimplification. Complexity theory states that organisational performance cannot be attributed to individual leaders as performance is an emergent phenomenon involving complex interactions between variables in a dynamic system (Marion & Uhl-Bien, 2001). However, more and more empirical literature over the past 20 years has shown a relationship between who is in charge and organisational performance (Kaiser, Hogan, & Craig, 2008). Specifically, the strong effect leaders have on organisational performance (Bloom & Van Reenen, 2006). The findings from this thesis congruently extend the two – an individual can be partly credited for change and who is in charge will impact organisational performance. The findings indicate this lies in a mixture of leadership style and role clarity. Although not delved into specifically by interviewees, a style of prioritisation, open communication, and consistent messages were characteristics of national and local leadership specified as effective by stakeholders.

As the system was undergoing change, stakeholders or participants within the system looked to those in authority to minimise the strain of change and gain stability. Role clarity of those leaders gave that authority, providing clear direction. When that was missing or overstepped, issues causing hindrance to implementation arose (as in early stages of implementation when the Board was finding its footing). Although outcomes are important, Green and Cameron (2015) indicate that in order to sustain organisational change, leaders need to balance their efforts across three dimensions:

- Outcomes – developing and delivering clear outcomes
- Interests – mobilising influence, authority and power
- Emotions – enabling people and culture to adapt
If all three dimensions are not fostered, a leader’s “chances of progressing in an effective way are diminished” (Green & Cameron, 2015; p.5). I would add to this proposing that leaders are actors at multiple levels and, further, do not achieve results themselves. Central leadership alone is not enough to impact change and lead to transition when implementing eHealth strategy.

Introducing new changes is not enough to spur uptake of new strategy and drive implementation. There needs to be commitment at national and local levels to enact change and bring about the necessary collaborative transitions that occur with strategy implementation. Gill (2003) confirms these findings by describing how commitment is evidenced in several ways. These include: through unequivocal acceptance of ownership and responsibility for success of the initiative, eagerness to be involved, willingness to invest resources, willingness to make tough decisions, awareness of the impact of each leader’s behaviour, a consistent message, and the holding of regular reviews of progress (Gill, 2003). These qualities were present in the Board leadership in varying degrees throughout the implementation process. Local leaders who champion the vision and goals of the strategy and progress adoption of initiatives are influential and should equally be recognised. There is evidence in the literature of the integral role of ‘local champions’ (specifically clinicians) in implementing innovations (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Urquhart, Porter, Sargeant, Jackson, & Grunfeld, 2014), here we show that role is as important in implementing strategy at the meso- and macro-level. This is where it is also important to highlight the connection of collaboration and governance. Lack of governance structures put in early to support the regionalised structure of collaboration between DHBs had strong implications on strategic implementation. Garland (2009) states that governance can be haphazard with few established principles, with more focus paid to leaders as determinants of successful outcome rather than structures. This is not the finding here. Both are equally important and influential. Establishing clear organisational and accountability structures and quality leadership are both principles to implement strategy and reduce later challenges.
7.3 Summatng the theory

Glaser (1992) writes in *Basics of Grounded Theory Analysis* that, “Theory is too fluid and changeable in time and space. A substantive grounded theory continues on in generalising a process to resolve a problem because it is readily modifiable to continue its fit and work and relevance” (pg.117). It is focused on process analysis. The methodology lends itself to transferability from substantive theory of limited scope to a process of larger scope through the principle of parsimony, based on its ability to fit, work, and be relevant. In supporting the findings and consulting the literature, I have distilled the theory and its major components into the following key points employing the GEARed mnemonic (summarised in Table 7.1) – four dimensions of strategy implementation in eHealth:

- Government and leadership
- Engagement of stakeholders
- Aligning the plan in context,
- Regionalisation to sustain implementation
Table 7.1 Summary of GEARed dimensions of strategy implementation in eHealth.

<table>
<thead>
<tr>
<th><strong>Dimensions of eHealth Strategy Implementation</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Government and leadership</strong></td>
</tr>
<tr>
<td>Recognises that national government involvement is essential to implementation to create cohesive policy, institute governance structures, and provide accountability. Leadership is an essential component of the government’s role and providing a body or organisation to lead and guide implementation is essential for follow-through in the sector. The leadership at the national level by those who develop/formulate policy inspires strong leadership and involvement by those adopting and leading implementation of initiatives at the local/organisational level.</td>
</tr>
<tr>
<td><strong>Engagement of stakeholders</strong></td>
</tr>
<tr>
<td>Recognises that policy development/formulation and implementation are dynamic and eHealth is impacted by perspectives from a range of stakeholders. The use of geared tactics to garner input and feedback is important throughout the process. As important is the use of targeted strategic tools to coherently convey objectives. Both crucial when considering collaboration with stakeholders.</td>
</tr>
<tr>
<td><strong>Aligning the plan in context</strong></td>
</tr>
<tr>
<td>Refers to the contextual factors in the environment that can affect implementation. It is important to: Understand the historical factors that have established the current environment; Examine the landscape (standards, IT readiness, etc.) to enable an implementation of integrated initiatives; Align the eHealth strategy with the goals of the overall health sector to ensure those initiatives enable efficient health care delivery.</td>
</tr>
<tr>
<td><strong>Regionalisation to sustain implementation</strong></td>
</tr>
<tr>
<td>Refers to the importance of coordination of those responsible for implementing the eHealth strategy, specifically at the local and organisational level. Not a simple mechanism but if governance and accountability structures are established then short- and long-term benefits to implementing strategic goals can be sustained, and resource and funding efficiently utilised.</td>
</tr>
</tbody>
</table>

Figure 7.3 is a figurative cohesion of each dimension. Each component interlocks and influences the other – this figure complements the idea of interrelatedness of the dimensions, their underlying concepts, and bridges the GEARed mnemonic. Figure 7.3 shows that the four dimensions fit together like pieces in a large gear. Along the borders, the pieces have boundaries signifying unique characteristics, while at the centre, the issues mix as overlap occurs. Each dimension is described briefly and interrelated in the following sub-sections.
Government and leadership

National government and leadership are important during policy formulation and throughout the implementation process. A national body or organisation responsible for eHealth strategy or policy development and implementation is necessary. They provide vision and accountability throughout the process. They also need to set parameters for follow-through of implementation goals and provide support and repercussions to ensure progress. As a result, they need to also establish governance and accountability structures to ensure proper management and roles and responsibilities are delineated by those at national, local, and organisational levels. Leadership is equally important. Simplified (not simple) and straightforward communication is key. Clear goals in the eHealth strategy support national government leadership in conveying a clear message. This clear message can then be reiterated by leadership at various local and organisational levels to drive engagement and support strategy/policy implementation.
7.3.2 Engagement of stakeholders

The degree to which leaders engage stakeholders is important as they are the ones who will be affected by the eHealth strategy/policy implementation. The national government’s actions cannot be stand-alone, but require engagement throughout the policy formulation and implementation process. Participation by stakeholders is challenging. Two mechanisms are essential: feedback/input and strategic tools. Feedback through input into eHealth strategy/policy development is a productive exercise. Utilising various methods – town hall meetings, online discussions, and professional interest group discussions – requires partnership. Utilising these methods early on to build partnership promotes buy-in and drives ownership by stakeholders, especially clinicians and consumers. As a result, ownership gives stakeholders a greater commitment to agreement of goals, commitment to outcomes, and support for implementation. These methods can be utilised throughout to gain feedback on facilitating or hindering issues to the implementation process.

Strategic tools can further engage stakeholders, conveying a simplified message and targeting interests. With each phase or stage of policy implementation, additional stakeholders will be affected by the changes and need to see their place in the process. Diagrammatical representations or figures are the best way to present this clear message to an audience. The figure(s) carry meaning of the strategy/policy and become memorable talking points that mobilise stakeholders. They are useful as a tool but like any good strategy they need to grow and evolve as eHealth strategy implementation and adoption progresses. The language has to change and the presentation has to shift so that it better suits that audience’s understanding. These figures should achieve the following to aid in strategic implementation:

- recognise who the audience is,
- be a simple diagram with key points of information,
- ensure that the stakeholders are represented in it, and
- portray where you are at the time of implementation and what you aim to achieve in the end.
7.3.3 **Aligning the plan in context**

The contextual factors are the wider environment of which an eHealth strategy, or plan, is a component. The historical, social, and political factors influence the current landscape and can provide support or constrain eHealth strategy implementation. As a result, understanding the context and these factors is essential. The formulation and implementation of eHealth strategy should consider any existing current and previous health strategy and eHealth strategy in that nation and/or locality. It is important to examine and assess IT readiness at local and national level to align the strategy with progress already made and establish a minimal foundation of IT readiness where it is lacking. Incrementally implementing the eHealth strategy supports the alignment of the strategy with these factors. EHealth strategy formulation and implementation is a matter of transitioning and transforming, not just changing. This occurs in three phases – referred to as the three e’s: end, ebb, evolve. End to start anew by matching the culture while progressively shifting hampering attitudes and practices of stakeholders and decision makers. Then comes a period of subsiding as these old behaviours ebb but new strategy and initiatives have been created but not adopted yet. Finally, a forward evolution occurs with appropriate leadership, structures, and management that support strategy implementation and adoption of initiatives.

7.3.4 **Regionalisation to sustain implementation**

Coordination and collaboration to implement strategy regionally – being between DHBs, states, organisations, and so on – is important and requires planning. A strategy/policy guides implementation, action plans drive change. The degree of change and IT readiness can vary greatly at local level. Collaborating to create regional action plans allows those at local level to coordinate workforce and financial resources to implement strategy/policy best for their region. Early delineation of governance and accountability structures is necessary for coordination between organisations in the regions for implementation to further thrive. Governance has multiple dimensions: people, roles, and structures. Accountability, oversight, alignment between eHealth strategy and business strategy all are necessary qualities. Good governance is the link that aligns the strategy and direction to outcomes. Coordinating all of these efforts
supports the progression of eHealth strategy, sustaining strategy/policy implementation and uptake of IT initiatives and efficient resource allocation in the long term.

7.4 Theory Transference
Following Glaser’s principles of grounded theory, a substantive theory emerges from the data (Glaser, 1978). Therefore, the substantive theory is not tied to “time, place, [or] people” (Glaser, 2004, para. 42) and has conceptual generality rather than unit generality (Glaser, 1998). It is justified then to apply dimensions of the theory not to verify or test the concepts (as that contradicts the purpose of grounded theory) but to conceptually generalise or transfer the substantive theory into other contexts within the field of eHealth strategy implementation. To do so, I briefly examine the United States context and the country’s implementation of a national eHealth policy.

Between late 2008 and early 2009, research published in the New England Journal of Medicine indicated that only 17% of US physicians (DesRoches et al., 2008) and between eight and 12% of US hospitals (depending on the definition) have EHR systems (Jha et al., 2009). The Obama Administration realised the potential of EHRs and importance of eHealth policy in increasing the degree of computerization in healthcare. On February 17, 2009, the American Recovery and Reinvestment Act of 2009 (ARRA) was signed into law. A portion of the bill allocated US$19.2 billion to the Health Information Technology for Economic and Clinical Health Act (HITECH) intended to increase the use of EHRs and establish a nationwide health IT infrastructure (HITECH Act, 2009). This was the first federally mandated bill in United States history promoting and allocating funding for eHealth initiatives through ‘meaningful use’ of EHRs. In 2004, the Office of the National Coordinator for Health Information Technology (ONC) was created by Executive Order under President George W. Bush and was legislatively mandated by the ARRA to oversee implementation of the HITECH Act (ONC, 2014).

Establishing the United States context is important in extending the transference of the GEARed emergent theory. Government and leadership was recognized as essential as minimal and disparate uptake of eHealth initiatives was persistent in the United States.
The ONC provides accountability and structure as each stage of ‘meaningful use’ is met. The HITECH Act mandated that oversight. The HITECH Act presents the awareness at the federal level of social and historical factors that promoted the need for this legislation (aligning the plan in context). Studies published since passage of the HITECH Act indicate steady increases of EHRs among clinicians (Furukama et al., 2014; Audet, Squires & Dotty, 2014). However, there is a growing amount of literature with ongoing implementation efforts demonstrating stakeholder pushback. Recent studies indicate a substantial portion of physicians unsure or not planning to participate in initiatives established by HITECH, despite the penalties in doing so (Hsiao & Hing, 2014). Essential yet lacking in the ONC strategy is targeted tools to convey objectives of HITECH, re-engage stakeholders, and gain stakeholder buy-in through the incremental stages of implementation. It is especially important to target those opting not to uptake initiatives in order to allay concerns, provide support, and implement possible broader changes to achieve the goals of the HITECH Act.

Federal-state healthcare coordination is also lacking but necessary to continue to drive transformational change. Governors, state legislators, and other state leaders are highlighted for their important role in facilitating adoption. A Federal-state collaborative for privacy and security has been established. The State Alliance for e-Health was created and is supported by the federal government to advance state-level eHealth decisions (ONC, 2013). However, state and national collaborative efforts are waning and there is a concerning lack of focus on regional and national sustainability over the long-term. An absent point worrisome when a large (yet limited) body of funding is allocated for a globally contentious healthcare spending issue.

7.5 Conclusion
The interrelationships between the four categories were further discussed in this chapter. Emphasis is placed on the fact that the categories influence implementation of the National Health IT Plan and have a strong influence on one another. Therefore, the cohesion and awareness of the intricacies of these elements has an impact on decision making and adoption of eHealth initiatives.
The key concepts from the substantive theory were then extended through the literature. The analysis demonstrated connection with some literature and added to knowledge through the concepts derived from the findings. I then presented a cohesive, abstracted summation of the theory – the four dimensions of strategy implementation in eHealth: government and leadership, engagement of stakeholders, aligning the plan in context, and regionalisation to sustain implementation. Lastly, I briefly presented an instance of theory transference using the US context. The theory presented here will allow me to connect it to the theoretical and practical implications of my thesis to be discussed in the following final chapter.
CHAPTER

| 8 |

Conclusion
8 Conclusion

“We shall not cease exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.”
Excerpt from Little Gidding V
T. S. Eliot

8.1 Introduction

In this final chapter, I make concluding remarks about this research study. The study investigated the major issues impacting the implementation of the National Health IT Plan in New Zealand and how those issues affected adoption of programme initiatives. This chapter draws on and makes final conclusions from the findings that emerged through the methodological processes. First, I reflect on the research questions, summarising the findings pertaining to each question. I remark on my reciprocal contribution to the discourse and the theoretical, practical, educational, and future research implications of this research study. Then, I briefly outline some limitations of the study that became apparent during the research process. I then explain and evaluate the application of the seven principles of conducting interpretive field research. The principles were explained in the Methodology chapter and are summarily reflected upon here. Lastly, I record some final thoughts on this research study.

8.2 Reflecting on the research questions

This study originated from interest in a comparative policy analysis of eHealth strategies in select countries. Building on a foundational understanding from the literature and the emergence of strategic issues around IT implementation in the New Zealand healthcare sector, the research questions were narrowed and a focused stance was taken on the emerging gap in research in this country. The research study findings were presented, analysed, and discussed in two chapters – first, in Chapter 4 in respect to the findings from the HIVE to investigate the research question: How do stakeholders
perceive the National Health IT Plan prior to its implementation?; and then in Chapter 6 from in-depth interviews with 30 participants to investigate two research questions: What are the major issues impacting implementation of the National Health IT Plan? How are these issues impacting uptake of eHealth initiatives?

The PhD thesis started a year after the publication of the Plan. First, as one of the leading principles of conducting interpretive field research emphasises, it is important to critically reflect on and understand historical contexts of the research setting (Klein & Myers, 1999). This is important to understand how the current setting or environment emerged. I used the literature initially to understand the history of healthcare reforms and iterations of eHealth strategies in New Zealand (for example, Upton, 1991; Coalition Government, 1996; King, 2001; Ashton et al., 2005; Gauld, 2009). Prior to and during the implementation of the Plan, there were extensive workshops/town hall meetings and discursive participation mechanisms utilised by the Board. Since the literature indicates that lack of stakeholder participation can result in poorly developed strategies and result in implementation issues (Floyd & Wooldridge, 2000; Mintzberg, 1994), I explored what mechanisms the Board used.

One publicly accessible forum available for analysis was the HIVE, used by the Board to gather feedback about the draft Plan. This forum was used to examine and investigate the research question: How do stakeholders perceive the National Health IT Plan prior to its implementation? As a forum for discursive participation, the HIVE met the five characteristics Carpini et al. (2004) identify:

1. It focused on discourse with other citizens.
2. Discussion or talk between citizens is a form of participation.
3. It is not limited to formal institutions and informal exchanges.
4. It occurs through a variety of media including internet forums, as in this case.
5. Is focused on a local and national issue.

The use of an online forum by a government for online consultation was novel in 2010, more so in New Zealand. What resulted was more feedback or talk rather than debate between contributors to the forum. Nonetheless, what emerged were perceptions of deficiencies and distinctions of the draft Plan under four categories:
- Planned Implementation
- Stakeholder Buy-In
- Role of IT
- Aim at Completion.

All of which the Board used as part of its considerations in reviewing the draft Plan prior to releasing and implementing the first iteration of the final Plan. The identified deficiencies and distinctions answered well the stakeholder perceptions prior to implementation. There were concerns and praise for how the implementation was to be undertaken, the need for greater stakeholder contribution, need for clearer understanding of IT use, and clarification of the overall aim of the eHealth strategy. The repetition of these concepts by multiple contributors emphasises all assertions are valid, promoted by a deliberative democratic process.

In answering the first question, it was valid to use those findings to examine the second two linked research questions: *What are the major issues impacting implementation of the National Health IT Plan? How are these issues impacting uptake of eHealth initiatives?* What emerged from this data collection and analysis process forms the major component of the substantive theory. Presented in detail in the previous two chapters, four categories (bridged together in forming the GEARed mnemonic) influenced the implementation of eHealth strategy in New Zealand emerged:

- Government and Leadership
- Engagement of Stakeholders
- Aligning the Plan in Context
- Regionalisation to Sustain Implementation.

The onus is on leaders to engage stakeholders, using targeted tools, to gain feedback and buy-in. Communicating and engaging with stakeholders and understanding the contextual factors can also aid in alignment of the healthcare sector. Aligning the eHealth strategy with the environment is a step in incrementally changing and progressively transforming the sector. Collaboration is an influential component of the process. When supportive organisational (i.e. governance) structures are in place to
enable collaboration then decision making is simplified and forward movement is evident in regard to initiative adoption. Furthermore, reduction of IT system duplication and better resource management can result, ensuring long-term sustainability. These four influential, interrelated concepts derived from the data influenced (both facilitated and hindered) implementation of the Plan, showing impact on adoption of eHealth initiatives.

8.3 Contribution and implications

Contribution to the dialogue in the sector is an important component of growing this research study and disseminating the findings. I actively participated in national and international conferences through oral and poster presentations. I presented in four professional conferences over the course of my PhD studies: HiNZ conferences in 2011 (Ragaban et al., 2011) and 2013 (Ragaban et al., 2013a); the Health Informatics Conference in Australia in 2012 (Ragaban, Day, & Orr, 2012); and the Health Services and Policy Research Conference in 2013 (Ragaban et al., 2013b). I wrote four substantial papers (3,000-6,000 word count) accepted for oral presentation and two abstracts accepted for both oral and poster presentations. All papers are part of the conference proceedings, one of which (Ragaban, Day, & Orr, 2012) was published. Through the course of these conferences, the papers I submitted were peer-reviewed, generating constructive feedback that helped strengthen the contribution of this research. By participating in the conferences I had the opportunity during the research process to present to stakeholders (some of which were participants who commented on the reported findings), and gain feedback and hear about avenues of application of my findings, which I found to be a mutually effective exercise.

8.3.1 Implications for theory

Reiterated throughout this thesis, the grounded theory methodology differs from other qualitative research methods. The approach is toward theory development rather than hypothesis testing, a discovery of theory from data not merely to collect or order a mass of data, “but organizing many ideas which have emerged from the analysis of the data” (Strauss, 1987, p.22). This is a general methodology “that uses a systematically applied set of methods to generate an inductive theory about a substantive area” (Glaser, 1992,
This thesis extended the use of the methodology by uniquely combining convergent interviews in investigating an eHealth strategy implementation. The use of the convergent interview technique added to and helped progress the grounded theory process of data collection from the first set of interviews with the reference group to the selective interviews as saturation of data was reached in conjunction with the process of theoretical sampling.

In the interpretivist tradition, the primary goal is to develop a theory to understand the “complex world of lived experience from the point of view of those who live it. This goal is variously spoken of as an abiding concern for the life world, for the emic point of view, for understanding meaning, [and] for grasping the actor’s definition of a situation…” (Schwandt, 1994, p.118). This is what I set out to do in the substantive theory presented and in the summated, abstracted theory. This theory adds to the body of knowledge by presenting factors that influence eHealth strategy implementation derived through theoretical underpinnings. The factors GEARed toward implementation encompass four dimensions for consideration when developing eHealth strategy: Government and leadership, Engagement of stakeholders, Alignment of the plan in context, and Regionalisation to sustain implementation. Appraised separately, implementation can occur, but if the dimensions are reflected on together then transformative change will be brought about.

Finally, we revisit Gregor’s (2006) outline of the four structural components common to all theories, presented in the Methodology chapter – means of representation, constructs, statements of relationship, and scope. All components were instantiated in the emergent theory and represented in the GEARed diagram. The constructs were identified, defined, and grounded in the data. The constructs were interrelated and the scope defining the limits of generalisations based on the findings was presented.

### 8.3.2 Implications for policy and practice

Below are important implications to be considered, understanding that adoption of eHealth initiatives to ensure their long-term sustainability is the goal. National funding for healthcare, and specifically funding allocated for IT investment, is limited. To utilise the funding wisely and ensure long-term, sustainable utilisation of IT in
healthcare, forethought needs to go into the policy/strategy planning, not just which IT systems to procure:

- The findings suggest that leadership is an important influential factor in eHealth policy implementation. A central organisation is highlighted as a significant body required to provide necessary strategic direction and oversight. This organisation utilises their expertise and various resources to examine the historical and structural context that exists. These policymakers can utilise GEAR alongside their understanding to develop a guiding framework for IT implementation. There can be tensions that exist between organisations at the local and regional level with this body. However, as the GEAR dimensions indicate, as long as roles and responsibilities are defined, then power tensions are less likely to occur. Those at local level must have autonomy and input, it is not a matter of a top-down policy implementation or excessive bureaucratic influence, rather a collaborative effort.

- Policymakers must realise that policy or strategy formulation can no longer exist without stakeholder participation, as evidenced by participant perceptions. The findings suggest that clinicians and consumers generally feel (and are) left out of the various processes. Stakeholder engagement is an ongoing process and integral to the GEAR dimensions as it shows that this needs to occur throughout the formulation, implementation, and adoption process. Input and feedback from these stakeholder groups can add value to the content of the policy/strategy documents, gain buy-in and ownership from these parties, and promote implementation and adoption of initiatives.

- Policymakers and decision makers at national, local, and organisational level should be able to translate and transmit policy/strategy information targeting stakeholders. The best method to do so needs to be examined in context. An important component of the GEAR dimensions is conveying a core strategic vision through good design and thoughtful, simplified figures. Using diagrammatical representations or strategic tools aimed at relaying the intended vision to a particular audience is an important marketing tactic, and an important
consideration when communicating to the public the importance of eHealth, the need for investment in IT, and the long-term direct benefit to stakeholders.

8.3.3 Implications for education
The research study has shown that the process of eHealth strategy development and implementation is changing. In many ways, national level leadership is integrating a variety of stakeholder input and viewpoints into the strategy process. Students aspiring to work in the space of strategy development and implementation can utilise the dimensions outlined in the theory presented. The theory has outlined a combination of skills that can have utility in education programmes for health informatics, business, and health management which can also be extended into leadership programmes for different professions. HiNZ has ongoing working groups focused on building workforce capability and education (mentioned previously), this theory and its implications can be included in the HiNZ programme to continue the transformative changes brought about by the Plan and build further dialogue with stakeholders. Lastly, clinicians are still finding their leadership role in eHealth strategy development. With the potential for transformative change brought about by eHealth strategy implementation, clinician opinion leaders that are informed in the area of IS are rare but necessary (Glasgow & Day, 2010). Incorporation of this theory into educational pathways in undergraduate medical, nursing, and allied healthcare programmes can bring to their attention the role of eHealth and the advantages of early engagement in strategy while equipping these future clinicians with necessary sought after skills.

8.3.4 Implications for future research
This research study took a higher level approach by looking at implementation for the nation as a whole. Stakeholders at all levels would be ideal to be included in research on policy development yet it can be difficult to include individuals at the regional and local levels due to limitations on scope and time of this research study. Yet, the substantive theory opens up an opportunity to examine the role of leadership further at the macro (national) versus micro (local/DHB) level regarding eHealth strategy implementation. I think there is also a great potential to examine the substantive theory further and potentially extend it to the regional and local level in New Zealand. In
general, it can have application with new developments in eHealth (patient portals, for example) where policy is lacking and guidance is sought. A specific practical application can be considered in Christchurch in the South Island Region which was impacted greatly by the 2011 earthquake. The devastation that resulted with the loss of life and the breakdown in infrastructure (loss of power, water, and so on) prompted a call to action. A lot of work has taken place in the region, some facilitating, some hindering, which could use further exploration in regard to impact on eHealth implementation during a natural disaster (or vice versa).

8.4 Limitations

Limitations exist in any study, and this study is not unique in that respect. The focus in this thesis is squarely on the Plan and its implementation in New Zealand. Therefore, the scope is limited to a small country – population of roughly 4.6 million (Statistics New Zealand, 2015) – where implementation issues may be easier to handle. This may be considered a limitation; however, little research exists in examining eHealth strategy implementation in New Zealand and in similar small OECD countries. Furthermore, limiting it to a small country allows for contextual understanding, which Klein & Myers (1999) indicate is an important consideration for conducting interpretive research. Investigating these issues in New Zealand opens up the opportunity for further research. Specifically, in conducting this study, I did not set out to generalise the findings. Instead, true to the dictum of the grounded theory approach, the research was undertaken to generate a theory with the potential for transferability. Again, reinforcing that context is important, GEARed dimensions can be extracted and applied in other nations, with consideration.

I believe there are three important limitations of note with regard to data collection. In the first phase of data collection and analysis, the data came from the HIVE. I had no part in creating the online forum and had no control over contributors’ feedback. However, I do believe that having Graeme Osborne and the Board members leading the forum, and having that rapport with stakeholders, garnered more feedback and with a wider range of people than something I could have set up as a student.
Another limitation is the fact that during the interview phase, no Technical Providers participated. The input of this stakeholder group was not recognized until later phases of implementation with regionalisation efforts prompting consolidation and uptake of eHealth initiatives. A couple of individuals were contacted but indicated their perceptions may not be relevant. However, Executives at the Supplier level (individuals who hold an executive level position within a private company that supplies IT or advisory capabilities to the healthcare sector) were interviewed. These were executives of leading technology vendors and provided insight to the impact of implementation on their organisations and the Technical Providers themselves.

A third data collection limitation is that a large proportion of participants who were interviewed were from the North Island while only a few were interviewed from the South Island. I do think the South Island, especially Canterbury, has the potential for future research as mentioned above. Contributors from the North and South Island were contacted equally as the snowball technique of Figure 5.7 illustrates. However, those from the South Island were less likely to respond and I was not able to establish reasons for this lack of response. I will note that many of the participants interviewed from the North Island had previous work experience in the South Island (some of which contributed to local efforts after the 2011 Christchurch earthquake) and as a result were able to lend a wider perspective as to their experience there.

8.5 Evaluation of the interpretive research

As the use of interpretive research continues to make important contributions to IS research (Walsham, 1995b), researchers conducting interpretive field research need to assess the quality of their work. In the Methodology chapter, Klein and Myers’ (1999) seven principles for conducting and evaluating interpretive field research in IS were presented. Based on the underlying philosophy of hermeneutics, the interdependent principles are a useful tool in evaluating this study as a whole and identifying possible limitations of the methodology. In the following sub-sections I briefly outline the application of these principles in respect to this study.
8.5.1 The Fundamental Principle of the Hermeneutic Circle

Understanding a complex whole from the meaning of its parts and their interrelationships is the idea behind the fundamental principle – an idea integral to both this research as a whole and the substantive theory that emerged. In order to understand the whole, the parts had to be explored. In this case, the parts emerged and the whole is framed around their interrelationships (forming both the categories and the relationships between them). Grounded theory methods and convergent interviewing techniques facilitated iterating between the interdependent meaning of the parts – the participants, their history with eHealth strategy, their perceptions informed by their backgrounds – and the whole they form.

8.5.2 The Principle of Contextualisation

Differences in understanding exist between me as the researcher, the participants, and the environment we exist in – all producers, not just products of history. Critical reflection of both the social and historical background in understanding how the current situation under investigation emerged and evolved was a critical task. IT is fast-moving, yet implementation is not necessarily always so. The interviews were conducted and framed within a set period to examine that implementation. There is a rich history of eHealth strategy development and healthcare reform in New Zealand that has impacted the decisions made. It was an important historical context to understand as it impacted implementation and adoption of eHealth initiatives. It was a history lesson for me as a non-New Zealander both in exploring the literature and in gaining knowledge from the interviewees. As a result it was necessary and important to frame each chapter, especially the findings chapter, in context and move chronologically through time. This process allowed understanding for me and the reader in the exploratory framing of each chapter and contributed in adding to the constant comparison and data analysis processes.

8.5.3 The Principle of Interaction between the Researchers and the Subjects

That the participants are interpreters and analysts as much as I am was true to this principle and was demonstrated during the interviews. Participants integrated their knowledge, experience, their own preconceptions and feelings, and critical thinking
with each interview. Some participants verbalised their thought process and indicated analytical thinking, reflecting and interpreting ideas they did not consider until our discussion – allowing the ideas that were emerging to not only inform my research but also their own thinking. It is for these reasons they are in their professional positions and why these individuals were chosen or recommended by their peers – why they are considered experts. Their perceptions and knowledge come from a rich experience which helped inform this research study. Their critical and analytical thinking is crucial to ensuring that the data I was collecting reflects what was occurring. Furthermore, their knowledge laid down precautionary and experiential knowledge that aided the emergence of the substantive theory and allowed me to reflect on my own understanding.

8.5.4 The Principle of Abstraction and Generalisation
The inductive thinking process of the grounded theory methodology is conducive to this principle. The inferences drawn are not dependent on their representativeness but on their plausibility and cogency in describing the results and drawing conclusions from them. Furthermore, the theoretical abstractions and generalisations should be related carefully to the field. Although the data gathered is unique to New Zealand around eHealth strategy implementation, the findings are not free from some level of generalisability. The literature was engaged to additionally refine, extend, and connect empirical findings to existing concepts and identify gaps to which the substantive theory could add further to the body of knowledge. As evidenced, successively in each chapter, the process was followed and outlined from development of concepts, to generation of substantive theory, to the drawing of implications, and to the overall contribution to the body of knowledge.

8.5.5 The Principle of Dialogical Reasoning
The grounded theory process aligns well with this principle and helped support constant comparative analysis and revision of data and literature. The theoretical underpinnings, specifically interpretivism were identified early on during the research process. Even though as the researcher I was aware of these theoretical preconceptions, I did not let them cloud the research findings, allowing the data instead to speak for itself, and the
theory to be grounded in the data – the main tenet of ground theory. In choosing this methodology and associated processes, the philosophical roots, the tenets, and strengths and weaknesses were discussed. Integral to this principle is that some preconceptions may have to be modified or abandoned. Our prejudices exist. It is not simply to just put them aside but rather be aware of their impact. I did my best to uphold these, being aware and not letting my biases cloud the data or conform it in any way to my preconceptions. The convergent nature of the interviews also aided in this process as my meaning, or the value I assigned it, would be revised and instead grounded in the perceptions of the participants with each supporting/conceding step of data analysis.

8.5.6 The Principle of Multiple Interpretations

The findings from this research would not exist were it not for the multiple viewpoints and perceptions shared by the participants to inform this research. Thirty individuals gave their time (from 30 to 90 minutes) to contribute their experience, their insight, and their criticisms. This experience was entered into openly with a quest to seek the role of strategy and eHealth and the impact on implementation. The iterative process of convergent interviews and constant comparison helped identify agreements and disagreements that shed light on multiple interpretations of the same events. What emerged were experiences – some similar, some contradictory – all from people with different backgrounds in a shared field. The congruent similarities support what feels like the ‘right’ analytical path. The contradictions drove a fear that I had gone in the ‘wrong direction’. However, I quickly realised, true to the process, that the contradictions are equally informative. They are another interpretation not to be dismissed, adding another layer to the data analysis.

8.5.7 The Principle of Suspicion

The principle of suspicion was influential in guiding my research design and data analysis. First, I did not want to rely on the literature and instead used the HIVE discussion to inform the interview schedule for the second phase of data collection. Both during and after the interviews, constant comparison and its integration with the convergent interview technique ensured I undertook critical analysis of the data. This probing is strengthened by the principle of suspicion as I delved deeper into the
agreements and disagreements within and between the interviews. This methodological process was followed to guide in uncovering the truths within the data, allowing the theory to emerge.

The principle of suspicion is important in another way, specifically in the political impact narrative. There are possible professional and national implications of eHealth strategy implementation, more so with recent international examples large national health IT implementation failures. I have to admit that at first I was naïve to the ramifications of these discussions and assumed only that promising anonymity to participants would ensure openness. However, my regard for this principle was acknowledged early on when I could sense some narrative with certain participants had to be delicately discussed. A few took time to alter their approach, their language. I could sense caution on occasion, some semblance of censorship, a calculated manner. However, I can understand some participants’ hesitance. I do believe every participant was forthright and as I built rapport those who were guarded became more open in their discussion. Furthermore, where I felt there was hesitance, I utilised it where necessary in discussions with other participants to probe, to see if that is where the data indicated it was important to go. Largely, however, all participants were open, relaying the real issues and being direct with their viewpoints.

8.6 Concluding Remarks
The purpose of this study was to establish a substantive theory to provide insight into the implementation of a national eHealth strategy in New Zealand. Over the course of four-and-a-half years I was able to investigate perceptions regarding eHealth strategy prior to and during the implementation of the Plan. In my introduction I posed the multi-part question: Why have we not seen more successful IT implementation in healthcare, and what role does policy play? There I was quick to point out that it is not an issue of success as often questions of value (based on the ‘failures’) are more focused on expenditure than benefits of the system. Now I find myself reflecting further on the intricacies of eHealth strategy implementation. Information technology is but a component, although essential, in delivering care. The question of value should be more on sustainability – of the health system, of the organisations within it, of
resources, and of health IT systems, all together. Implementation of eHealth strategy should be deliberately leveraged to extend long-term sustainability goals. Development and implementation of these strategies needs to consider strong political and organisational leadership and national commitment, stakeholder engagement and cooperation, and contextual understanding as a way forward toward conceptualising sustainable implementation and gaining value.

The process of conducting this research study was personally rewarding. I aim to contribute knowledge from this thesis to the literature by generating journal publications in the near future. I believe there is opportunity to carry on aspects of this study through further research and application of the GEAR dimensions and utilisation of the grounded theory methodology, with hopes that I or someone else can continue the journey of exploration.
APPENDIX 1: NOTIFICATION OF ETHICS APPLICATION APPROVAL

Office of the Vice-Chancellor
Research Integrity Unit

UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE

19-Jun-2012

MEMORANDUM TO:

Dr Karen Day
Epidemiology & Biostatistics

Re: Application for Ethics Approval (Our Ref. 8251)

The Committee considered your application for ethics approval for your project entitled Examining the role of the New Zealand National Health Information Technology plan in the development and implementation of eHealth initiatives.

Ethics approval was given for a period of three years.

The expiry date for this approval is 19-Jun-2015.

If the project changes significantly, you are required to submit a new application to UAHPEC for further consideration.

In order that an up-to-date record can be maintained, you are requested to notify UAHPEC once your project is completed.

The Chair and the members of UAHPEC would be happy to discuss general matters relating to ethics approvals if you wish to do so. Contact should be made through the UAHPEC Ethics Administrators at humanethics@auckland.ac.nz in the first instance.

All communication with the UAHPEC regarding this application should include this reference number: 8251.

(This is a computer generated letter. No signature required.)

UAHPEC Administrators
University of Auckland Human Participants Ethics Committee

c.c. Head of Department / School, Epidemiology & Biostatistics
Assoc Prof Robert Scragg
Miss Nouran Ragaban
Dr Martin Orr
Dr Denise Greenwood

Additional information:
1. Do not forget to fill in the ‘approval wording’ on the Participant Information Sheets and Consent Forms, giving the dates of approval and the reference number, before you send them out to your participants.

2. Should you need to make any changes to the project, write to the UAHPEC Administrators by email (humanethics@auckland.ac.nz) giving full details of the proposed changes including revised documentation.
3. At the end of three years, or if the project is completed before the expiry, please advise UAHPEC of its completion.

4. Should you require an extension, write to UAHPEC by email before the expiry date, giving full details along with revised documentation. An extension can be granted for up to three years, after which a new application must be submitted.

5. If you have obtained funding other than from UniServices, send a copy of this approval letter to the Manager - Funding Processes, UoA Research Office. For UniServices contracts, send a copy of the approval letter to the Contract Manager, UniServices.

6. Please note that UAHPEC may from time to time conduct audits of approved projects to ensure that the research has been carried out according to the approval that was given.
**APPENDIX 2: CODING PROCESS FOR HIVE FINDINGS**

<table>
<thead>
<tr>
<th>Category</th>
<th>Selective Code</th>
<th>Open Code</th>
<th>Some Selected Excerpts</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLANNED IMPLEMENTATION</td>
<td>Ambitious phases</td>
<td>Greater challenges of Phase 2, alignment to prevent fragmentation</td>
<td>Having two phases is a good idea. However looks second phase is more challenging; comprehensive, realistic and ambitious; We need to clearly articulate how the transformation will be delivered by the 28 projects noted in the plan, otherwise there is a danger of a fragmented health system</td>
</tr>
<tr>
<td></td>
<td>Incremental progression</td>
<td>Incremental tasks, monitor targets, structured vision, previous stagnant implementation</td>
<td>From the plan we have the phases set out, and in each phase some lists of what needs to be done; There are still things from WAVE that we need to implement. If we had actually done that over the past 10 years the stagnation you have mentioned elsewhere would not exist; Unlike the previous strategy I think this is a realistic target for New Zealand given the high level of Health IT literacy</td>
</tr>
<tr>
<td>STAKEHOLDER BUY-IN</td>
<td>Need for clinician driven input</td>
<td>Clinician buy-in for success, clinician ownership, clinical value</td>
<td>Clinician friendly is good – but the reality is that benefits and savings are more likely if it is clinician driven; Clinicians need to be front and centre here. If clinical information is not owned and governed by clinicians, then the data is likely to be a lot less useful and will be skewed…; The goal is to gain agreement by clinicians on the core primary healthcare information than in the first instance is required to be collected to support delivery of healthcare services; We want to define our information requirements in terms of clinical value; clinical engagement as critical factor. Yes this IS how you engage the clinicians - let them specify, design and govern ‘their’ health information; lasting solutions will come from clinician leadership</td>
</tr>
<tr>
<td></td>
<td>Patients’ role</td>
<td>Patient engagement, allaying patient/consumer concerns</td>
<td>It’s fine (necessary) to have a consumer forum and to have a clinical leadership group, but we need to huddle doctor, nurse, pharmacist and consumer together and work through mutually satisfactory modes of operation for the range of consumer situations; Consumers must have confidence that sensitive health information will be protected (and managed appropriately); Legislation that supports privacy in New Zealand is very effective in protecting the rights of the individual</td>
</tr>
<tr>
<td>ROLE OF IT</td>
<td>Technical emphasis on standards</td>
<td>Architecture approach needed, standardisation necessary</td>
<td>To be successful with the plan, we need to have an Architecture Group that reflects broad understanding of the business, information, software and technology models that are in use by healthcare organisations in New Zealand; There are a multitude of work items that need to be done with a view to underlying standards; My main concern is the Architectural approach and content in the National Health IT Plan; We have purposely not gone into a great deal of architecture planning as we wanted this document to have wide readership; However the current draft does not address the single most important critical issue and risk: the standard to be chosen as basis for an EHR-architecture…</td>
</tr>
<tr>
<td></td>
<td>As clinician support</td>
<td>Optimising clinician access, ease of use of health information system</td>
<td>As a clinician now working in IT, I have some concerns that there is insufficient stress on the fact that for better or worse, health services are here to provide healthcare to patients/clients/service users; Optimising the time it takes clinicians to access, add or update information is top of mind…</td>
</tr>
<tr>
<td>AIM AT COMPLETION</td>
<td>Population Health component</td>
<td>Wider scope of health information, population health unmentioned</td>
<td>If we get this right, then the data for national collections will be a natural by-product of the collection of clinical data during patient care; Further to some of the previous comments from primary care, there doesn’t seem to be much mention of population health at all in the document; The issue I have with the current Plan document is that it does not cover the wider uses of Health information to inform health policy and support population based programmes such as immunization and screening;</td>
</tr>
<tr>
<td></td>
<td>Highlighting patient control</td>
<td>Patient-held record, accessible to patient/consumer</td>
<td>Stressing of patient centred information. I’ve no problem with this, as you know I’m an early adopter of the only current New Zealand patient record; I can see great things with a patient held EHR</td>
</tr>
</tbody>
</table>
## Appendix 3: Code Distribution Among Hive Contributors

<table>
<thead>
<tr>
<th>Category Selective Code</th>
<th>Open Code</th>
<th>Contributor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned Implementation</td>
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<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21</td>
</tr>
<tr>
<td>Ambitious phases</td>
<td>Greater challenges of Phase 2</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Alignment to prevent fragmentation</td>
<td>•</td>
</tr>
<tr>
<td>Incremental progression</td>
<td>Incremental tasks</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Monitor targets</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Structured vision</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Previous stagnant implementation</td>
<td>•</td>
</tr>
<tr>
<td>Stakeholder Buy-in</td>
<td>Clinician buy-in for success</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Clinician ownership</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Clinical value</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Patient engagement</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Allaying patient/consumer concerns</td>
<td>•</td>
</tr>
<tr>
<td>Role of IT</td>
<td>Architecture approach needed</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Standardisation necessary</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Optimising clinician access</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Ease of use of health information system</td>
<td>•</td>
</tr>
<tr>
<td>Aim at completion</td>
<td>Wider scope of health information</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Population health unmentioned</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Patient-held record</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Accessible to patient/consumer</td>
<td>•</td>
</tr>
</tbody>
</table>
Enabling an integrated healthcare model

**Phase 1 (2 Years)**
- **Primary - Community**
  - GP2GP
  - E-Prescribing
- **Secondary - Tertiary**
  - Referral
  - Continuum of Care
  - Discharge
  - Medicines Reconciliation
  - National Specialty Systems

**Phase 2 (5 Years)**
- **Shared Care**
  - Patient Vitals
  - E-events
  - Care Plans
  - Decision Support

**Clinical Data Repository**

**APPENDIX 4: NATIONAL HEALTH IT PLAN TRIANGLE DIAGRAM**
### APPENDIX 5: CODING DISTRIBUTION FOR INTERVIEW PARTICIPANTS

<table>
<thead>
<tr>
<th>Selective Code</th>
<th>Open Code</th>
<th>Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complicated sector, simplified message</td>
<td>Healthcare system complexity</td>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30</td>
</tr>
<tr>
<td>Complexity of previous eHealth strategy</td>
<td>Complexity of previous eHealth strategy</td>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30</td>
</tr>
<tr>
<td>Plans simple message</td>
<td>Plans simple message</td>
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<td>Stagnation is major obstacle</td>
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APPENDIX 6: NATIONAL HEALTH IT PLAN TREE DIAGRAM
REFERENCES


South Canterbury District Health Board. (2008). *South Canterbury District Health Board information systems strategic plan*. Timaru, New Zealand: South Canterbury District Health Board.


“The best way to get a message across is through a video... and a triangle. Everything is a triangle.”

- GERAINT MARTIN (CEO OF COUNTIES MANUKAU DISTRICT HEALTH BOARD)
Said while in attendance at Institute for Healthcare Improvement’s APAC Forum
21 September 2012